Human Development Report **2019**

Beyond income, beyond averages, beyond today:
Inequalities in human development in the 21st century

The 2019 Human Development Report is the latest in the series of global Human Development Reports published by the United Nations Development Programme (UNDP) since 1990 as independent, analytically and empirically grounded discussions of major development issues, trends and policies.

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The cover conveys the inequalities in human development of a changing world. The dots in different colors represent the complex and multidimensional nature of these inequalities. The shadow of the climate crisis and sweeping technological change, evoked by the color of the cover background that suggests heat, will shape progress in human development in the 21st century.

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Inequalities in human development in the 21st century

Empowered lives.
Resilient nations.

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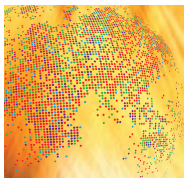

Foreword

The wave of demonstrations sweeping across countries is a clear sign that, for all our progress, something in our globalized society is not working.

Different triggers are bringing people onto the streets: the cost of a train ticket, the price of petrol, political demands for independence.

A connecting thread, though, is deep and rising frustration with inequalities.

Understanding how to address today's disquiet requires looking "*Beyond Income, Beyond Averages and Beyond Today,*" as this Human Development Report sets out to do.

Too often, inequality is framed around economics, fed and measured by the notion that making money is the most important thing in life.

But societies are creaking under the strain of this assumption, and while people may protest to keep pennies in their pockets, power is the protagonist of this story: the power of the few; the powerlessness of many; and collective power of the people to demand change.

Going beyond income will require tackling entrenched interests—the social and political norms embedded deep within a nation's or a group's history and culture.

Looking beyond today, the 2019 Human Development Report articulates the rise of a new generation of inequalities.

Just as the gap in basic living standards is narrowing, with an unprecedented number of people in the world escaping poverty, hunger and disease, the abilities people will need to compete in the immediate future have evolved.

A new gap has opened, such as in tertiary education and access to broadband—opportunities once considered luxuries that are now considered critical to compete and belong, particularly in a knowledge economy, where an increasing number of young people are educated, connected and stuck with no ladder of choices to move up.

At the same time, climate change, gender inequality and violent conflict continue to drive and entrench basic and new inequalities alike. As the Human Development Report sets out, failure to address these systemic challenges will further entrench inequalities and consolidate the power and political dominance of the few.

What we are seeing today is the crest of a wave of inequality. What happens next comes down to choice. Just as inequality begins at birth, defines the freedom and opportunities of children, adults and elders, and permeates those of the next generation, so, too, policies to prevent inequalities can follow the lifecycle.

From pre–labour market investments in the health and nutrition of young children to in– and post–labour market investments around access to capital, minimum wages and social services, politicians and policymakers have a battery of choices that, if correctly combined for the context of each country or group, will translate into a lifelong investment in equality and sustainability.

Making those choices starts with a commitment to tackling the complexity of human development—to pushing the boundaries to help countries and communities realize the Sustainable Development Goals.

This is the mission at the heart of the United Nations Development Programme, working together with the 170 countries and territories we serve.

Some 40 years ago the founding father of human development, Professor Amartya Sen, asked a deceptively simple question: equality of what? He answered with equal simplicity: of the things we care about to build the future we aspire to.

Professor Sen's words help us to take a fresh look; to go beyond growth and markets to understand why people take to the streets in protest, and what leaders can do about it.

I would like to thank all those who have taken this journey of exploration with us over the past 12 months, and I encourage you to read on.

Achim Steiner
Administrator
United Nations Development Programme

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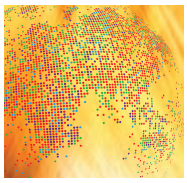

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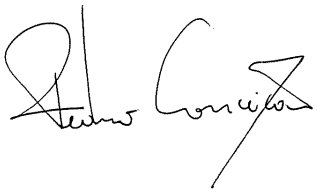
We are, to conclude, extremely grateful to the UNDP Administrator Achim Steiner for always challenging us to aim higher, while giving us the space to be bold. He called for a Report that would speak to the public, to policymakers and to experts—because that is the only way to advance the cause of human development. We hope we have lived up to those expectations.



Pedro Conceição
Director
Human Development Report Office

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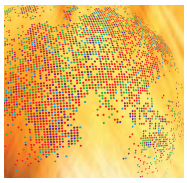


Overview
Inequalities in human development in the 21st century

In every country many people have little prospect for a better future. Lacking hope, purpose or dignity, they watch from society's sidelines as they see others pull ahead to ever greater prosperity. Worldwide many have escaped extreme poverty, but even more have neither the opportunities nor the resources to control their lives. Far too often gender, ethnicity or parents' wealth still determines a person's place in society.

Inequalities. The evidence is everywhere. So is the concern. People across the world, of all political persuasions, increasingly believe that income inequality in their country should be reduced (figure 1).

Inequalities in human development are more profound. Consider two children born in 2000, one in a very high human development country, the other in a low human development country (figure 2). Today the first has a more than 50-50 chance of being enrolled in higher education: More than half of 20-year-olds in very high human development countries are in higher education. In contrast, the second is much less likely to be alive. Some 17 percent of children born in low human development countries in 2000 will have died before age 20, compared with just 1 percent of children born in very high human development countries. The second child is also unlikely to be in higher education: In low human development countries only 3 percent are. Circumstances almost entirely beyond their control have already set them on different and unequal—and likely irreversible—paths.[1] The inequalities are likewise high within countries—both developing and developed. In some developed countries the gaps in life expectancy at age 40 between the top 1 percent of the income distribution and the bottom 1 percent have been estimated to be as high as 15 years for men and 10 years for women.[2]

Inequalities do not always reflect an unfair world. Some are probably inevitable, such as the inequalities from diffusing a new technology.[3] But when these unequal paths have little to do with rewarding effort, talent or entrepreneurial risk-taking, they may offend people's sense of fairness and can be an affront to human dignity.

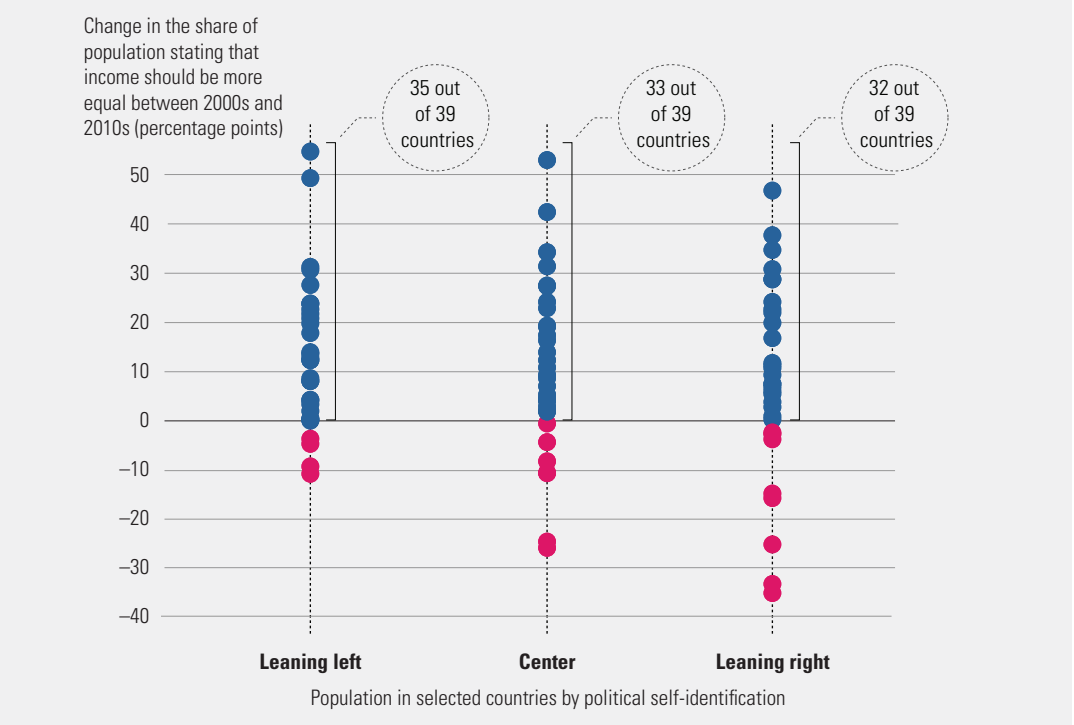
Such inequalities in human development hurt societies, weakening social cohesion and people's trust in government, institutions and each other. Most hurt economies, wastefully preventing people from reaching their full potential at work and in life. They often make it harder for political decisions to reflect the aspirations of the whole of society and to protect the planet, as the few pulling ahead flex their power to shape decisions primarily in their interests today. In the extreme, people can take to the streets.

These inequalities in human development are a roadblock to achieving the 2030 Agenda for Sustainable Development.[4] They are not just about disparities in income and wealth. They cannot be accounted for simply by using summary measures of inequality that focus on a single dimension.[5] And they will shape the prospects of people that may live to see the 22nd century. Exploring inequalities in human development thus has to go beyond income, beyond averages and beyond today, leading to five key messages (figure 3).

First, while many people are stepping above minimum floors of achievement in human development, widespread disparities remain. The first two decades of the 21st century have seen remarkable progress in reducing extreme deprivations, but gaps remain unacceptably wide for a range of capabilities—the freedoms for people to be and do desirable things such as go to school, get a job or have enough to eat. And progress is bypassing some of the most vulnerable even on the most extreme deprivations—so much

FIGURE 1

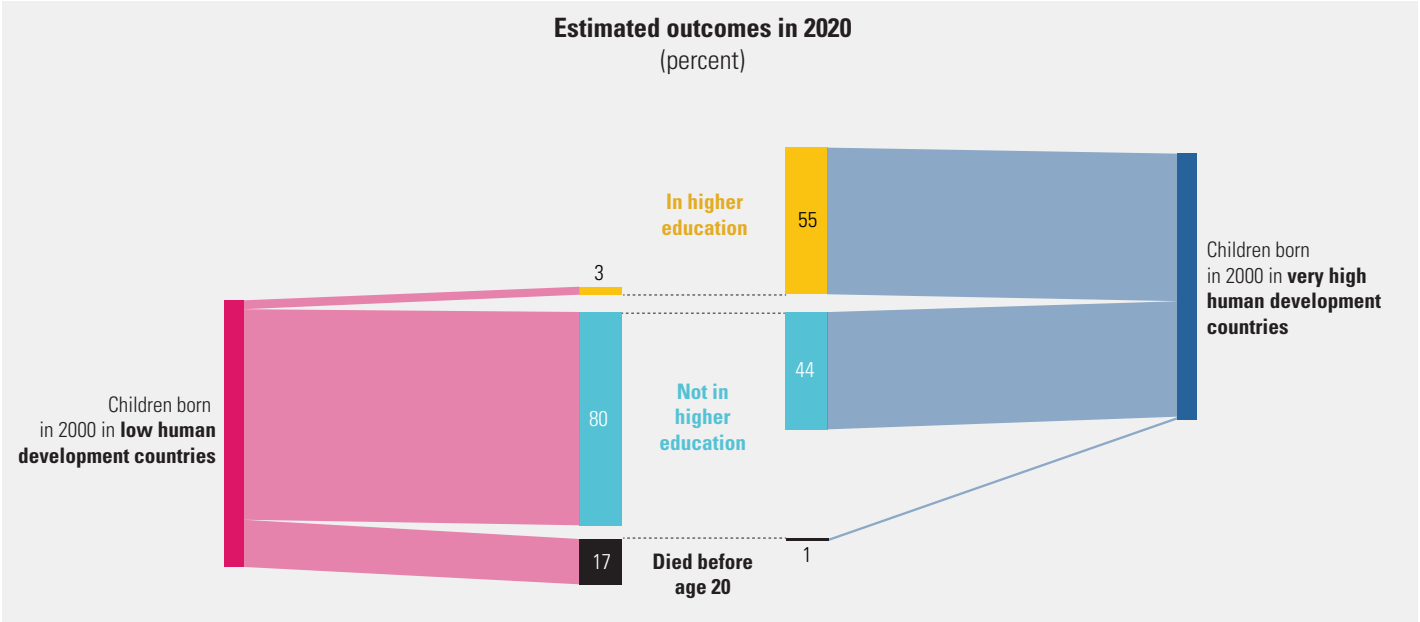
The share of the population stating that income should be more equal increased from the 2000s to the 2010s



Note: Each dot represents one of 39 countries with comparable data. The sample covers 48 percent of the global population. Based on answers on a 1–5 scale, where 1 is "income should be more equal" and 5 is "we need larger income differences."
Source: Human Development Report Office calculations based on data from the World Values Survey, waves 4, 5 and 6.

FIGURE 2

Children born in 2000 in countries with different incomes will have very unequal paths to 2020



Note: These are estimates (using median values) for a typical individual from a country with low human development and from a country with very high human development. Data for participation in higher education are based on household survey data for people ages 18–22, processed by the United Nations Educational, Scientific and Cultural Organization Institute for Statistics in www.education-inequalities.org (accessed 5 November 2019). Percentages are with respect to people born in 2000. People that died before age 20 are computed based on births around 2000 and estimated deaths for that cohort between 2000 and 2020. People in higher education in 2020 are computed based on people estimated to be alive (from cohort born around 2000), and the latest data of participation in higher education. People not in higher education are the complement.
Source: Human Development Report Office calculations based on data from the United Nations Department of Economic and Social Affairs and the United Nations Educational, Scientific and Cultural Organization Institute for Statistics.

FIGURE 3

Beyond income, beyond averages and beyond today: Exploring inequalities in human development leads to five key messages

Source: Human Development Report Office.

so that the world is not on track to eradicate them by 2030, as called for in the Sustainable Development Goals.

Second, a new generation of severe inequalities in human development is emerging, even if many of the unresolved inequalities of the 20th century are declining. Under the shadow of the climate crisis and sweeping technological change, inequalities in human development are taking new forms in the 21st century. Inequalities in capabilities are evolving in different ways. Inequalities in basic capabilities—linked to the most extreme deprivations—are shrinking. In some cases, quite dramatically, such as global inequalities in life expectancy at birth. Many people at the bottom are now reaching the initial stepping stones of human development. At the same time, inequalities are increasing in enhanced capabilities—which reflect aspects of life likely to become more important in the future, because they will be more empowering. People well empowered today appear set to get even farther ahead tomorrow.

Third, inequalities in human development can accumulate through life, frequently heightened by deep power imbalances. They are not so much a cause of unfairness as a consequence, driven by factors deeply embedded in societies, economies and political structures. Tackling inequalities in human development means addressing these factors: Genuine improvement will not come from trying to fix disparities only when people are already earning very different incomes—because inequalities start at birth, often even before, and can accumulate over people's lives. Or from looking back and simply trying to reinstate the policies and institutions that held inequalities in check, at times and in some countries, during the 20th century. It was under those very conditions that power imbalances deepened, in many cases accentuating the accumulation of advantage over the lifecycle.

Fourth, assessing inequalities in human development demands a revolution in metrics. Good policies start with good

measurement, and a new generation of inequalities requires a new generation of measurement. Clearer concepts tied to the challenges of current times, broader combinations of data sources, sharper analytical tools—all are needed. Ongoing innovative work suggests that income and wealth may be accumulating at the top in many countries much faster than one could grasp based on summary measures of inequality. Making these efforts more systematic and widespread can better inform public debates and policies. Metrics may not seem a priority, until one considers the continuing hold of such measures as gross domestic product since its creation in the first half of the 20th century.

Fifth, redressing inequalities in human development in the 21st century is possible—if we act now, before imbalances in economic power translate into entrenched political dominance. Improvements in inequality for some basic capabilities show that progress is possible. But the record of progress in basic capabilities in the past will not respond to people's aspirations for this century. And doubling down on reducing inequalities in basic capabilities further, while needed, is not enough. If enhanced capabilities are indeed associated with more empowerment, ignoring the gaps that are opening up in them can alienate policymakers from people's agency—their ability to make choices that fulfil their aspirations and values. Only by turning attention towards tackling a new generation of inequality in enhanced capabilities, many of which are only just beginning to emerge, will it be possible to avoid further entrenchment of inequalities in human development over the course of the 21st century.

How? Not by looking at policies in isolation or thinking that a single silver bullet will solve everything. The redistribution of income, which often dominates the policy debate on inequality, is sometimes seen as that silver bullet. Yet, even a full redistributive package of four ambitious policies—higher and more progressive income taxes, earned income discounts at low income levels, taxable benefits paid out for each child and a minimum income for all individuals—would be insufficient to fully reverse the increase in income inequality in the United Kingdom between the late 1970s and 2013.[6] This is not to say that redistribution does not matter—quite the opposite. But long-lasting change in both income and the broader range of inequalities in human development depends on a wider and more systemic approach to policies.

What to do? The approach proposed in this Report outlines policies to redress inequalities in human development within a framework that links the expansion and distribution of both capabilities and income. The options span premarket, in-market and postmarket policies. Wages, profits and labour participation rates are typically determined in markets, which are conditioned by prevailing regulations, institutions and policies (in-market). But those outcomes also depend on policies that affect people before they become active in the economy (premarket). Premarket policies can reduce disparities in capabilities, helping everyone enter the labour market better equipped. In-market policies affect the distribution of income and opportunities when individuals are working, shaping outcomes that can be either more or less equalizing.[7] Postmarket policies affect inequalities once the market along with the in-market policies have determined the distribution of income and opportunities. These sets of policies interact. For instance, the provision of public services premarket may depend in part on the effectiveness of postmarket policies (taxes on market income to fund health and education, for instance), which matter in mobilizing government revenue to pay for those services. And taxes, in turn, are informed by how much society is willing to redistribute income from those with more to those with less.

The future of inequalities in human development in the 21st century is in our hands. But we cannot be complacent. The climate crisis shows that the price of inaction compounds over time, as it feeds further inequality, which can in turn make action on climate more difficult. Technology is already changing labour markets and lives, but not yet locked-in is the extent to which machines may replace people. We are, however, approaching a precipice beyond which it will be difficult to recover. We do have a choice, and we must exercise it now.

Beyond income, beyond averages and beyond today

This Report builds on a new framework of analysis that looks at inequalities by going beyond income, beyond averages and beyond today (figure 4).

Beyond income

Any comprehensive assessment of inequality must consider income and wealth. But it must also go beyond dollars and rupees to understand differences in other aspects of human development and the processes that lead to them. There is economic inequality, of course, but there are also inequalities in key elements of human development such as health, education, dignity and respect for human rights. And these might not be revealed by considering income and wealth inequality alone. A human development approach to inequality takes a people-centred view: It is about people's capabilities to exercise their freedoms to be and do what they aspire to in life.

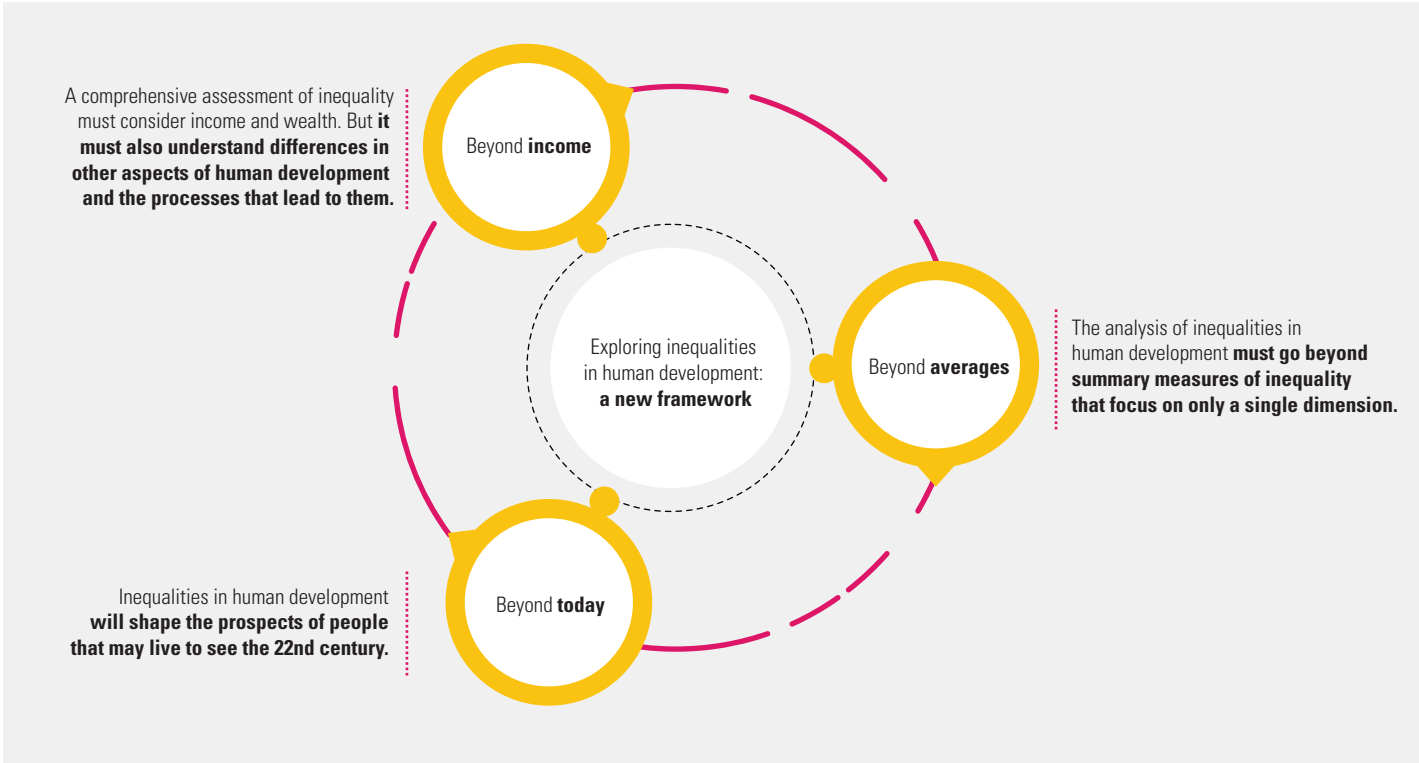
Even understanding income disparities requires examining other forms of inequality. Disadvantages in health and education (of one's parents and one's own) interact and often compound over a lifetime. Gaps open before birth, starting with the "birth lottery" of where children happen to be born, and can widen over the years. Children from poor families may not be able to afford an education and are at a disadvantage when they try to find work. These children are likely to earn less than those in higher income families when they enter the labour market, when penalized by compounding layers of disadvantage.

Beyond averages

Too often the debate about inequality is oversimplified, relying on summary measures of inequality and incomplete data that provide a partial—sometimes misleading—picture, both in the sorts of inequality to consider and the people affected. The analysis must go beyond averages that collapse information on distribution to a single number and look at the ways

FIGURE 4

Thinking about inequalities



Source: Human Development Report Office.

inequality plays out across an entire population, in different places and over time. For every aspect of human development, what matters is the entire inequality gradient (the differences in achievements across the population according to different socioeconomic characteristics).

Beyond today

Much analysis focuses on the past or on the here and now. But a changing world requires considering what will shape inequality in the future. Existing—and new—forms of inequality will interact with major social, economic and environmental forces to determine the lives of today's young people and their children. Two seismic shifts will shape the 21st century: Climate change and technological transformations. The climate crisis is already hitting the poorest hardest, while technological advances such as machine learning and artificial intelligence can leave behind entire groups of people, even countries—creating the spectre of an uncertain future under these shifts.[8]

Evolving human aspirations: From basic to enhanced capabilities

When Amartya Sen asked what kind of inequality we should ultimately care about ("Equality of what?"), he argued that people's capabilities—their freedoms to make life choices—are fundamental.[9] Capabilities are at the heart of human development. This Report follows the same path and explores inequalities in capabilities.

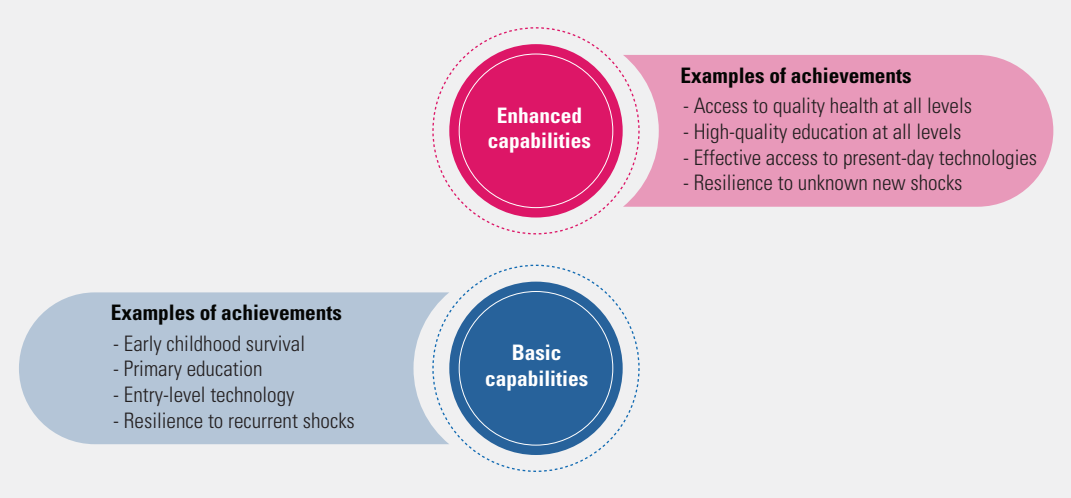
Capabilities evolve with circumstances as well as with values and with people's changing demands and aspirations. Today, having a set of basic capabilities—those associated with the absence of extreme deprivations—is not enough. Enhanced capabilities are becoming crucial for people to own the "narrative of their lives."[10]

Enhanced capabilities bring greater agency along people's lives. Given that some capabilities build over a person's life, achieving a basic set—such as surviving to age 5 or learning to read—provides initial stepping stones to forming enhanced capabilities later in life (figure 5).

A similar evolution from basic to enhanced capabilities is reflected in the use of technology or in the ability to cope with environmental shocks, from frequent but low-impact hazards to large and unpredictable events. The distinction is also important when it comes to understanding inequalities across groups, such as the progression from women being able to vote in elections (a basic capability) to participating in politics as national leaders (an enhanced capability). The evolution in ambition from basic to enhanced capabilities mirrors the evolution from the Millennium Development Goals to the Sustainable Development Goals.

FIGURE 5

Human development, from basic to enhanced capabilities



Source: Human Development Report Office.

Key message 1: Disparities in human development remain widespread, despite achievements in reducing extreme deprivations

The 21st century has witnessed great progress in living standards, with an unprecedented number of people around the world making a "great escape"[11] from hunger, disease and poverty—moving above minimum subsistence. The Human Development Index shows impressive improvement on average, reflecting dramatic improvements in achievements such as life expectancy at birth, driven largely by sharp declines in infant mortality rates.

Still, many people have been left behind, and inequalities remain widespread across all capabilities. Some refer to life and death, others to access to knowledge and life-changing technologies.

Despite having shrunk considerably, the difference in life expectancy at birth between low and very high human development countries is still 19 years. There are differences in expected longevity at every age. The difference in life expectancy at age 70 is almost 5 years. Some 42 percent of adults in low human development countries have a primary education, compared with 94 percent in very high human development countries. There are gaps at all education levels. Only 3.2 percent of adults in low human development countries have a tertiary education, compared with 29 percent in developed countries. In access to technology developing countries have 67 mobile phone subscriptions per 100 inhabitants, half the number in very high human development countries. For access to broadband, low human development countries have less than 1 subscription per 100 inhabitants, compared with 28 per 100 inhabitants in very high human development countries (figure 6).

The furthest behind include the 600 million people still living in extreme income poverty—and that jumps to 1.3 billion when measured by the Multidimensional Poverty Index.[12] Some 262 million children are out of primary or secondary school, and 5.4 million children do not survive their first five years of life. Despite greater access to immunizations and affordable treatment, child mortality rates in the poorest households in the world's poorest countries remain high. The highest rates are in low and medium human development countries, but there are vast disparities within countries: The poorest 20 percent in some middle-income countries can have the same average mortality rate as children from a typical low-income country.

Key message 2: A new generation of inequalities is emerging, with divergence in enhanced capabilities, despite convergence in basic capabilities

As we enter the 2020s, a new set of capabilities is becoming fundamental to 21st century life. Inequalities in these enhanced capabilities show strikingly different dynamics from those in basic capabilities. They are at the root of a new generation of inequalities.

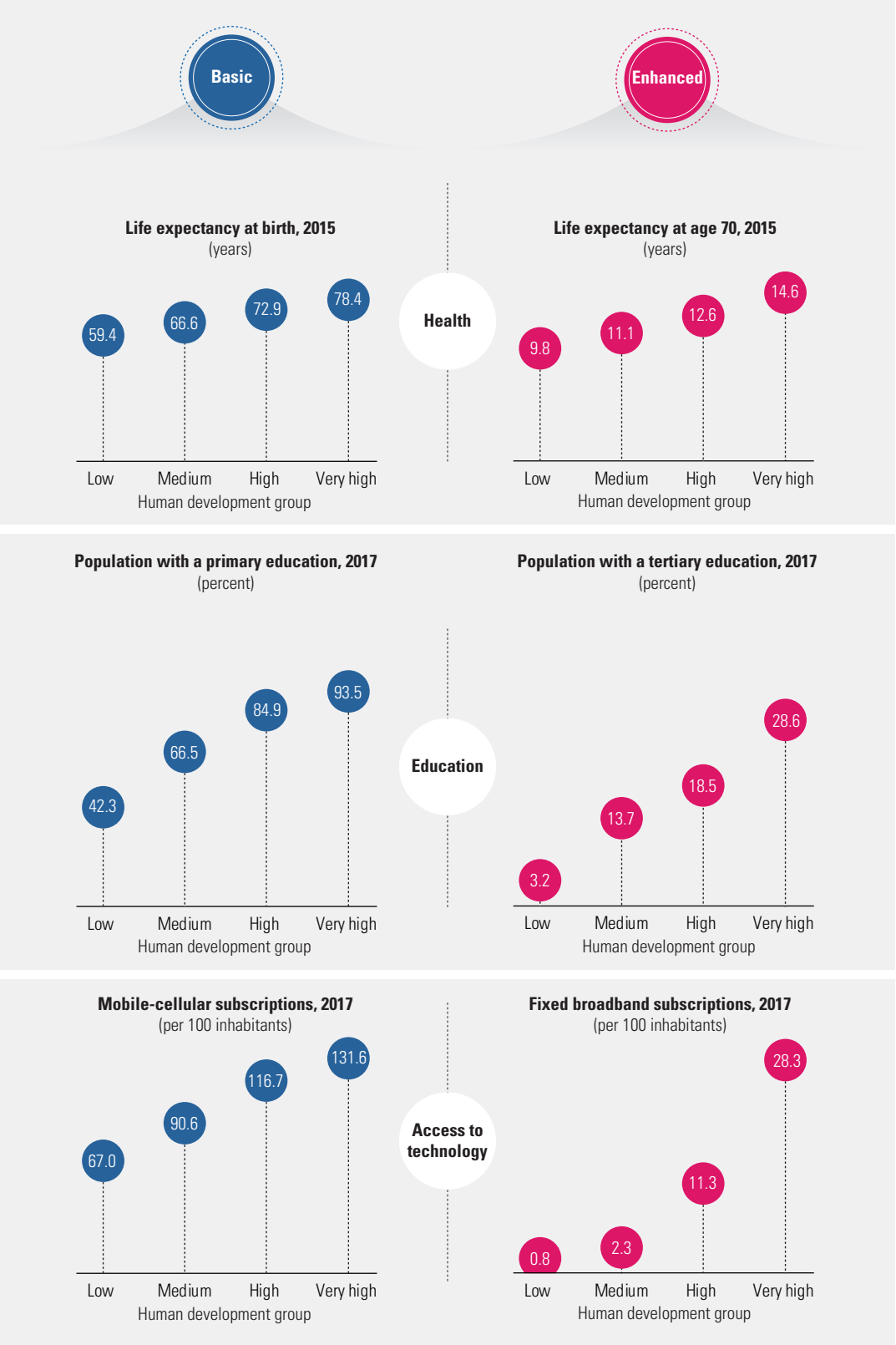
Inequalities for some basic capabilities are slowly narrowing across most countries, even if much remains to be done. Life expectancy at birth, percentage of the population with a primary education and mobile-cellular subscriptions all show narrowing inequalities across human development groups (figure 7). The people at the bottom are progressing faster than those at the top. The gain in life expectancy at birth between 2005 and 2015 for low human development countries was almost three times that for very high human development countries, driven by a reduction in child mortality rates in developing countries. And countries with lower human development are catching up in access to primary education and access to mobile phones.

This good news comes with two caveats. First, despite progress, the world is not on track to eradicate extreme deprivations in health and education by 2030, when 3 million children under age 5 are still expected to die every year (at least 850,000 above the Sustainable Development Goal target), and 225 million children are expected to be out of school. Second, gaps are falling in part because those at the top have little space to keep moving up.

In contrast, inequalities in enhanced capabilities are widening. For instance, despite data

FIGURE 6

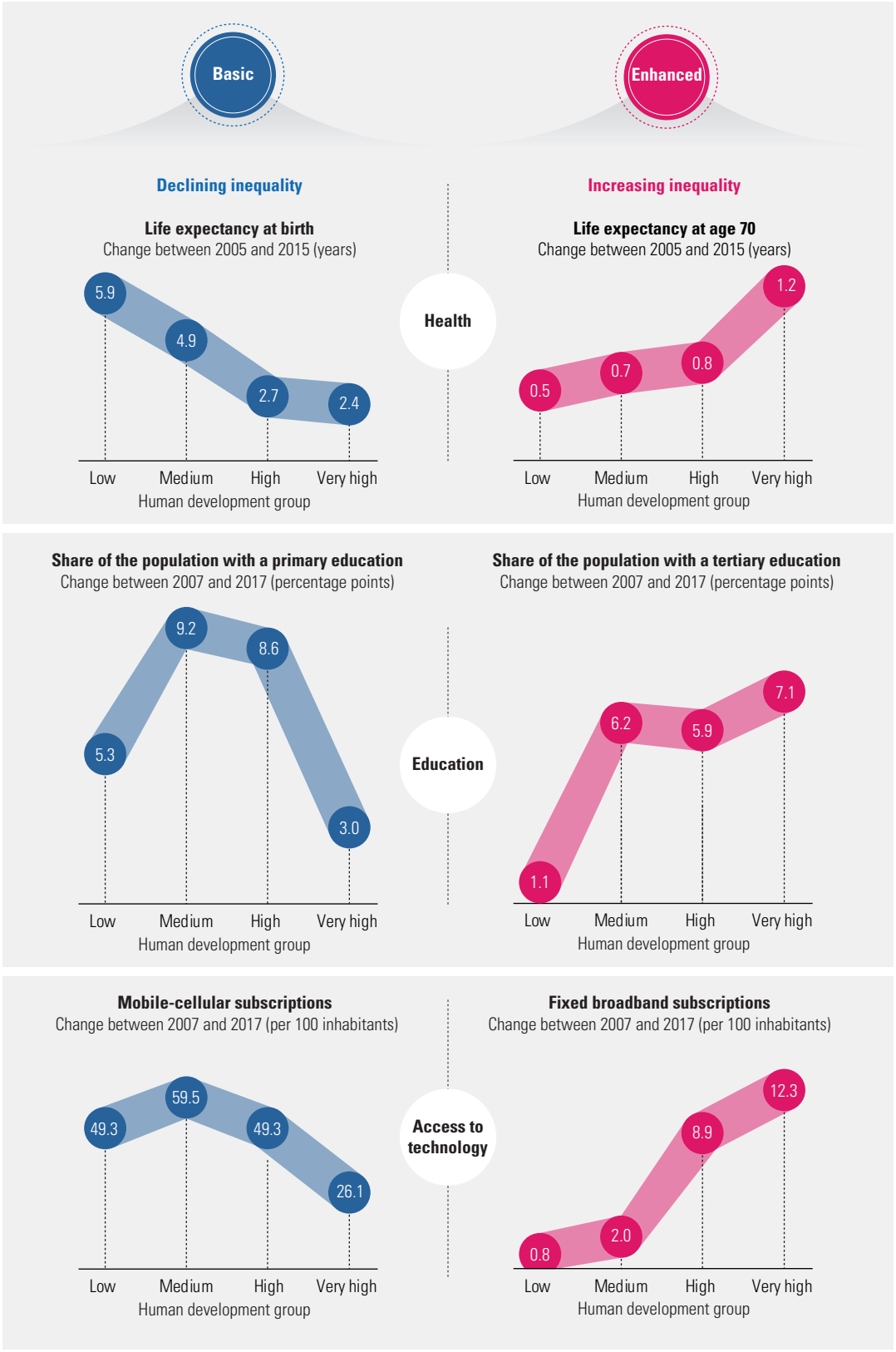
Across countries the world remains deeply unequal in both basic and enhanced capabilities



Source: Human Development Report Office calculations based on data from the International Telecommunication Union, the United Nations Educational, Scientific and Cultural Organization Institute for Statistics and the United Nations Department of Economic and Social Affairs.

FIGURE 7

Slow convergence in basic capabilities, rapid divergence in enhanced ones



Source: Human Development Report Office calculations based on data from the International Telecommunication Union, the United Nations Educational, Scientific and Cultural Organization Institute for Statistics and the United Nations Department of Economic and Social Affairs.

challenges, estimates suggest that the gain in life expectancy at age 70 from 1995 to 2015 in very high human development countries was more than twice that in low human development countries.[13]

There is evidence for the same pattern of divergence across a wide range of enhanced capabilities. Indeed, divergences in access to more advanced knowledge and technology are even starker. The proportion of the adult population with tertiary education is growing more than six times faster in very high human development countries than in low human development countries, and fixed broadband subscriptions are growing 15 times faster.

These new inequalities—both between and within countries—are hugely consequential. Shaping 21st century societies, they are pushing the frontiers in health and longevity, knowledge and technology. These are the inequalities that will likely determine people's ability to seize the opportunities of the 21st century, function in a knowledge economy and cope with climate change.

Key message 3: Inequalities accumulate through life, often reflecting deep power imbalances

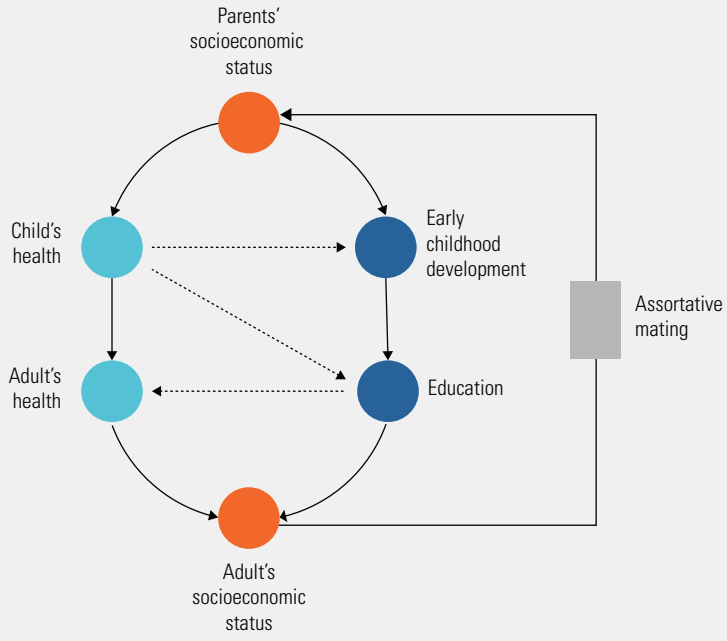
Understanding inequality—even income inequality—means homing in on the underlying processes that lead to it. Different inequalities interact, while their size and impact shift over a person's lifetime. The corollary is that policies to tackle economic inequality require much more than a mechanistic transfer of income. They often need to address social norms, policies and institutions formed deep in history.

Lifelong disadvantage

Inequalities can start before birth, and many of the gaps may compound over a person's life. When that happens, it can lead to persistent inequalities. This can happen in several ways, especially in the nexus among health, education and parents' socioeconomic status (figure 8).

FIGURE 8

Education and health along the lifecycle



Note: The circles represent different stages of the lifecycle, with the orange ones resenting final outcomes. The rectangle represents the process of assortative mating. The dashed lines refer to interactions that are not described in detail. A child's health affects early childhood development and prospects for education. For example, an intellectually disabled child will not be able to benefit from early childhood development and education opportunities in the same way as a healthy child. Education can also promote a healthy lifestyle and convey information on how to benefit from a given health care system if needed (Cutler and Lleras-Muney 2010).
Source: Human Development Report Office, adapted from Deaton (2013a).

Parents' incomes and circumstances affect their children's health, education and incomes. Health gradients—the disparities in health across socioeconomic groups—often start before birth and can accumulate at least up to adulthood, if not counteracted. Children born to low-income families are more prone to poor health and lower education. Those with lower education are less likely to earn as much as others, while children in poorer health are more likely to miss school. And when children grow up, if they partner with someone who has similar socioeconomic status (as often happens in assortative mating), inequalities across generations can persist.

The cycle can be difficult to break, not least because of the ways in which inequality in income and political power co-evolve. When wealthy people shape policies that favour themselves and their children—as they often do—that can sustain the accumulation of income and opportunity at the top. Unsurprising, then, that social mobility tends to be lower in more unequal societies. Still, some societies have more mobility than others—so institutions and policies matter—in part because what tends to reduce inequality can also boost social mobility (box 1).

Power imbalances

Income and wealth inequalities are often translated into political inequality, in part because inequalities depress political participation, giving more space to particular interest groups to shape decisions in their favour. Those privileged can capture the system, moulding it to fit their preferences, potentially leading to even more inequalities. Power asymmetries can even lead to breakdowns in institutional functions, weakening the effectiveness of policies. When institutions are captured by the wealthy, citizens are less willing to be part of social contracts (the sets of rules and expectations of behaviour that people voluntarily conform to that underpin stable societies). When that translates into lower compliance with paying taxes, it diminishes the state's ability to provide quality public services. That can in turn lead to greater inequalities in health and education. When the overall system is perceived as unfair, possibly due to systematic exclusions or clientelism (the exchange of political support for personal gain), people tend to withdraw from political processes, amplifying the influence of elites.

One way of understanding the interplay between inequality and the dynamics of power is to draw on a framework that explores the process through which inequalities are generated and perpetuated. At its core, this process is often referred to as governance—or the way in which different actors in society bargain to reach agreements (policies and rules). When these agreements take the form of policies, they can directly change the distribution of resources in society (the bottom arrow in the right loop of figure 9, "outcome game"). For

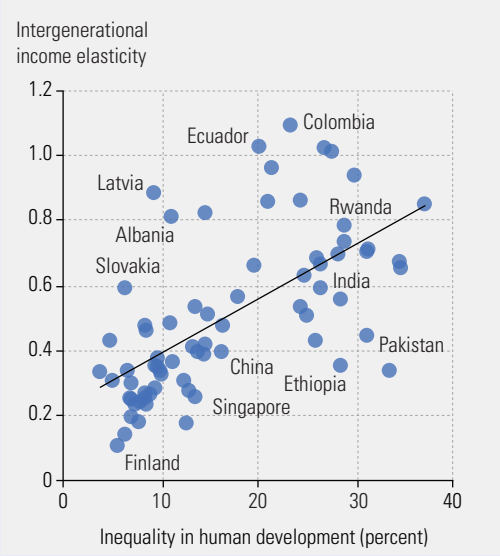
BOX 1

A new take on the Great Gatsby Curve

The positive correlation between higher income inequality and lower intergenerational mobility in income is well known. This relation, known as the Great Gatsby Curve, also holds true using a measure of inequality in human development instead of income inequality alone (see figure). The greater the inequality in human development, the lower the intergenerational mobility in income—and vice versa.

These two factors go hand in hand, but that does not imply that one causes the other. In fact, it is more likely that both are driven by underlying economic and social factors, so understanding and tackling these drivers could both promote mobility and redress inequality.

Intergenerational mobility in income is lower in countries with more inequality in human development



Note: Inequality in human development is measured as the percentage loss in Human Development Index value due to inequality in three components: income, education and health. The higher the intergenerational income elasticity, the stronger the association between parents' income and their children's income, reflecting lower intergenerational mobility.
Source: Human Development Report Office using data from GDIM (2018), adapted from Corak (2013).

example, policies on taxation and social spending determine who pays into the fiscal system and who benefits from it. These policies directly influence development outcomes such as economic inequality (and growth). However, by redistributing economic resources, these policies are also redistributing de facto power (the top arrow in the right loop of figure 9). This can generate (or reinforce) power asymmetries between actors bargaining in the policy arena, which can in turn adversely affect the effective implementation of policies. For example, power asymmetries can manifest in the capture of policies by elite actors—undermining the ability of governments to commit to achieving long-term goals. Or they may manifest in the exclusion of certain population groups from accessing high-quality public services—undermining cooperation by harming the willingness to pay taxes. This can lead to a vicious cycle of inequality (inequality traps) in which unequal societies begin to institutionalize the inequality. This loop plays out in prevailing institutions and social norms (the outcome game) and can lead to actors deciding to change the rules of the game (the bottom arrow in the left loop of figure 9). In this way, de jure power is also redistributed. This can be far more consequential because it not only changes current outcomes but also sets the conditions that shape actors' behaviour in the future. Once again, the way in which power asymmetries play out in the policy arena can exacerbate and entrench inequalities (clearly, inequality may undermine the effectiveness of governance) or pave the way to more equalizing and inclusive dynamics.

Gender inequality

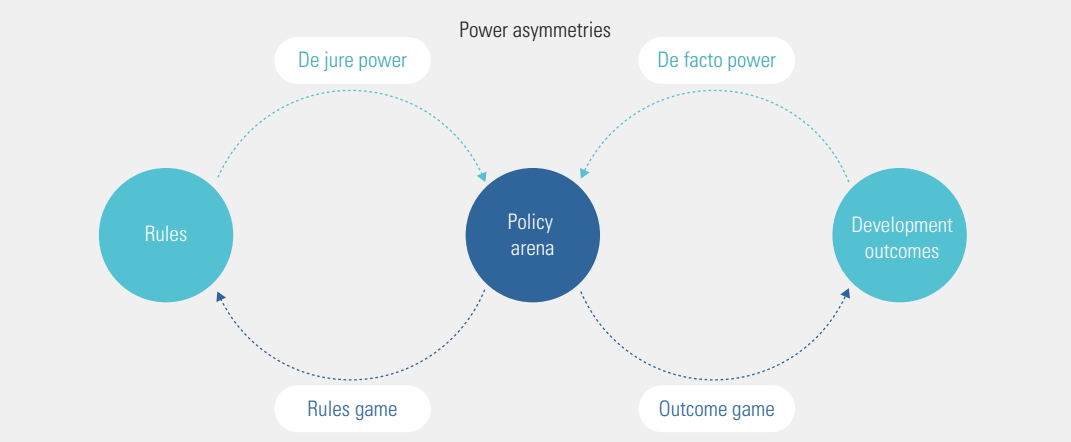
Some groups of people are systematically disadvantaged in many ways. These groups might be defined by ethnicity, language, gender or caste—or simply by whether they live in the north, south, east or west of a country. There are many examples of such groups, but undoubtedly the largest worldwide is women. Gender disparities are among the most entrenched forms of inequality everywhere. Because these disadvantages affect half the world, gender inequality is one of the greatest barriers to human development.

Gender inequality is complex, with differing progress and regress from place to place and issue to issue. Awareness has increased through the #MeToo movement, or the #NiUnaMenos movement, which shined a spotlight on violence against women. And girls around the world have been catching up on some of the basics, such as enrolment in primary school.

But there is less to celebrate about progress beyond these fundamentals. Inequality is still sharp in the power men and women exercise at home, in the workplace or in politics. At home women do more than three times as much unpaid care work as men. And although in many countries women and men vote equally in

FIGURE 9

Inequalities, power asymmetries and the effectiveness of governance



Note: *Rules* refer to formal and informal rules (norms). *Development outcomes* refer to security, growth and equity.
Source: World Bank 2017b.

elections, there are differences in higher levels of political power. The higher the power, the larger the gap from parity, rising to 90 percent in the case of heads of state and government.

Social and cultural norms often foster behaviour that perpetuates such inequalities. Norms—and a lack of power—both have an impact on all forms of gender inequality, from violence against women to the glass ceiling. This Report presents a new social norms index that looks at the links between social beliefs and gender equality in multiple dimensions. Globally only 1 man in 10 (and 1 woman in 7) did not show some form of clear bias against gender equality. The biases follow a pattern: They tend to be more intense in areas where more power is involved. And there is backlash, as the proportion of people biased against gender equality has grown over the last few years (figure 10), even though there are different patterns across countries.

Key message 4: Assessing and responding to inequalities in human development demands a revolution in metrics

Existing standards and practices for measuring inequality are inadequate to inform public debate or to support decisionmaking.

Part of the challenge is the sheer number of different ways to understand inequality. To highlight a few:

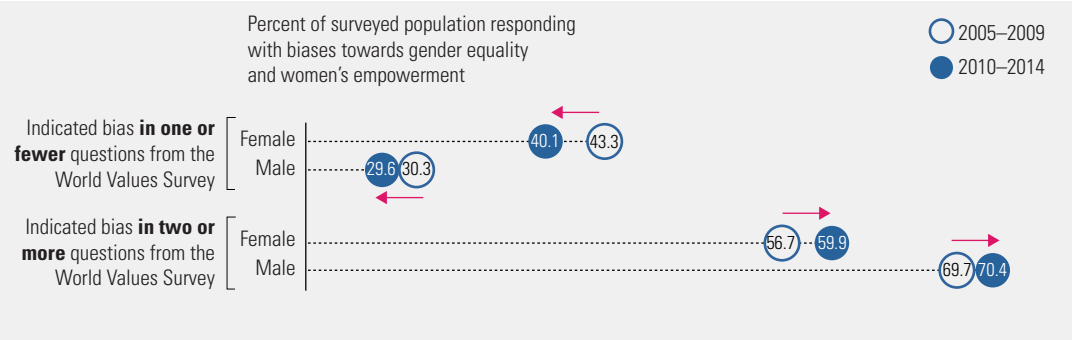
- There are inequalities among groups (horizontal inequalities) and among individuals (vertical inequalities).
- There are inequalities between and within countries, which can follow different dynamics.
- There are intrahousehold inequalities (for instance, in 30 Sub-Saharan countries roughly three-quarters of underweight women and undernourished children are not in the poorest 20 percent of households, and around half are not in the poorest 40 percent).[14]

A new generation of metrics is needed to fill the many data gaps to measure these different inequalities and, more generally, to go systematically beyond averages. This starts with gaps in some of the most basic statistics, with many developing countries still lacking in vital registration systems. For income and wealth inequality the progress over the past few years has been remarkable. But data remain scarce, in part because of the lack of transparency and the low availability of information. On a new index presented in this Report, 88 countries score 1 or less (on a 20-point scale) for availability of information on income and wealth inequality—meaning that they have 5 percent or less of what would be an ideal level of transparency.

Innovative work—some experimental—is unfolding, led by academics, multilateral organizations and even a few governments, to make more systematic and comparable use of statistics on income inequality. But data sources remain only partially integrated, and coverage remains very limited.

FIGURE 10

Bias against gender equality is on the rise: The share of women and men worldwide with no gender social norms bias fell between 2009 and 2014



Note: Balanced panel of 32 countries and territories with data from both wave 5 (2005–2009) and wave 6 (2010–2014) of the World Values Survey, accounting for 59 percent of the world population. Gender biases in social norms are measured through people's views about gender roles in politics (from political rights to the ability to serve as leader), education (importance of a university degree), the economy (from the right to have jobs to the ability to work as business executive) and the physical integrity of women (from intimate partner violence to reproductive health).
Source: Based on data from the World Values Survey.

The distributional national accounts methodology is still in its infancy, and many of its assumptions have been challenged. Still, as long as it remains fully transparent and improvements continue to be made, it could integrate, in an overarching agenda, the combination of data from the System of National Accounts, household surveys and administrative data to provide new perspectives on the evolution of the distribution of income and wealth. This would encompass some of the main recommendations of the Commission on the Measurement of Economic Performance and Social Progress, including an integrated focus on income and wealth inequality.[15] This Report presents results based on the methodology that reveal dynamics of income inequality that are masked when using summary measures that rely on a single data source. To give an illustration, the results suggest that the top of the income distribution in Europe has been the main beneficiary of income growth since 1980 (figure 11).

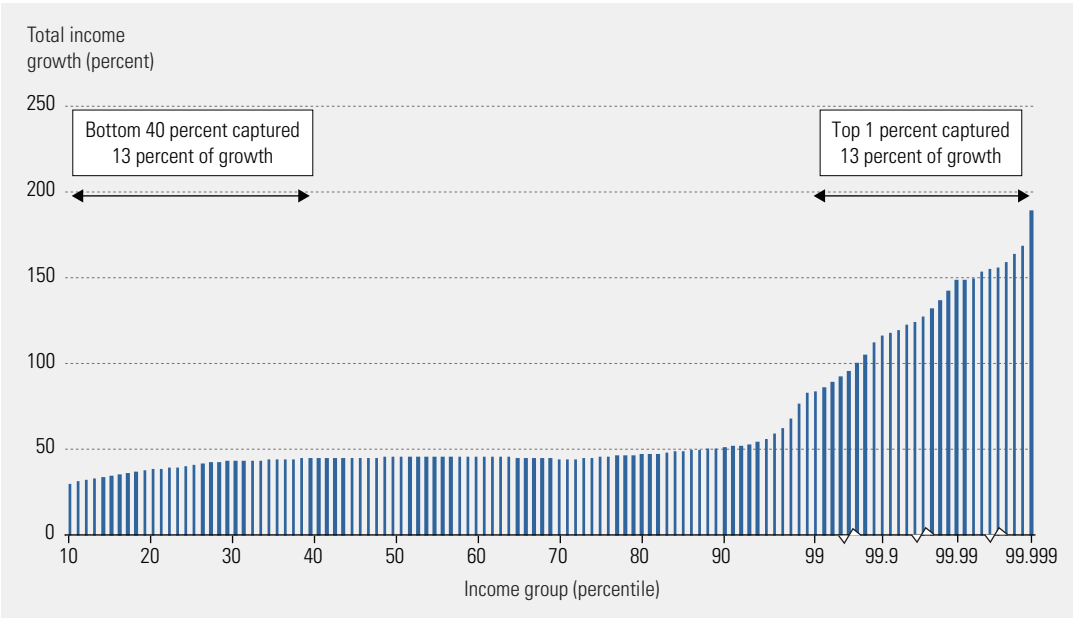
Summary measures of inequality aggregate complex information into one number. They are based on implicit judgements about what forms of inequality are—or are not—important. Those judgements are rarely transparent and may not even reflect society's views. To understand any single aspect of inequality—and there are many—one needs to look across the entire population, going beyond averages. What proportions of people survive to certain ages, reach key education levels or earn certain amounts? And how likely is it that the relative position in society of an individual, a family or a particular group changes over time? Summary measures remain important—when they reflect sound properties to assess distributions—but are only a small window onto a wider discussion about inequalities in human development.

Key message 5: We can redress inequalities if we act now, before imbalances in economic power are politically entrenched

Nothing is inevitable about many of the most pernicious inequalities in human development. This is the single most important message of this Report. Every society has choices about the levels and kinds of inequalities it tolerates. That is not to say that tackling inequality is easy. Effective action must identify drivers of inequality, which

FIGURE 11

Between 1980 and 2017 post-tax incomes grew close to 40 percent for the poorest 80 percent of the European population, compared with more than 180 percent for the top 0.001 percent



Note: After the 90th percentile the scale on the horizontal axis changes. The composition of income groups changes from 1980 to 2017, so the estimates do not represent the changes in income of the same individuals over time.
Source: Blanchet, Chancel and Gethin (2019); World Inequality Database (http://WID.world).

are likely complex and multifaceted, often related to prevailing power structures that the people currently holding sway may not wish to change.

But what to do? Much can be done to redress inequalities in human development with a dual policy objective. First is to accelerate convergence in basic capabilities while reversing divergences in enhanced capabilities and eliminating gender- and other group-based (or horizontal) inequalities. Second, to jointly advance equity and efficiency in markets, increasing productivity that translates into widely shared growing incomes—redressing income inequality. The two sets of policies are interdependent, with those that advance capabilities beyond income often requiring resources to fund public health or education, which are financed by taxes. And the overall resources available are, in turn, linked to productivity, which is linked in part to people's capabilities. The two sets of policies can thus work together in a virtuous policy cycle (figure 12).

It is often possible to make progress in equity and efficiency at the same time. Antitrust policies are an example. They curb firms' ability to use market power, levelling the playing field and increasing efficiency. And they lead to more equitable outcomes by reducing economic rents that concentrate income.

An integrated battery of policies beyond any single silver bullet

Taxes—whether on income, wealth or consumption—can do much to redress inequalities. They raise revenue to improve key public services (health care and schools) and to provide social insurance—benefiting both poor people and people in the middle of the income distribution.

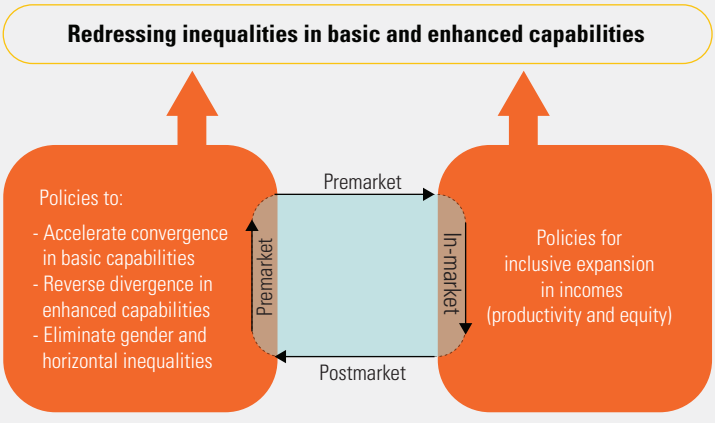
Income inequality is lower after taxes and government transfers, but the impact of redistribution varies. In a selection of developed countries, taxes and transfers led to a 17-point reduction in the Gini coefficient, when comparing pretax and post-tax incomes. But in developing countries the reduction was just 4 points (figure 13).

Equally important, however, is to go beyond taxation and transfers (postmarket policies) by also addressing inequalities while people are working (in-market policies) and before they start working (premarket policies).

In-market policies can level the economic playing field. Policies related to market power (antitrust), inclusive access to productive capital, and collective bargaining and minimum wages affect how the benefits from production are distributed. Equally relevant are premarket policies aimed at equalizing opportunities during childhood in health and education—and postmarket policies, such as income and wealth taxes, public transfers and social protection. One clear role for premarket policies is in early childhood, where inequality-reducing interventions can support health, nutrition and cognitive development and produce a big return on investment. That is not to say that every good policy can reduce inequality and

FIGURE 12

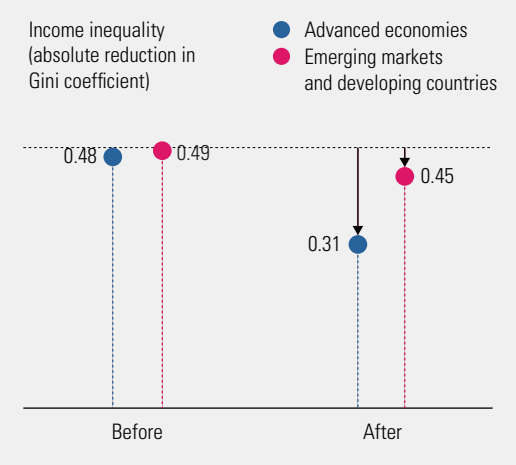
A framework for designing policies to redress inequalities in human development



Source: Human Development Report Office.

FIGURE 13

Redistributive direct taxes and transfers explain nearly all the difference in disposable income inequality between advanced and emerging economies



Source: Based on IMF (2017a).

increase welfare—as noted, processes such as the diffusion of new technology and human development achievements in large segments of society may increase inequality. What matters is whether the process that generates that inequality is, in itself, somehow biased or unfair.

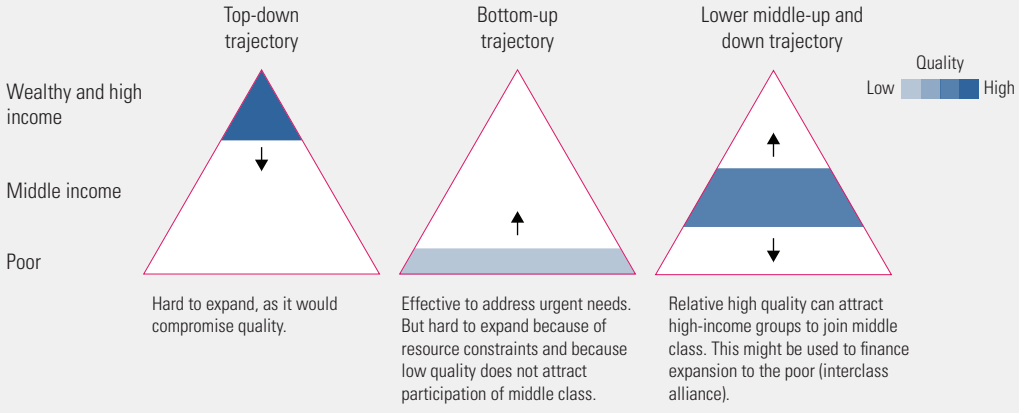
Creating incentives for change

Even if resources are available to undertake an agenda for convergence in both basic and enhanced capabilities, reducing inequalities is ultimately a societal and political choice. History, context and politics matter. Social norms that can lead to discrimination are hard to change. Even with legislation setting equal rights, social norms may prevail in determining outcomes. This Report's analysis of gender inequality shows that reactions become more intense in areas where more power is involved, which can culminate in a backlash towards the very principles of gender equality. Explicit policies for tackling stereotypes and the stigmatization of excluded groups are an important part of the toolkit to reduce inequalities.

The political economy of tackling inequality can be particularly challenging. For public services, change can happen from the top down, by extending benefits enjoyed by those at the top to others (figure 14). But those already benefiting may have little incentive to extend services if that might be perceived to reduce quality. Change can also happen from the bottom up, increasing the income below which a family qualifies for free public or subsidized services, for example. But higher income groups might resist this if they seldom use such services. A third approach is to build out from the middle—when a system covers those who are not the poorest but who are vulnerable, such as formal workers earning low wages. Here, coverage can be expanded both upward and downward. As the quality of services improves, higher income groups are likely to want to participate, broadening the support to expand services to poor people.

FIGURE 14

Strategies for practical universalism in unequal developing countries



Source: Human Development Report Office based on the discussion in Martínez and Sánchez-Ancochea (2016).

In developed countries one challenge for sustaining social policies is to ensure that they benefit a broad base, including the middle classes. Yet such benefits may be eroding. In several Organisation for Economic Co-operation and Development countries, members of the middle class perceive themselves as being progressively left behind in income, security and affordable access to quality health care and education.

In developing countries the challenge is often to solidify social policies for a still vulnerable middle. In some of these countries members of the middle class pay more for social services than they receive, and they often perceive the quality of health care and education to be poor. So they turn to private providers: The share of students going to private schools for primary education in some of these countries rose from 12 percent in 1990 to 19 percent in 2014.

A natural response would be to take resources from those at the top. But the richest, though few in number, can be an obstacle to expanding services. And they can frustrate action in multiple ways, through lobbying, donating to political campaigns, influencing the press and using their economic power in other ways in response to decisions they dislike.

Globalization means national policy is often circumscribed by entities, rules and events beyond the control of national governments, with pervasive downward pressures on corporate income tax rates and labour standards. Tax evasion and avoidance are made easier by insufficient information, by the rise of large digital companies operating across tax jurisdictions and by inadequate interjurisdictional cooperation. In these policy domains international collective action must complement national action.

Where next?

A human development approach opens new windows on inequalities—why they matter, how they manifest themselves and what to do about them—helping move towards concrete action. But the opportunities to address inequalities in human development keep narrowing the longer that inaction prevails because imbalances in economic power can eventually be translated into political dominance. And that in turn can lead to more inequality. At that stage interventions are far harder and less effective than if they had been taken earlier on. Of course, action is context specific. The nature and relative importance of inequalities vary across countries—and so should policies to address them. In much the same way that there is no silver bullet to address inequalities within a country, there is no one-size-fits-all basket of policies to address inequalities across countries. Even so, policies in all countries will have to confront two trends that are shaping inequalities in human development everywhere: climate change and accelerating technological progress.

Climate change and inequalities in human development

Inequality and the climate crisis are interwoven—from emissions and impacts to policies and resilience. Countries with higher human development generally emit more carbon per person and have higher ecological footprints overall (figure 15).

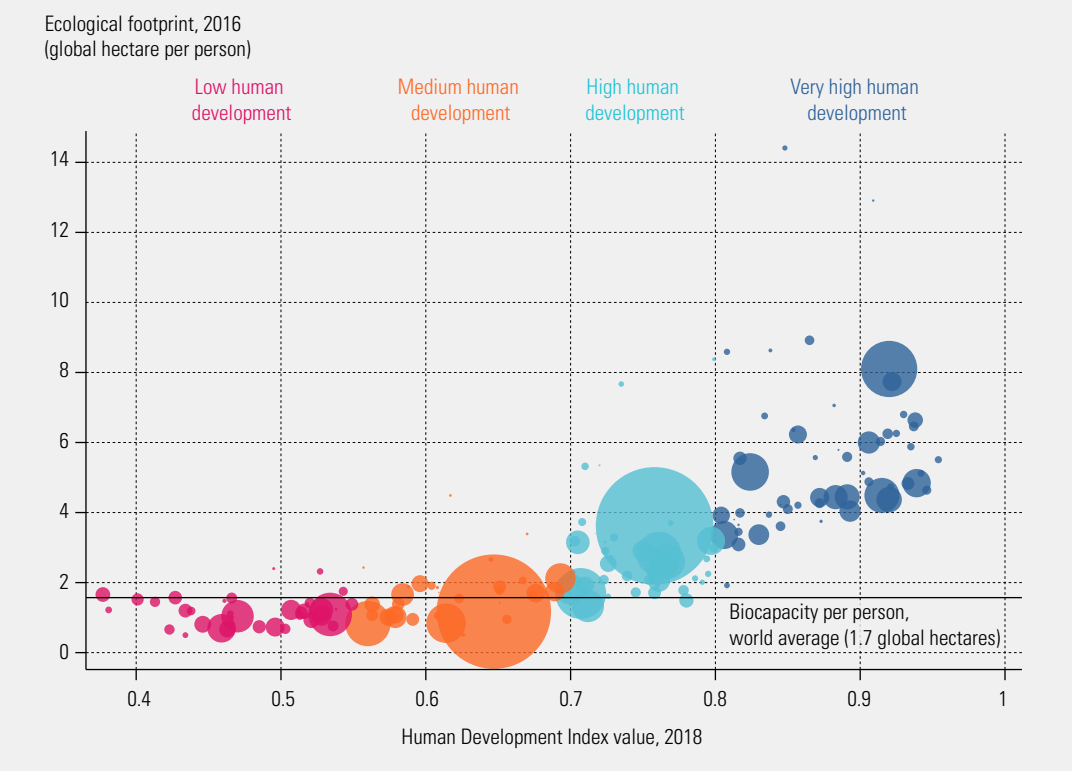
Climate change will hurt human development in many ways beyond crop failures and natural disasters. Between 2030 and 2050 climate change is expected to cause an additional 250,000 deaths a year from malnutrition, malaria, diarrhoea and heat stress. Hundreds of millions more people could be exposed to deadly heat by 2050, and the geographic range for disease vectors—such as mosquitoes that transmit malaria or dengue—will likely shift and expand.

The overall impact on people will depend on their exposure and their vulnerability. Both factors are intertwined with inequality in a vicious circle. Climate change will hit the tropics harder first, and many developing countries are tropical. Yet developing countries and poor communities have less capacity than their richer counterparts to adapt to climate change and severe weather events. So the effects of climate change deepen existing social and economic fault lines.

There are also effects in the other direction, with evidence that some forms of inequality may make action on climate harder. High income inequality within countries can hinder

FIGURE 15

Ecological footprints expand with human development



Note: Data cover 175 countries in the Global Ecological Footprint Network database (www.footprintnetwork.org/resources/data/; accessed 17 July 2018). As used here, the ecological footprint is a per capita measure of how much area of biologically productive land and water a country requires, domestically and abroad, to produce all the resources it consumes and to absorb the waste it generates. Each bubble represents a country, and the size of the bubble is proportional to the country's population.
Source: Cumming and von Cramon-Taubadel 2018.

the diffusion of new environmentally friendly technology. Inequality can also influence the balance of power among those arguing for and against curbing carbon emissions. Income concentration at the top can coincide with the interests of groups that oppose climate action.

Inequalities in human development are fundamental to the climate crisis in another way. They are a drag on effective action because higher inequality tends to make collective action, key to curbing climate change both within and across countries, more difficult.

Yet there are options to address economic inequalities and the climate crisis together, which would move countries towards inclusive and sustainable human development. Carbon pricing is one. Some of the unavoidable distributional impacts of carbon prices can be addressed by providing financial support to poorer people, hardest hit by higher energy bills. But such strategies have faced challenges in practice, because the distribution of money is not the only variable that matters. It is also important to consider a broader set of social policy packages that address inequalities and climate together while facilitating the realization of human rights. There are choices for countries and communities as they raise their ambitions for inclusive and sustainable human development.

Harnessing technological progress to reduce inequalities in human development

Scientific progress and technological innovation—from the wheel to the microchip—have driven improvements in living standards throughout history. And technological change will likely continue to be the fundamental driver of prosperity, pushing increases in productivity and hopefully enabling a transition to more sustainable patterns of production and consumption.

But what will be the magnitude of future changes and how will the gains from innovation be distributed? Concern is growing about how technological change will reshape labour markets, particularly in how automation and artificial intelligence might replace tasks now performed by humans.

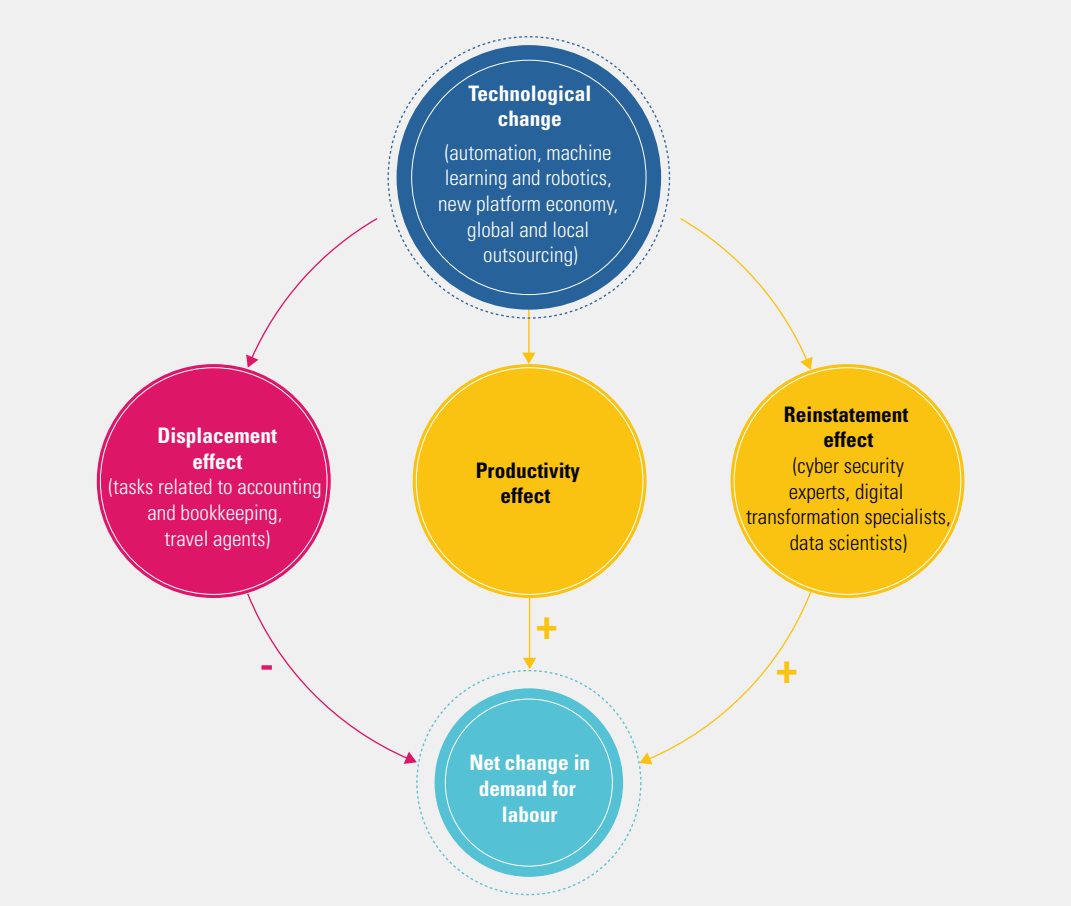
Technological change has been disruptive before, and much can be learned from the past. One key lesson is to ensure that major innovative disruptions help everyone, which requires equally innovative policies and perhaps new institutions. The current wave of technological progress will require other changes, including stronger antitrust policies and laws to govern the ethical use of data and artificial intelligence. Many of these will require international cooperation to succeed.

The Industrial Revolution set humanity on a path towards unprecedented improvements in well-being. But it also triggered the Great Divergence, dividing the few societies that industrialized from the many that did not. What is different now is that—perhaps for the first time in history—much of the technology behind the current transformation could be accessed anywhere. Yet the gaps in countries' abilities to harness the new opportunities are very large, with massive implications for both inequality and human development.

Technological change does not occur in a vacuum but is shaped by economic and social processes. It is an outcome of human action. Policymakers can shape the direction of technological change in ways that enhance human development. For instance, artificial intelligence might replace tasks performed by people, but it can also reinstate demand for labour by creating new tasks for humans, leading to a net positive effect that can reduce inequalities (figure 16).

FIGURE 16

Technology can displace some tasks but also create new ones



Source: Human Development Report Office.

Towards reducing inequalities in human development in the 21st century

This Report argues that tackling inequalities is possible. But it is not easy. It requires clarifying which inequalities matter to the advancement of human development and better understanding the patterns of inequality and what drives them. This Report urges everyone to recognize that the current, standard measures to account for inequality are imperfect and often misleading—because they are centred on income and are too opaque to illuminate the underlying mechanisms generating inequalities. So, this Report argues for the value of looking at inequalities beyond income, beyond averages —and summary measures of inequality—and beyond today.

There should be a celebration of the remarkable progress that has enabled many people around the world to reach minimum standards of human development. But continuing the policies that have led to these successes alone is insufficient. Some people have been left behind. At the same time, many people's aspirations are changing. It is short-sighted for societies to focus only on inequality in the most basic capabilities. Looking beyond today means scanning ahead to recognize and tackle the new forms of inequality in enhanced capabilities that are growing in importance. Climate change and technological transformations are adding to the urgency.

Tackling these new inequalities can have a profound impact on policymaking. This Report does not claim that any one set of policies will work everywhere. But it does argue that policies must get beneath the surface of inequality to address their underlying drivers. Addressing some of these drivers will mean realigning today's policy goals: emphasizing, for instance, high-quality education at all ages, including preprimary levels, rather than focusing on primary and secondary enrolment rates. Many of these aspirations are already reflected in the 2030 Agenda for Sustainable Development.

Power imbalances are at the heart of many inequalities. They may be economic, political or social. For example, policies might need to reduce a particular group's disproportionate influence in politics. They might need to level the economic playing field through antitrust measures that promote competition for the benefit of consumers. In some cases, addressing the barriers to equality mean tackling social norms embedded deep with a country's history and culture. Many options would enhance both equity and efficiency—and the main reason they are not pursued often has to do with the power of entrenched interests who stand not to gain much from change.

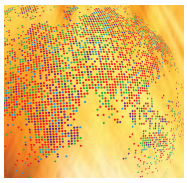
Thus, while policies matter for inequalities, inequalities also matter for policies. The human development lens—placing people at the heart of decisionmaking—is central to open a new window on how to approach inequality, asking why and when it matters, how it manifests itself and how best to tackle it. This is a conversation that every society must have. It is also a conversation that should begin today. True, action may carry a political risk. But history shows that the risks of inaction may be far greater, with severe inequalities eventually propelling a society into economic, social and political tensions.

There is still time to act. But the clock is ticking. What to do to address inequalities in human development is ultimately for each society to determine. That determination will emerge from political debates that can be charged and difficult. This Report contributes to those debates by presenting facts on inequalities in human development, interpreting them through the capabilities approach and proposing ideas to reduce them over the course of the 21st century.

Part I

Beyond income

PART I.



Beyond income

Inequality of what? In addressing this deceptively simple question, Amartya Sen developed the approach that has informed Human Development Reports since the first one was published in 1990.[1] Sen posed that question because celebrating human diversity calls for reflecting on the kind of inequality we should ultimately care about. The answer to Sen's question "inequality of what?" is the "inequality of capabilities."

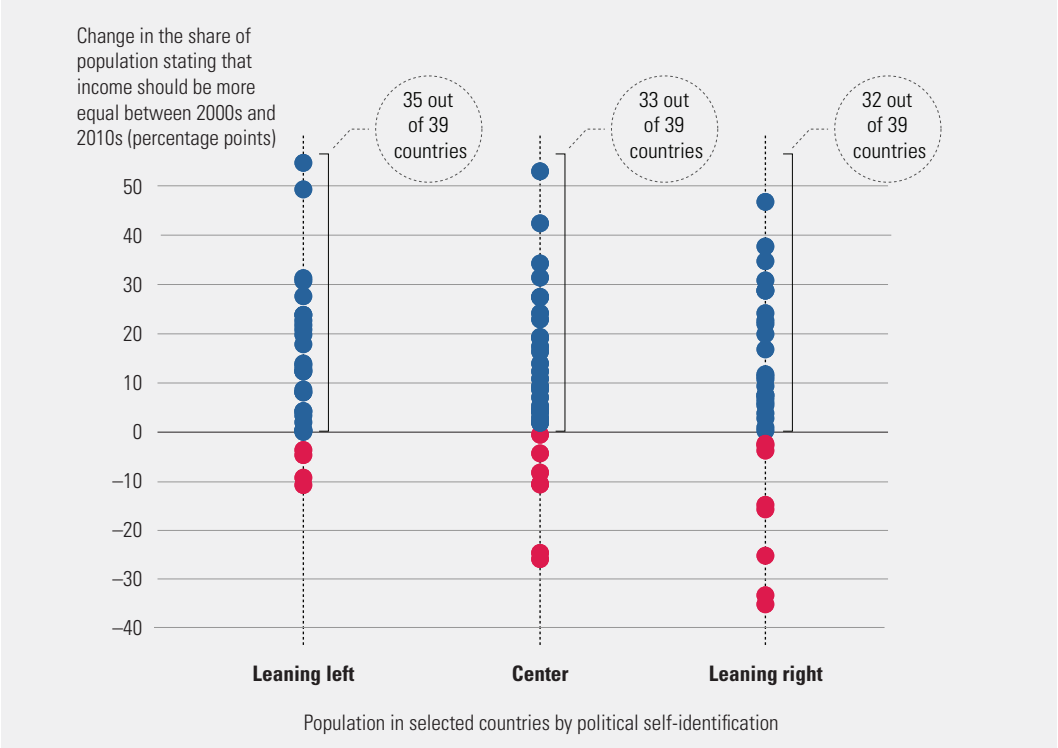
As the second decade of the 21st century comes to an end, the questions about inequality that motivated Sen in the late 1970s have resurfaced with a vengeance. Now, however, the conversation is not only about understanding what kind of inequality should be measured; it is also about how to cope with them.[2] Many more people around the world, across political orientations, feel strongly that income inequality should be reduced, a preference that has intensified since the 2000s (figure I.1). Indeed, some evidence suggests that interest in global growth—often equated with broader improvements in development around the world—now takes second place to interest in global inequality.[3]

Reducing inequality was enshrined in the 2030 Agenda for Sustainable Development, with several Sustainable Development Goals (SDGs) speaking to the aspiration to reduce inequality across multiple dimensions. In line with the 2030 Agenda, part I of the Report argues that we need to go beyond income in exploring inequality—and especially in confronting the new inequalities of the 21st century. It advances the view that the capabilities approach is well suited to understanding and confronting these new inequalities.[4]

Many more people around the world, across political orientations, feel strongly that income inequality should be reduced, a preference that has intensified since the 2000s

FIGURE I.1

The share of the population stating that income should be more equal increased from the 2000s to the 2010s



Note: Each dot represents one of 39 countries with comparable data. The sample covers 48 percent of the global population. Based on answers on a 1–5 scale, where 1 is "income should be more equal" and 5 is "we need larger income differences."
Source: Human Development Report Office calculations based on data from the World Values Survey, waves 4, 5 and 6.

Why, after all, should concerns about inequality be rising today—at a time of great progress in living standards, with an unprecedented number of people around the world making a "great escape"[5] from hunger, disease and poverty?[6] Even though many are still being left behind, the Human Development Index (HDI) shows, on average, impressive improvement—even convergence—in the capabilities included in the HDI. Yet, chapter 1 shows that along with convergence in the basic capabilities that were the focus of Human Development Reports in the early 1990s, divergences are opening in other indicators, both within and across countries: Life expectancy at older ages is becoming more unequal, as is access to tertiary education. In short, despite improvement and convergence in the capabilities central to the Millennium Declaration of 2000 and the Millennium Development Goals, some gaps remain stark, and new ones are opening in capabilities that will increasingly determine differences between those who can and those who cannot take full advantage of the 21st century's new opportunities. Time and again, the analysis shows that countries and people at the bottom are catching up in basic capabilities while those at the top pull away in enhanced capabilities.[7]

Despite improvement and convergence in the capabilities central to the Millennium Declaration of 2000 and the Millennium Development Goals, some gaps remain stark, and new ones are opening in capabilities that will increasingly determine differences between those who can and those who cannot take full advantage of the 21st century's new opportunities

Convergence in basic capabilities gives the direction of change but does not mean that the gaps are fully closed. In fact, those furthest behind are making little to no progress. Chapter 1 thus shows that the world is expected to reach 2030 with preventable gaps in infant mortality, out-of-school children and extreme income poverty. Drawing on granular data to zoom in on geographic areas, it documents overlapping deprivations and intersectional exclusions. Finally, the chapter zooms out on the dynamics of risk—health, natural disaster or conflict shocks that expose groups or individuals to added vulnerability. Behind these patterns lie the stubborn challenge of strengthening the capabilities of those furthest behind.

The persistent and increasing inequalities in enhanced capabilities matter more than for their instrumental value. Chapter 1 also looks at how they have a bearing on human dignity. Individuals or groups of people might have access to resources—but not equal treatment through formal law or social norms. Not all social injustices are seen, much less acknowledged, by social institutions, and this is often the case for indigenous or ethnic groups; migrants; lesbian, gay, bisexual, transgender and intersex people; and other socially stigmatized groups that suffer abuse and discrimination.[8] Such inequality also—in too many places—affects the situation of women, who—even when they share a home with a man giving them access in principle to similar goods and services—are subject to imposed roles and often violence. The #MeToo movement has shown how systematic abuse and humiliation are widespread and not defined by income or social status.[9]

To be sure, income and wealth inequalities can be significant and central to policymakers' thinking about inequality in human development. Such economic inequalities, narrowly considered, can be perceived as unfair or can actually constrain people's well-being (through several channels, as explored in chapter 2). Analysis of income and wealth inequalities is thus necessary and is considered throughout the Report, but focusing exclusively on income and wealth inequalities would be too reductive by failing to acknowledge the full scope of inequality in human development.

Chapter 2 documents how inequalities in capabilities emerge, showing how they are often interconnected and persistent. Even as differences in basic capabilities are reduced, as more and more people acquire the basic capabilities towards meeting minimum achievements in health and education, gradients—meaning that individuals who are better off have better health and education outcomes than those who are worse off—persist or become more pronounced.

The mechanisms accounting for the emergence of inequalities in capabilities are described in chapter 2 at two levels. First, by taking a lifecycle approach that traces how parents' advantages in income, health and education shape their children's path over time, often leading to persistent "hoarding" of opportunities across generations. Second, by noting that these mechanisms do not occur in a vacuum and that context, including economic inequality, shapes opportunity through multiple channels, such as how policies are designed and implemented. The distribution of resources and opportunities

in a society depends heavily on the distribution of power. Power concentration creates imbalances and can lead to the capture of both government and markets by powerful elites—which can further drive income and wealth inequality, in a cycle that weakens responsiveness to the aspirations of the general population. This pattern appears to have already happened in history (see spotlight 1.1 at the end of chapter 1).[10] These dynamics can in turn erode governance, hurting human development.[11]

Part I of the Report takes the inequality discussion beyond income towards capabilities, broadening the range of data considered in the inequality debate and uncovering patterns of convergence and divergence in human development. It shows that focusing on raising people above minimums is insufficient, given that gradients of inequality in capabilities continue to open up and persist.

Part I of the Report opens our view about inequalities in human development. But this is just the first step. As United Nations High Commissioner for Human Rights Michelle Bachelet points out in her Special Contribution, "Diagnosis is not enough—we must push for public policies that tackle these forms of injustice." These findings, inspired by the human development approach, will be critical to support efforts to implement the 2030 Agenda for Sustainable Development (box I.1).[12]

Focusing on raising people above minimums is insufficient, given that gradients of inequality in capabilities continue to open up and persist

BOX I.1

The capabilities approach and the 2030 Agenda for Sustainable Development

The dimensions of inequality in human development considered in this report are reflected in the 2030 Agenda for Sustainable Development and its accompanying Sustainable Development Goals (SDGs).

The global consensus around the SDGs represents an evolution from what the Millennium Development Goals considered "basic" or essential for developing countries by the end of the 20th century. This report is inspired by that evolution and considers dimensions of inequality that are universally relevant and go beyond the basic.

The SDGs seek to reduce inequality in many forms. They not only aim to reduce inequality between and within countries (SDG 10) but also envision an absolute end to some deprivations: poverty in all its forms (SDG 1) and hunger (SDG 2). They also seek to extend some basic conditions to all people: healthy lives (SDG 3), quality education and lifelong learning opportunities (SDG 4), gender equality and empowerment for all women and girls (SDG 5), sustainable water and sanitation (SDG 6), sustainable reliable energy (SDG 7), decent jobs (SDG 8) and access to justice (SDG 16). Other goals aim to advance the provision of global public goods (such as climate stability).

As with any global approach, considering a specific set of dimensions has limitations. It does not address all dimensions of unfairness and injustice that might be important in particular places. However, the Report complements and cross-checks globally defined measures of inequality—based on objective data—with information on perceptions of inequality, with measures of inequality in subjective well-being and with some nationally defined measures.

SPECIAL CONTRIBUTION

A new look at inequality

As every year, the 2019 Human Development Report of the United Nations Development Programme invites us to take a look at ourselves in the mirror. In systematically integrating information about the development of our societies, we are confronted with the evidence of what we have achieved and where we are failing.

This evidence is much more than a compilation of numbers and figures. Because it is all about people's well-being: Each gap that persists or grows is a call to respond to the injustice of inequality with effective policies. What can we expect when a girl is born in poverty, with no proper health coverage and in an environment where it is harder and harder to access drinking water due to climate change? How much longer can our societies keep getting it wrong when what they do breaches basic human rights? These are the issues with which inequality faces us.

We know that inequality takes many forms. Many, such as inequalities of income or gender inequalities, have been around us for a long time. It should be a matter of pride that considerable progress has been made in these issues in much of the globe. This Report highlights that inequalities in the basic capabilities reflecting extreme deprivations are going down. For instance, the world is moving towards average gender parity in access to primary and secondary education. However, at the same time, inequalities reflecting greater levels of empowerment and more important for the future tend to be higher and, in some cases, increasing. Here, we have the example of women's representation at the top political level.

Although we still have a long way to go, we have accumulated experience about what works in social protection, financial instruments and pathways of social mobility. There are success stories of better representation of women, more equitable participation in the labour market or driving out discrimination against sexual diversity. The paradox of having such long-standing inequalities is that we, as a society, have found pathways for positive change. What is needed in many cases is the political will.

Yet there are inequalities which face us with even greater challenges. It is precisely on these that the Report seeks to shed light: These are inequalities which stem from new phenomena and global conflicts. These inequalities are more challenging as they respond to complex and dynamic processes still to be well understood. Are we fully aware of the impact of migrations, the effects of climate disasters or the new epidemiological threats to our coexistence? Because that is what it is about; how do we manage to live together, in the face of these new scenarios, and achieve greater well-being for people? It is a path that we must learn to tread together.

Access to health, education, new technologies, green areas and spaces free of pollution are increasingly an indicator of the way in which opportunities and well-being are distributed among groups of people and even between countries.

Explaining and understanding the dimensions of inequalities most critical to people's well-being helps in choosing the best lines of action. Diagnosis is not enough—we must push for public policies that tackle these forms of injustice.

Therefore, all countries have a job to do. But over many years we have found that individual efforts are not enough; many challenges demand a collective approach.

In the United Nations System, we believe that the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs) are the kind of response needed in these modern times: They take an all-round look at the phenomena and the solutions; they seek convergence between the actions of governments and international agencies; and they are based on transparent and comparable measurements. With their intersectoral approach and the commitment of all governments, the SDGs put us all at the service of a single endeavour.

The best example of what we hold in our own hands is the enormous challenge of limiting the rise in the global temperature to 1.5°C. Our United Nations Office for Human Rights has said it clearly: Climate change directly and indirectly affects a range of human rights which must be guaranteed. We view with satisfaction that science, governments, business and civil society are starting to coalesce around concrete targets. Thus, little by little, sectoral isolation and arguments are breaking down.

It is the path we must insist on. We have a duty to eradicate old and new forms of inequality and exclusion which every day breach the rights of millions of people living on our planet.

It would be a mistake to think that there have not been successes, that injustice in the world has not been driven back. But so long as there is pain and suffering due to inequality, we have a duty to face up to what we are doing wrong and which we can put right.

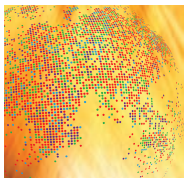
We have more future than yesterday: This is the invitation that we must all make our own.

Michelle Bachelet Jeria
United Nations High Commissioner for Human Rights

Chapter **1**

Inequality in human development: Moving targets in the 21st century

1.



Inequality in human development: Moving targets in the 21st century

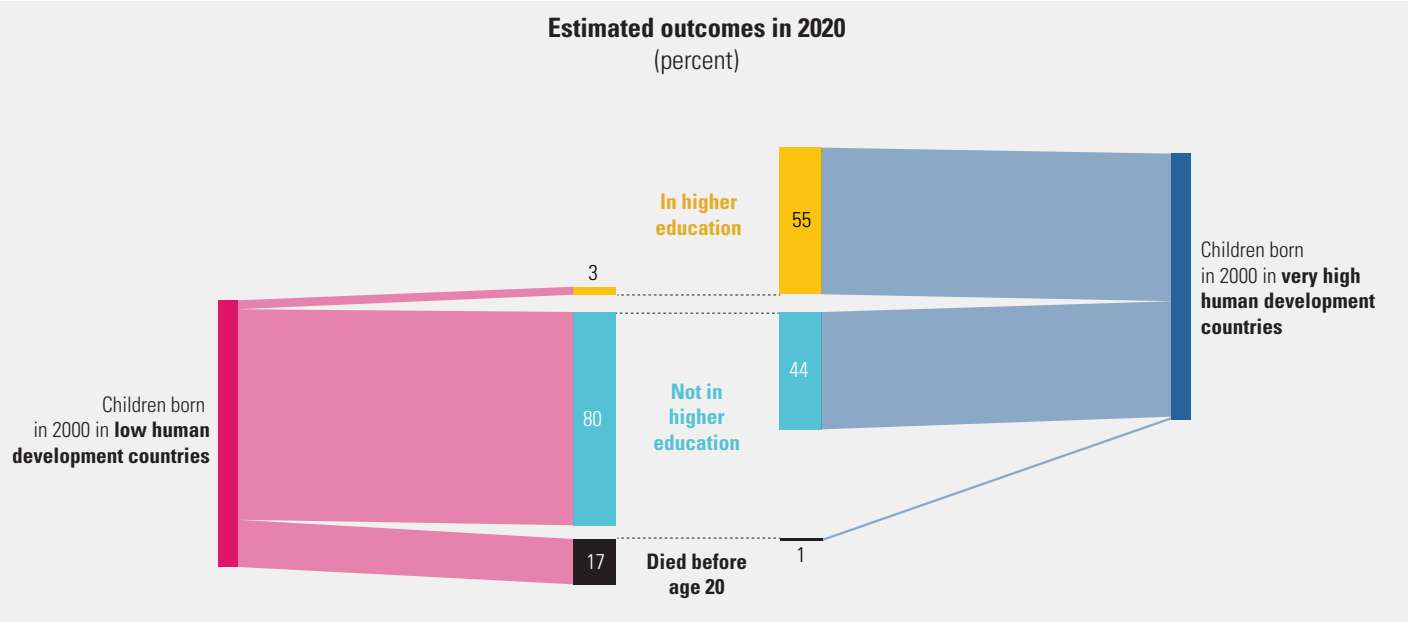
This chapter considers two main questions: Where do human development inequalities stand today and how are they changing? Many inequalities in human development embody unfairness. To see how, take two babies, both born in 2000—one in a low human development country, the other in a very high human development country (figure 1.1). What do we know about their prospects for adult life today? We know that they are vastly different. The first is very likely to be enrolled in higher education, along with the majority of 20-year-olds in more developed countries today. She or he is preparing to live in a highly globalized and competitive world and has chances do so as a highly skilled worker.

In contrast, the child from the low human development country is much less likely to be alive. Some 17 percent of children born in low human development countries in 2000 will have died before age 20, compared with just 1 percent of children born in very high human development countries. And those who survive have an expected lifespan 13 years shorter than their counterparts in the group of more developed countries. The child born in the low human development country is also unlikely to still be in education: Only 3 percent are in higher education.[1] Both of these young people are just beginning their adult lives, but circumstances almost entirely beyond their control have already set them on different and unequal paths in terms of health, education, employment and income prospects—a divergence that can be irreversible.

Some inequalities within countries—whether developing or developed—are no less extreme than those in the between-country example above. In the United States average life expectancy at age 40 between the top 1 percent of the income distribution and the bottom

FIGURE 1.1

Children born in 2000 in countries with different incomes will have severely different capabilities by 2020



Note: These are estimates (using median values) for a typical individual from a country with low human development and from a country with very high human development. Data for participation in higher education are based on household survey data for people ages 18–22, processed by the United Nations Educational, Scientific and Cultural Organization Institute for Statistics in www.education-inequalities.org (accessed 5 November 2019). Percentages are with respect to people born in 2000. People that died before age 20 are computed based on births around 2000 and estimated deaths for that cohort between 2000 and 2020. People in higher education in 2020 are computed based on people estimated to be alive (from cohort born around 2000), and the latest data of participation in higher education. People not in higher education are the complement.
Source: Human Development Report Office calculations based on data from the United Nations Department of Economic and Social Affairs and the United Nations Educational, Scientific and Cultural Organization Institute for Statistics.

1 percent differs by 15 years for men and 10 years for women.[2] Such disparities are widening.

The 21st century presents an unprecedentedly broad range of human experiences. See, for instance, how the distribution of nonincome indicators of the Human Development Index for subnational areas covers a huge spectrum of outcomes in health and education. Extreme deprivations still exist, not only among low human development countries (figure 1.2). Global elites, including people in low human development countries, enjoy more knowledge, more years of healthy life and more access to life-changing technologies.

Why do striking inequalities persist? Partly because of social structures—many with historical roots—that remain entrenched in formal and informal institutions, adamantly resisting change.[3] To shift the curve of human development inequalities, it is not enough to improve just one or two particular indicators. Instead, the social structures that perpetuate inequity need to change.[4]

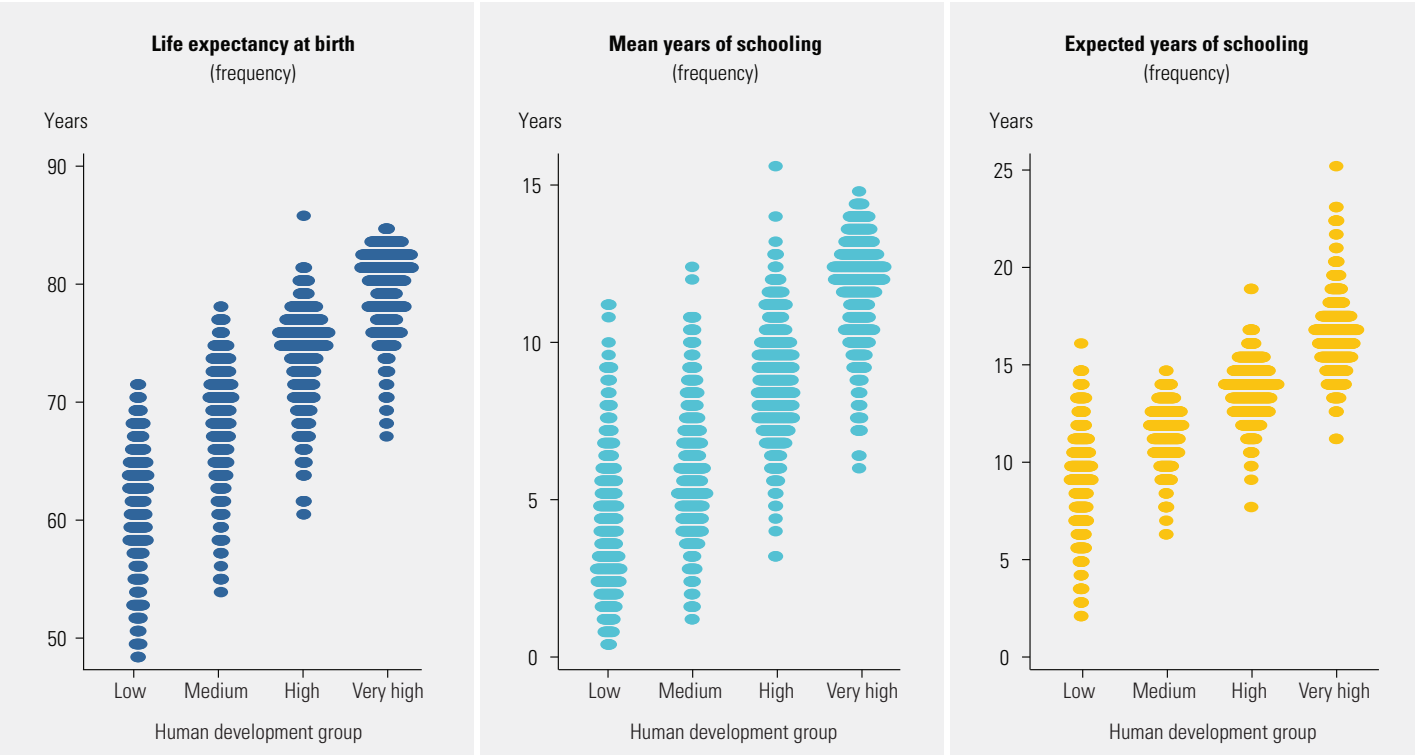
Portraying the scope of inequalities in human development and their evolution is a daunting challenge because they are dynamic, complex and multidimensional. Which to include? How to measure them? How to aggregate them? How to analyse them? And at what level: globally, nationally, subnationally, within social groups or even in the household? Amid this complexity, however, it might be possible to discern broad patterns of evolution in inequalities that are widely shared. This is the task that the rest of this chapter explores.

Understanding inequality in capabilities

Human development means expanding the substantive freedoms to do things that people value and have a reason to value.[5] What people actually choose to be and do—their achieved functioning—is enabled by income and wealth but is distinct from it. And while the achieved functioning matters, human development is not defined merely by the choices that people actually make; it is also defined by "the freedom that a person has in choosing from the set of

FIGURE 1.2

Still massive inequality in human development across the world, 2017



Source: Human Development Report Office based on calculations of subnational Human Development Index values by Permanyer and Smits (2019).

feasible functionings, which is referred to as the person's capability."[6] Thus, the analysis of inequality in this chapter considers inequality of capabilities (box 1.1).

But what capabilities to consider? Sen argued that one must adjust in response to evolving social and economic conditions. For example, in India at the time of independence in 1947, it was reasonable to concentrate "on elementary education, basic health, [...] and to not worry too much about whether everyone can effectively communicate across the country and beyond."[7] Later, however—with the internet and its applications, as well as broader advances in information and communication technology—access to the internet and freedom of general communication became an important capability for all Indians. Whereas one relevant aspect of this insight is strictly linked to capabilities (access to the internet), another intersects with human rights and specifically with the right to freedom of opinion and expression.[8] Moreover, capabilities evolve not only with circumstances but also with values and with people's changing demands and aspirations.

The capabilities approach is thus open-ended, which some observers see as a shortcoming.[9] One objection is that it does not lend itself to specifying a standard and fixed goal for evaluating social welfare because capabilities are continuously moving targets. This Report takes a different view: It considers that the inequalities we care about may indeed be moving targets and thus aims to identify patterns and dynamics of inequality in a wider set of capabilities that may be increasingly relevant during the 21st century.

Another challenge is how to measure capabilities—that is, how to move from concepts to the empirical assessment of how capabilities are distributed. Here the Report follows the approach taken when the Human Development Index (HDI) was introduced and identifies a few observable achieved functionings to capture broader capabilities (for instance, in the HDI, having the option to live a long and healthy life is associated with the indicator of life expectancy

Inequalities we care about may indeed be moving targets

BOX 1.1

Inequality of capabilities

In keeping with previous Human Development Reports, this Report assumes, from a normative perspective, that the inequalities that matter intrinsically are inequalities in capabilities. Capabilities—broadly defined as people's freedom to choose what to be and do—cannot be reduced to income and wealth alone, because these are instrumental.[1] Nor can they be defined as utility and measured by people's actual choices, for that would obscure real differences in how individuals use income for achievements that they value.[2] Instead, capabilities are people's freedoms to choose what they want to be and do—regardless of whether they actually make those choices. Thus, capabilities are closely related to the concept of opportunities: It is not enough to know that someone has not travelled to a foreign country; we need to know whether that was a free choice or whether the person wanted to travel but either could not afford it or was denied entry.[3]

The first Human Development Reports used the capabilities approach to intervene in the development discourse of the time, when debates centred on basic needs,[4] leading to the introduction of the Human Development Index (HDI)—measuring the capability to live a long and healthy life, to acquire knowledge and to earn income for a basic standard of living.[5] The HDI was meant to be a metric of a very minimal list of capabilities, "getting at minimally basic quality of life."[6] It was never a statistic to be maximized, as in aggregate utility. It was computed at the country level, mostly because of data availability, and was meant to enrich the assessment of countries' development performance.[7]

Notes

1. Sen (1980) went further than Rawls's social primary commodities, with essentially the same argument—that these are, at best, instrumental. 2. More precisely, Sen (1980) was showing the limitations of utilitarianism as a normative principle to adjudicate welfare. In utilitarianism, social welfare is assessed based on the actual choices that people make. People are assumed to maximize their individual utility—an increasing function of income, but one that yields less utility the higher the income. So achieving the ideal social welfare implies maximizing the sum total of utility in a society. That, in turn, can happen only if income is distributed so that individual marginal utility is equalized. Sen used a well known and compelling illustration to show how this principle could result in outcomes that violate our sense of fairness. Consider two individuals: One, who lives with a disability, is not very efficient in turning an additional dollar of income into utility; another, in contrast, derives satisfaction from every single additional dollar. Utilitarianism would dictate giving more income to the second person, an outcome that violates our sense of fairness. 3. Basu and Lopez-Calva 2011. 4. Stewart, Ranis and Samman 2018. 5. Sen (2005) credits joint work with Mahbub Ul Haq to develop a general index for global assessment and critique, going beyond gross domestic product (GDP). 6. Sen 2005. 7. Perhaps more important, quoting Klasen (2018, p. 2), "Many of the battles of the 1990s that came to define the Human Development Reports have been won. Today, the entire development community accepts that development is more than increasing per capita gross domestic product (GDP).… The HDI has been canonized in all standard textbooks on development economics or development studies … and is considered the most serious and comprehensive alternative to GDP per capita. […]"

at birth). To motivate the empirical information considered, a lifecycle approach is used, given that achievements in human development build over a person's life through a sequence of observable and measurable indicators. Initial stepping stones, such as surviving to age 5, learning to read and doing basic math are crucial to further development: These basic achievements present some of the necessary conditions for creating further capabilities in life.[10] The enhanced achievements that follow, such as a long and healthy adult life or tertiary education, reflect more advanced access to opportunities.

While these observable achievements are what can be measured (and compared across countries in a global report), they are taken to represent a wider set of capabilities that also range from basic to enhanced. Emphasis should be placed on the underlying concept of basic and enhanced capabilities over the specific measurements, which can evolve and change from country to country. Here the inspiration is Amartya Sen's definition of a basic capability as "the ability to satisfy certain elementary and crucially important functionings up to certain levels."[11] Basic capabilities thus refer to the freedom to make choices necessary for survival and to avoid or escape poverty or other serious deprivations.

Initial stepping stones, such as surviving to age 5, learning to read and doing basic math are crucial to further development: These basic achievements present some of the necessary conditions for creating further capabilities in life. The enhanced achievements that follow, such as a long and healthy adult life or tertiary education, reflect more advanced access to opportunities

The differentiation between basic and enhanced capabilities is valid also for other human development dimensions that are not necessarily tied to an individual lifecycle—for example, in the progression from basic to frontier technologies and in the ability to cope with environmental shocks, from perhaps frequent but low-impact events to large and unpredictable hazards.

This distinction between basic and enhanced capabilities resembles the analysis of practical needs and strategic needs in the context of gender empowerment, pioneered by Caroline Moser.[12] Associated with the distinction is a cautionary message: While investment in basic needs is essential, to focus on them exclusively is to neglect inequalities in strategic aspects of life, those that change the distribution of power.

Thus, the next section presents a stylized analysis along two key dimensions beyond income: health and access to knowledge—both core dimensions of the human development approach since the first Human Development Report. The sequence from basic to enhanced capabilities can be framed in the context of a lifecycle analysis (which is also used in chapter 2 when analysing the mechanisms leading up to the emergence of inequalities in capabilities). Later in the Report the same patterns will be illustrated in two other dimensions: human security in the face of shocks linked to trends on climate change (chapter 5) and technology (chapter 6).[13] These drivers of the distribution of capabilities in the 21st century are considered without implying that others, such as demographic changes, are unimportant or that they are the only two that matter, but to allow for a treatable elaboration of the arguments showing the relevance of analysing the inequality dynamics in both basic and enhanced capabilities.

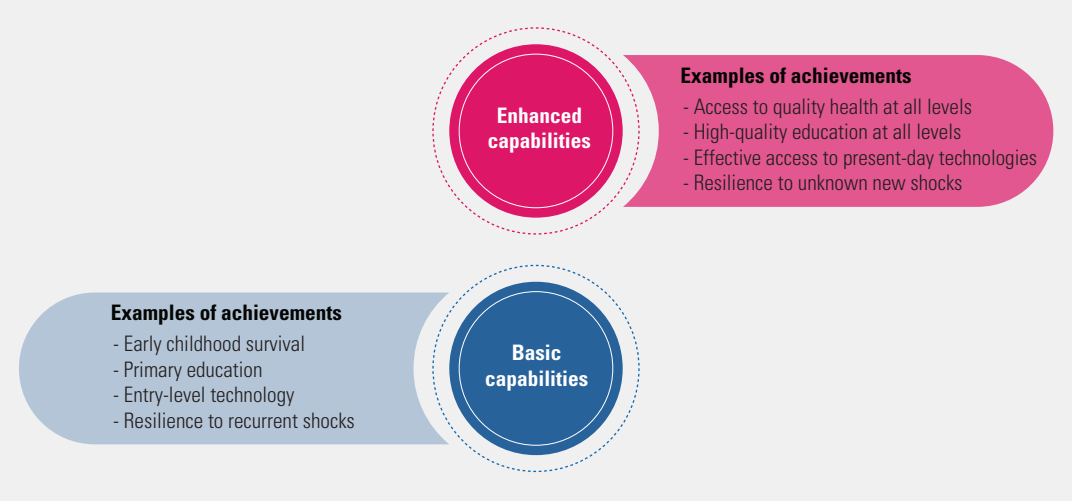
Admittedly, constraining the analysis to these four dimensions is arbitrary. And in no way should these aspects be regarded as the most important or have any normative meaning. But it is plausible to claim that the distribution and evolution of capabilities across these four dimensions will be paramount in determining people's agency over the 21st century—that is, "the ability to decide on and the power to achieve what they want."[14] These capabilities, while essential for agency, are not their sole determinants because human motivations are not driven exclusively by improvements in one's own well-being; "people's sense of fairness and concern that they and others be treated fairly"[15] also matter. While a full treatment of the implications of these broader determinants of agency is beyond the scope of the Report, this chapter concludes with a section that looks at perceptions of inequality (which could indicate how a sense of fairness, or lack thereof, is evolving) as well as some of the social and psychological underpinnings of how these perceptions may emerge and how they connect with human dignity.

Dynamics of inequality in human development: Convergence in basic capabilities, divergence in enhanced capabilities

On each of the four dimensions considered in the Report, it is possible to identify a differentiation in capabilities, from basic to enhanced (figure 1.3):

FIGURE 1.3

Human development, from basic to enhanced capabilities



Source: Human Development Report Office.

- *Health.* From, for example, the ability to survive the first years of life to the prospect of enhanced healthy longevity.
- *Education and knowledge.* From, for example, having basic primary education to accessing a high-quality learning experience at all levels.
- *Human security in the face of shocks.* From the daily lack of freedom from fear where interpersonal violence is rampant to facing the consequences of conflict. The ability to face recurrent shocks and the capabilities to deal with uncertain events linked to climate change are addressed in chapter 5.
- *Access to new technologies.* From entry-level to more advanced ones (discussed in more detail in chapter 6, with some results presented in this chapter).

Cutting across key human development dimensions are the section's three main findings:

- *Inequalities and unfairness persist.* Human development inequalities remain widespread.
- *Convergence appears in basic capabilities.* Those at the bottom are catching up in the basics.
- *Divergence appears in enhanced capabilities.* Gaps in enhanced capabilities exceed those in the basic ones or are rising (or in some cases, both).

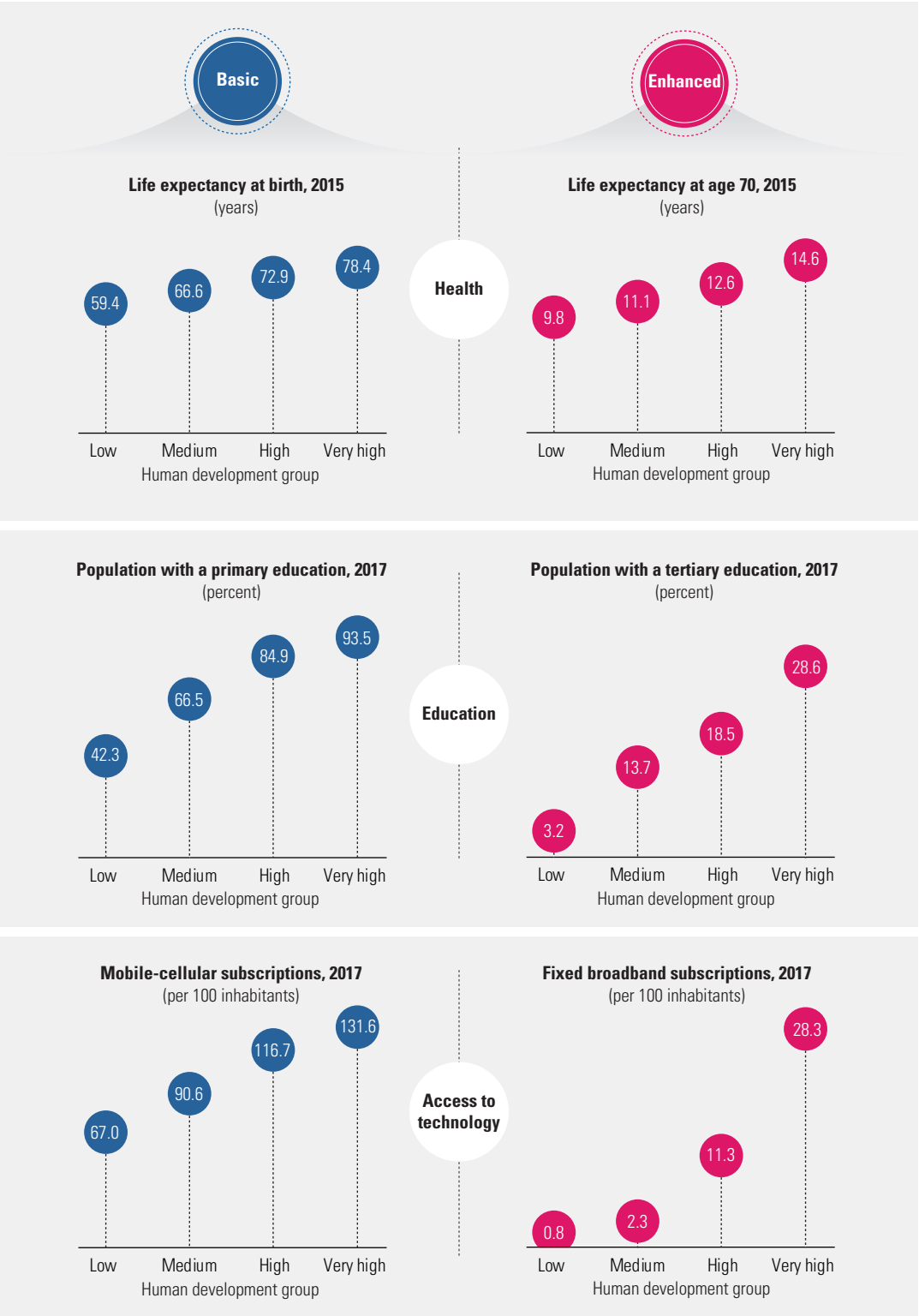
First, inequalities persist and are widespread. Across all dimensions considered there are significant inequalities in constitutive areas of human development: Some refer to life and death, and others to access to knowledge and to life-changing technologies. Across countries the world remains deeply unequal in key areas of human development in both basic and enhanced capabilities (figure 1.4). There is a difference of 19 years in life expectancy at birth between low and very high human development countries, reflecting gaps in access to health. That represents a quarter of a lifespan lost just for being born in a poor country. The differences tend to remain over the lifecycle. The differences in life expectancy at age 70, is almost 5 years, representing a third of the remaining lifespan lost. The percentage of adults with a primary education is 42 percent in low human development countries, compared with 94 percent in very high developing countries. Again, gaps remain through the lifecycle: Only 3 percent of adults have a tertiary education in low human development countries, compared with 29 percent in developed countries. In access to technology, there are 67 mobile-cellular subscriptions per 100 inhabitants in developing countries, half the amount in very high human development countries. In more advanced technologies, such as access to fixed broadband, there is less than one subscription per 100 inhabitants, compared with 28 in very high human development countries.

The same is true within countries. One way to capture within-country inequalities in key areas of human development is through the

Inequalities and unfairness persist. Human development inequalities remain widespread. Convergence appears in basic capabilities. Those at the bottom are catching up in the basics. Divergence appears in enhanced capabilities. Gaps in enhanced capabilities exceed those in the basic ones or are rising

FIGURE 1.4

The world remains deeply unequal in key areas of human development in both basic and enhanced capabilities



Source: Human Development Report Office calculations based on data from the International Telecommunication Union, the United Nations Educational, Scientific and Cultural Organization Institute for Statistics and the United Nations Department of Economic and Social Affairs.

Inequality-adjusted Human Development Index (IHDI), which adjusts the HDI value for inequality within countries in each of its components (health, education and income). According to the IHDI, the global average loss in human development due to inequality is 20 percent.

Second, on average, there is convergence in basic capabilities. Inequality in the basic capabilities of human development included in the HDI is falling. This can be seen in the evolution of the IHDI, where indicators representing basic capabilities have very high implicit weights.[16] In all regions of the world the loss in human development due to inequality is diminishing (figure 1.5). This trend is repeated in many subnational HDI values[17] and has happened against a backdrop of aggregate development progress across achievements representing basic capabilities on multiple fronts.[18] The global extreme poverty rate fell from 36 percent in 1990 to 9 percent in 2018.[19] Infant mortality rates have been falling consistently. Primary school enrolment rates have seen great strides, with universal coverage in most countries, and secondary education is making rapid progress (though the substantive significance of these achievements needs to be seen in the context of an impeding "learning crisis," as discussed later in the chapter).[20] The number of people living in low human development countries is 923 million today, down from 2.1 billion in 2000. People have been "escaping" from the imprisonment of extreme deprivations, to use Angus Deaton's expression.[21] This chapter also documents that this is an unfinished business, as the challenge of reaching those furthest behind persists.

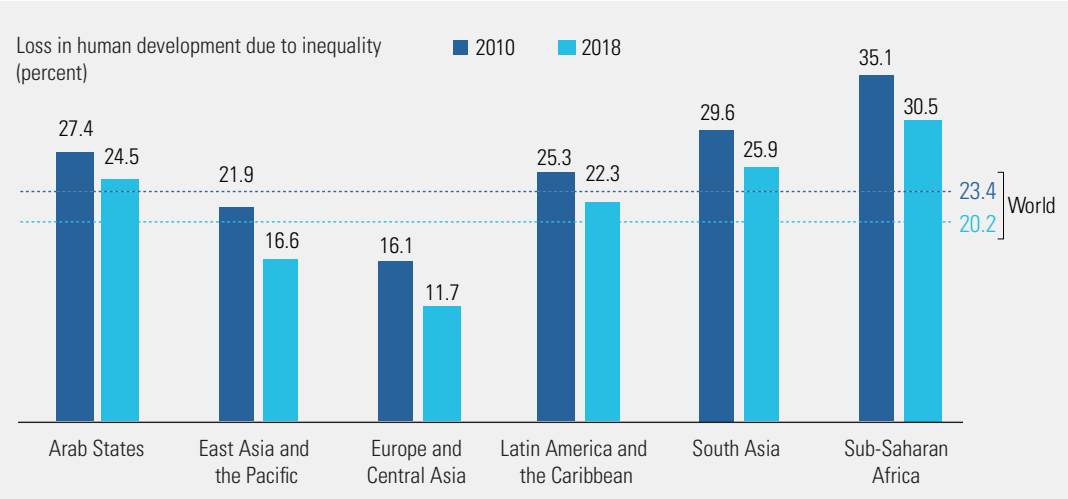
While there is catching up in the basics, this is happening years after the wealthier segments of society exhausted the space to make further progress on the same fronts. People at the top of the distribution typically have reached the limit of progress in basic capabilities: Universal coverage in primary education and secondary education, very low infant mortality rates and access to basic technology are now taken for granted among better-off segments of most societies. They are looking towards more advanced goals. What is happening in these enhanced areas?

Third, there is divergence in enhanced capabilities. Inequality is typically higher across enhanced capabilities, and when it is not, it is growing. In each of the key dimensions of human development considered—health, education, living standards, access to technology and security—groups converging in basic capabilities lag behind in access to enhanced capabilities. Greater ambitions are defining moving targets. Yet this set of enhanced achievements will increasingly determine people's lives in this century, in part because they are linked to some of the most consequential change drivers of our time: technology and climate change.

While there is catching up in the basics, this is happening years after the wealthier segments of society exhausted the space to make further progress on the same fronts

FIGURE 1.5

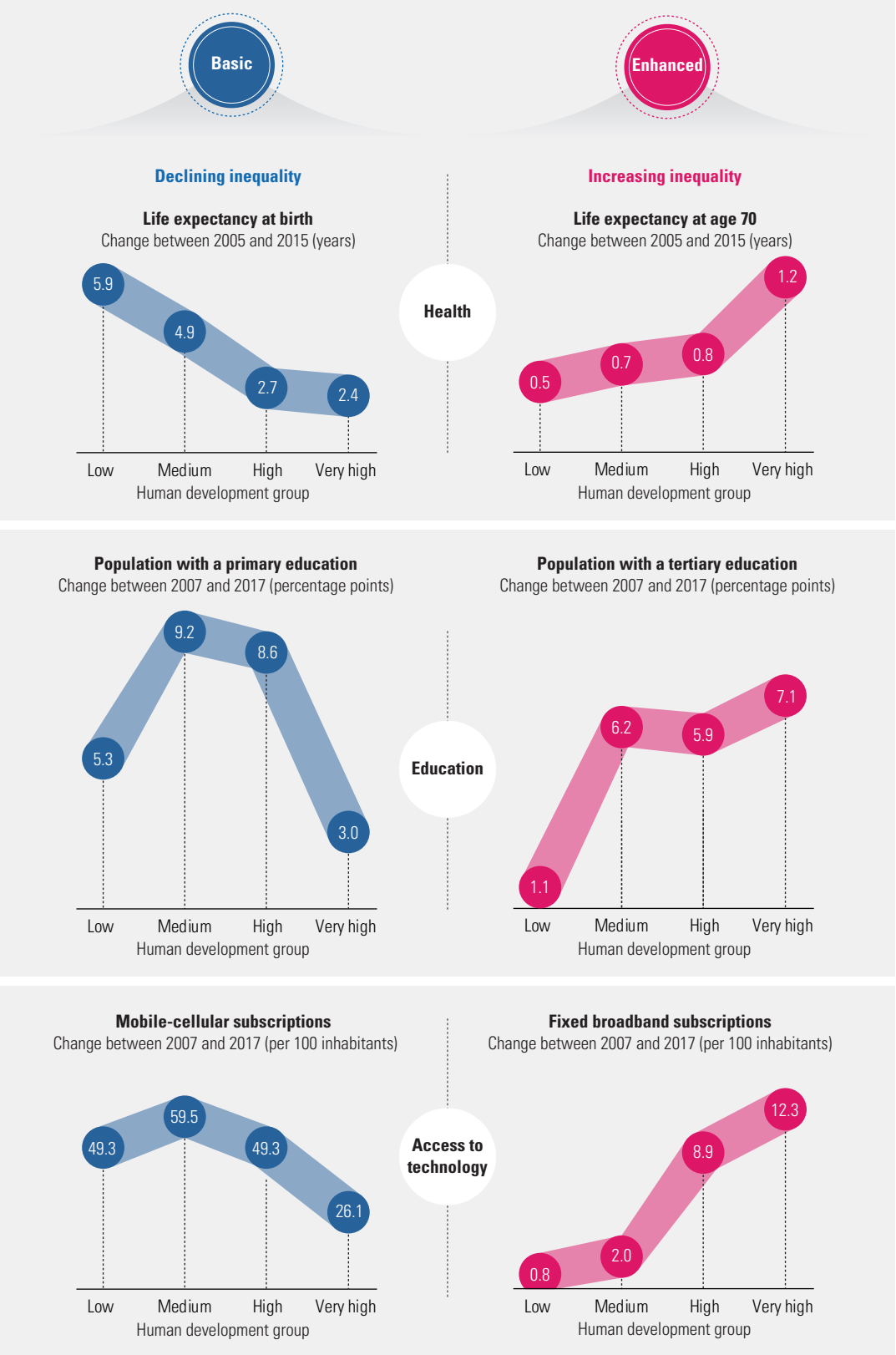
In all regions of the world the loss in human development due to inequality is diminishing, reflecting progress in basic capabilities



Source: Human Development Report Office calculations.

FIGURE 1.6

Convergence in basic capabilities, divergence in enhanced capabilities



Source: Human Development Report Office calculations based on data from the International Telecommunication Union, the United Nations Educational, Scientific and Cultural Organization Institute for Statistics and the United Nations Department of Economic and Social Affairs.

Figure 1.6 summarizes the emerging human development divide with pairs of indicators, measuring progress over the last decade in one basic and one enhanced indicator for each of three key human development dimensions: health, education and access to technologies. Across human development groups there are two opposing trends in gradients for basic and enhanced capabilities. Inequalities are falling in basic capabilities because lower human development countries are making larger progress on average. When the ones that are behind grow faster, there is convergence. By contrast, inequalities are growing in enhanced capabilities because high and very high human development countries are getting ahead, leading to divergence. The Report documents later that these trends are also observed within countries.

The basic indicators in the figure all reflect narrowing inequalities between countries in different human development groups. For instance, in life expectancy at birth (driven mainly by survival to age 5), in access to primary education and in access to mobile phones, lower human development countries are making faster progress. They are catching up with higher human development countries.

In contrast, the more advanced indicators in the figure reveal widening inequalities. Higher human development countries start with an advantage in life expectancy at age 70, in tertiary education enrolment and in broadband access—and they are increasing their lead in these areas. The effect of these widening gaps—representing just few examples of enhanced capabilities—will be revealed over the 21st century. And that effect will impact those born today, many of whom will see the 22nd century. The remainder of this section considers the dynamics of convergence and divergence in health and education in more detail.

Health: The well-off are living healthier and longer in the 21st century

Health inequalities can be a clear manifestation of social injustice (see chapter 2 for a more detailed discussion). These inequalities also reflect shortcomings in meeting basic human rights, such as those defined by article 25 of the Universal Declaration of Human Rights (box 1.2).

BOX 1.2

Article 25 of the Universal Declaration of Human Rights: The right to a basic standard of living

"Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.

"Motherhood and childhood are entitled to special care and assistance. All children, whether born in or out of wedlock, shall enjoy the same social protection."

Source: www.un.org/en/universal-declaration-human-rights/.

Inequalities in health outcomes are widespread

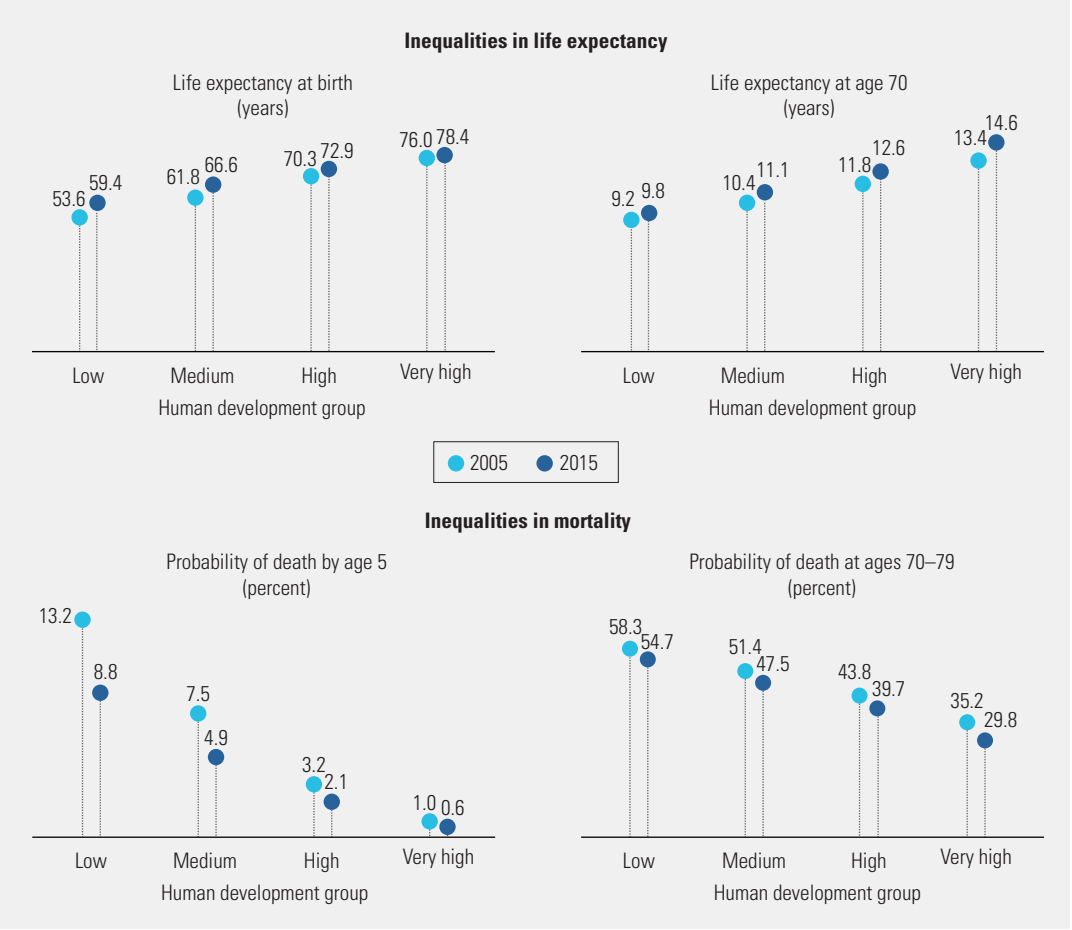
Life expectancy at birth is a helpful indicator to track health inequalities. As one of the three components of the HDI, it has been used as a proxy for long and healthy life since the first Human Development Report in 1990.

Here, the analysis extends life expectancy beyond that at birth to that at different ages in order to identify the dynamics of health through the lifecycle. This lifecycle approach makes it possible to capture changes in both the demographic and the socioeconomic transitions. And it shows how, across various indicators, not only do deep inequalities persist, but new gaps are also opening. Life expectancies—both at birth and at older ages—are considerably higher in countries with higher income or higher human development (figure 1.7)—this is often called a health gradient. People born in very high human development countries are expected to live almost 19 more years (or almost a third longer) than people in low human development countries.[22] People at age 70 in very high human development countries are expected to live almost 5 more years (around 50 percent longer) than people in low human development countries. The gaps are also very large when the quality of health is considered (box 1.3).

People born in very high human development countries are expected to live almost 19 more years (or almost a third longer) than people in low human development countries

FIGURE 1.7

Inequalities persist in life expectancy and mortality



Source: Human Development Report Office calculations based on data from the United Nations Department of Economic and Social Affairs.

BOX 1.3

Inequality in healthy life expectancy

While the length of life is important for human development, equally essential is how those years are lived. Are they enjoyable? Does health remain good? The indicator of healthy life expectancy suggests large discrepancies. Healthy life expectancy for very high human development countries is about 68 years, compared with only about 56 years for low human development countries.[1]

A look at some specific diseases can shed some light on causes of inequalities in life expectancy and healthy life expectancy. The prevalence of tuberculosis, for example, is only 0.8 per 100,000 people in the United Arab Emirates but 724 per 100,000 in Lesotho. The HIV prevalence rate among adults is 27.2 percent in the Kingdom of Eswatini but only 0.1 percent in many very high human development countries, among them Australia, Bahrain, Kuwait and Romania.[2] Malaria has been defeated in Sri Lanka and is projected to be defeated in 2020 in Argentina, Belize, Costa Rica, Ecuador, El Salvador, Mexico, Paraguay and Suriname.[3] But prevalence is still high in Mali, with 459.7 cases per 1,000 people at risk, and Burkina Faso, with 423.3.[4] In May 2019, 1,572 people in the Democratic Republic of Congo suffered from Ebola.[5]

Notes

1. See *Statistical table 8* at http://hdr.undp.org/en/human-development-report-2019. 2. UNDP 2018a. 3. WHO 2017. 4. UNDP 2018a. 5. WHO 2019.

Catching up in the basics: Global convergence in life expectancy at birth, especially through reduced infant mortality

The increase in life expectancy at birth—from a weighted average of 47 years in the 1950s to 72 years around 2020—portrays the extraordinary progress in health.[23] In 2000 several countries still had life expectancy at birth below 50 years, a category expected to disappear from every country average by 2020.[24] The improvement has been observed across human development groups (see figure 1.7). Moreover, low human development countries gained almost 6 years of life expectancy at birth between 2005 and 2015, compared with 2.4 years for very high human development countries (figure 1.8, left panel). This is consistent with a reduction of more than 4 percentage points in under-five mortality rates in low human development countries. Another area with significant reduction is maternal mortality, which fell 45 percent between 1990 and 2013.[25]

A detailed look at the situation within developing countries confirms these trends. To facilitate meaningful comparability, figure 1.9 groups the within-country results (information per quintile in 54 countries), according to their human development level. Consider infant mortality rates, an important determinant of life expectancy at birth. They have been declining everywhere, but significant gradients remain: Children born in poorer quintiles have a much higher probability of dying during the first year of life than those born in wealthier quintiles. This is the case across all human development groups.

The convergence in mortality rates at younger ages is also confirmed within countries: Infant mortality appears to be falling for all segments of the population, and in most countries the greatest reductions in infant mortality are in the poorest three quintiles. This result is consistent with the decline in the dispersion of life expectancy at birth documented in an analysis of more than 1,600 regions in 161 countries, covering more than 99 percent of the world population.[26]

Growing inequalities in enhanced capabilities: Divergence in life expectancy at older ages

Consider the levels and the evolution of average mortality rates for different groups of countries, both at young ages (ages 0–5) and at older ages (ages 70–79) (figure 1.10). While the level of inequality in mortality rates is much higher at young ages than at older ages, the changes in mortality rates reflect different patterns. Child mortality rates converge—dropping faster for lower human development countries—just as mortality rates at older ages diverge.

If the countries performing poorly in 2005 are the ones with greater progress over 2005–2015, there is catching up or convergence. But if the countries with worse performance in 2005 are the ones with less improvement over 2005–2015, there is divergence. Different patterns can be observed with different definitions of life expectancy: going from clear convergence in life expectancy at birth to clear divergence in life expectancy at age 70 (see figure 1.8, right panel).[27]

Inequalities in life expectancy at older ages are an emerging form of inequality in human development in the 21st century. Divergence in life expectancy at older ages is much stronger today than during the second half of the 20th century.[28] And since the turn of the century, life expectancy at older ages has been increasing much faster in very high human development countries than elsewhere. During 2005–2015 life expectancy at age 70 increased 0.5 year in low human development countries and 1.2 years in very high human development countries.

Improvements in technologies, enhanced social services and healthy habits are moving the frontiers of survival at all ages. While the space for reducing mortality under age 5 is shrinking fast, it remains large at older ages (under age 80).[29] An important factor behind different mortality rates at older ages are variations in noncommunicable disease rates across different groups. People with lower socioeconomic status or living in more marginalized communities are at higher risk of dying from a noncommunicable disease.[30]

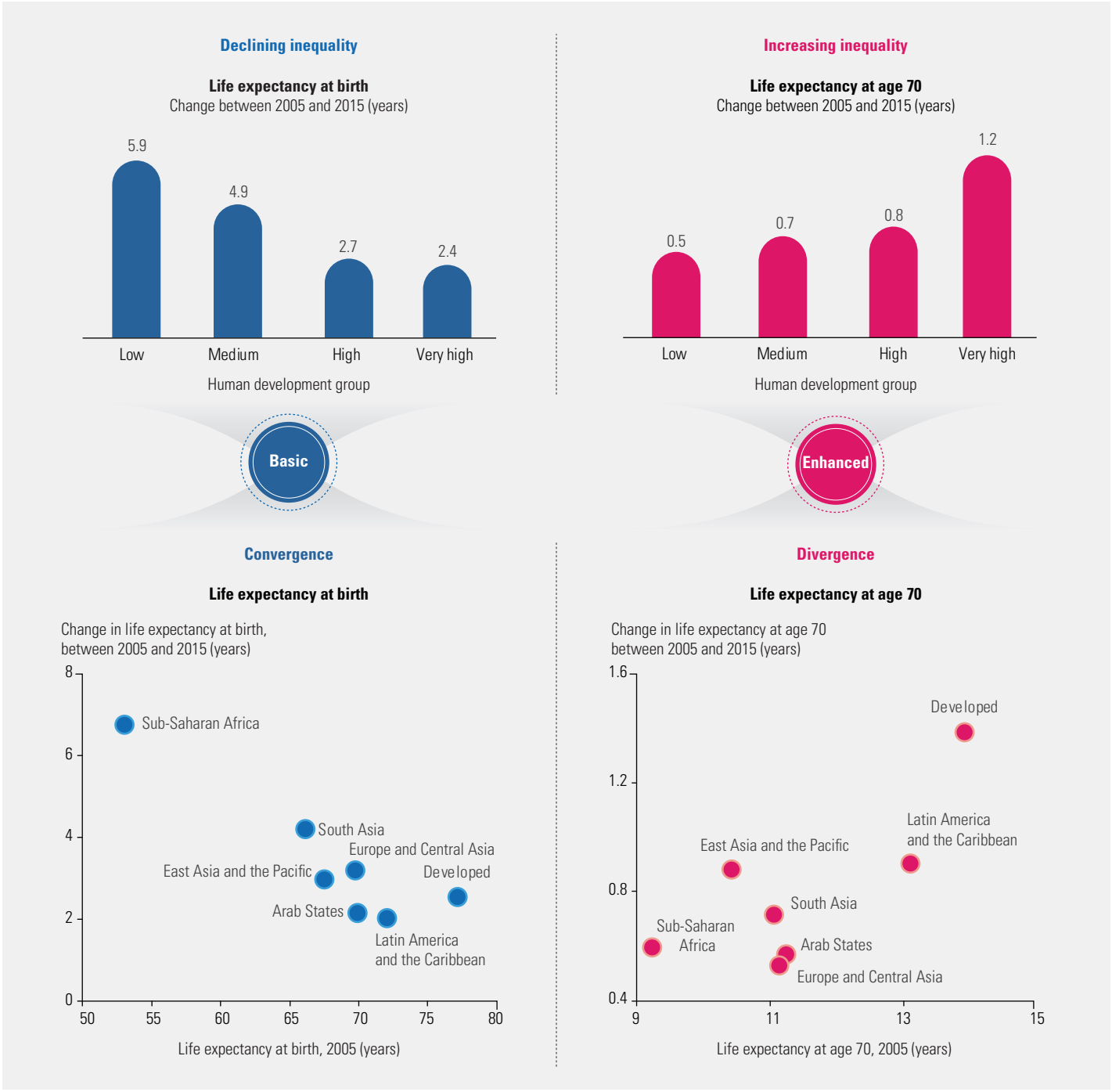
The world is getting older fast. People over age 60 are the fastest growing age segment of the global population. By 2050, one person in five worldwide is expected to be in this age group; in more developed regions the proportion is expected to be one in three.[31] Therefore, the relevance of inequalities linked to older people will grow.

These between-country results are consistent with emerging evidence from within-country

Low human development countries gained almost 6 years of life expectancy at birth between 2005 and 2015, compared with 2.4 years for very high human development countries

FIGURE 1.8

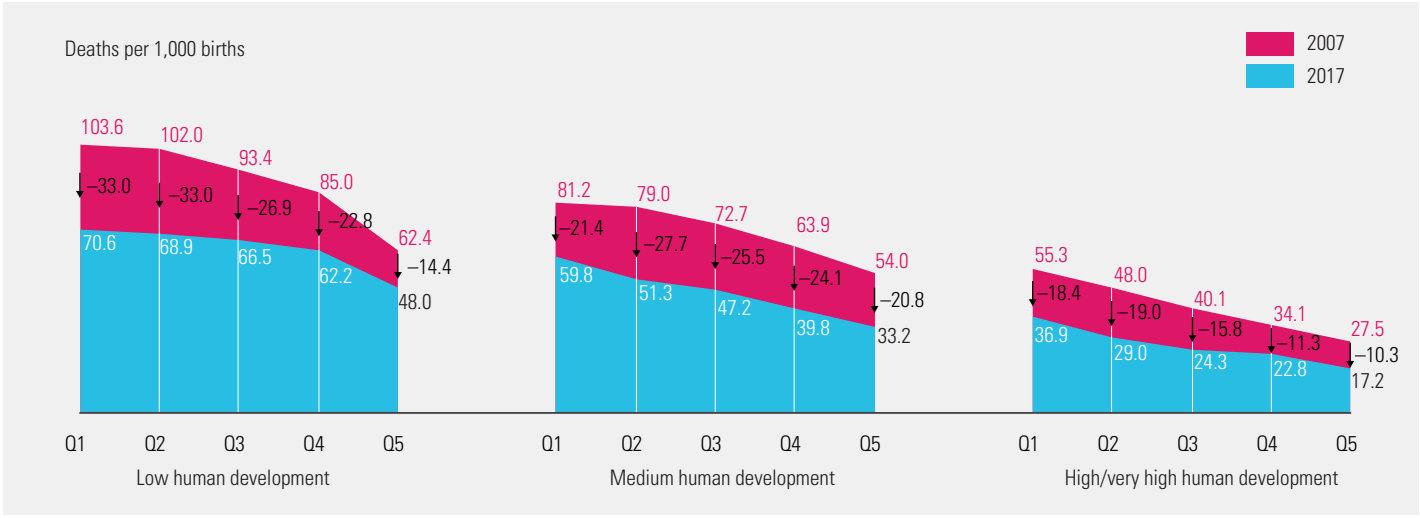
The changing inequality in life expectancy, 2005–2015: Low human development countries catching up in life expectancy at birth but lagging behind in life expectancy at older age



Note: Convergence and divergence are tested for in two ways: by using the slope of an equation that regresses the change over 2005–2015 with respect to the initial value in 2005 (with ordinary least squares, robust and median quantile regressions) and by comparing the gains of very high human development countries and the gains of low and medium human development countries. For life expectancy at birth there is convergence according to both metrics (*p*-values below 1 percent). For life expectancy at age 70 there is divergence according to both metrics (*p*-values below 1 percent).
Source: Human Development Report Office calculations based on data from the United Nations Department of Economic and Social Affairs.

FIGURE 1.9

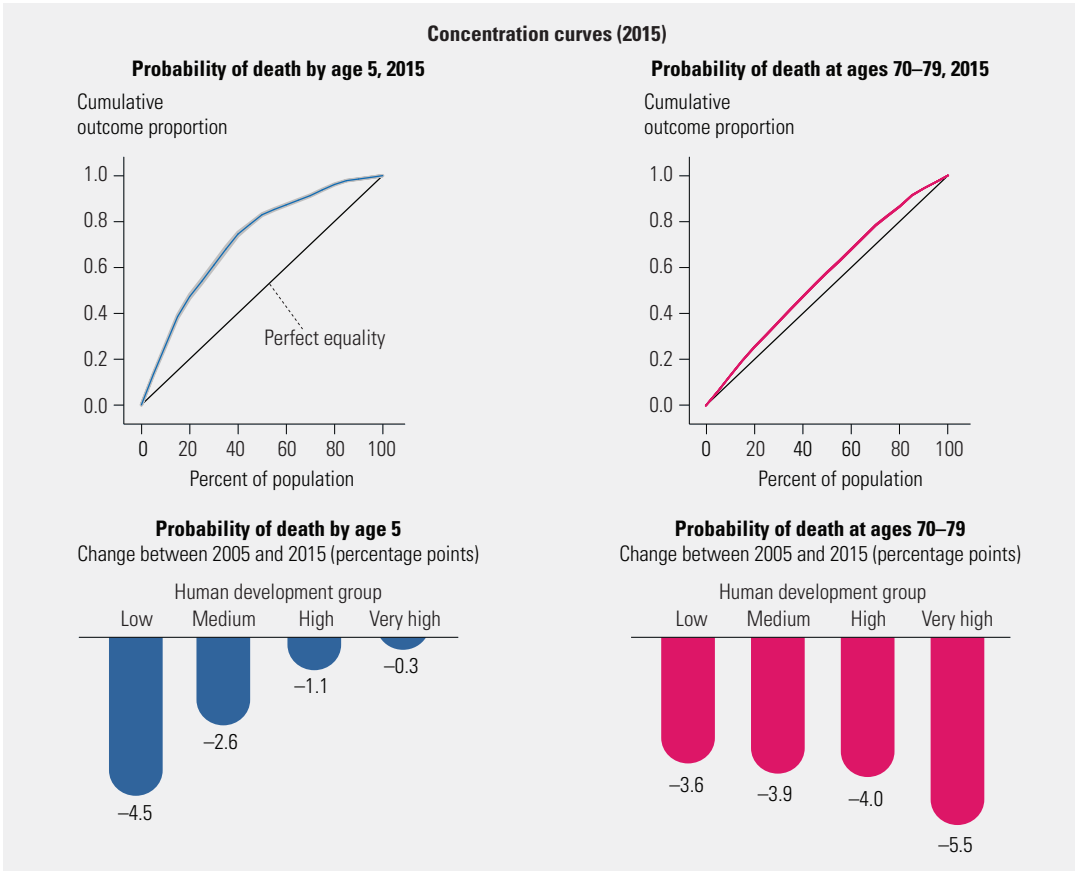
Infant mortality rates, an important determinant of life expectancy at birth, have been declining everywhere, but significant gradients remain



Note: Data for 2007 refer to the most recent year available during 1998–2007, and data for 2017 refer to the most recent year available for 2008–2017. Data are simple averages across human development groups. Only one very high human development country (Kazakhstan) is included in the sample. Quintiles reflecting within-country distribution of assets are grouped by human development groups.
Source: Human Development Report Office calculations based on data from the United Nations Department of Economic and Social Affairs.

FIGURE 1.10

Mortality: Convergence in basic capabilities, divergence in enhanced capabilities



Source: Human Development Report Office calculations based on data from ICF Macro Demographic and Health Surveys and United Nations Children's Fund Multiple Indicator Cluster Surveys.

studies. In the United States higher income is associated with greater longevity. And inequality of life expectancy has increased in recent years. Between 2001 and 2014 individuals in the top 5 percent of the income distribution gained more than 2 years of life expectancy at age 40, while lifespans in the bottom 5 percent remained nearly unchanged.[32] The importance of socioeconomic factors is highlighted by the fact that life expectancy at age 40 among low-income people (the bottom quartile) varies by about 4.5 years across cities: Low-income individuals in affluent cities with highly educated populations and high government expenditures, such as New York and San Francisco, tend to live longer (and to have healthier lifestyles) than elsewhere. Those cities also experienced the largest gains in life expectancy among poor people during the 2000s. Finally, differences in life expectancy limit redistribution because low-income individuals obtain benefits from social programmes for fewer years than high-income individuals do.[33]

Other studies show increasing inequalities in life expectancy in Canada,[34] Denmark,[35] Finland,[36] Japan,[37] the United Kingdom,[38] the United States[39] and some Western European countries.[40] The literature on developing and emerging countries is very limited.[41] In Chile the increase in inequalities in life expectancy at older ages between 2002 and 2017 is linked to the socioeconomic status of municipalities (box 1.4).

These emerging inequalities reflect how advances in longevity are leaving broad segments of people behind. More detailed analyses are necessary to identify determinants and policy actions to ensure that the fruits of progress are within reach of everyone. But if these trends are not reversed, they will lead to increased inequality in the progressivity of public policies focused on supporting older citizens.[42]

Education: Increasing access but with widening inequality in capabilities

Through education students from disadvantaged backgrounds can improve their chances of social mobility. But for children who leave the school system early or do not receive a high-quality education, gaps in learning can become a trap with lifetime and even intergenerational implications.[43]

Education is expanding in most countries, across all levels of development. But inequality remains in both enrolment among younger generations and adults' education attainment

Inequalities in education are widespread

Education is expanding in most countries, across all levels of development. But inequality remains in both enrolment among younger generations and adults' education attainment. On average, the lower a country's human development, the larger the gap in access to education (figure 1.11).[44] For low and very high human development countries the gaps in enrolment ratios range from 20 points for primary education to 58 points for secondary and tertiary education to 61 points for preprimary education.

Gaps in access to education among children and youth are also large within countries (figure 1.12). Across levels of human development, the bottom income quintiles nearly always have less access to education, except for primary education in high and very high human development countries, where access is already universal.

Catching up in the basics: Convergence in primary education but not fast enough

Inequality is usually smaller in primary and secondary education, and most countries are on track to achieve universal primary education, which represents the potential acquisition of basic capabilities. Enrolment in secondary education is nearly universal in very high human development countries, while in low human development countries only about a third of children are enrolled. The success in reducing inequality is captured by concentration curves, showing equality as proximity to the diagonal (figure 1.13, top panel). Inequality in primary and secondary education has been falling over the past decade. People in countries with initially low enrolment (predominantly low and medium human development countries) have seen the highest increases on average (see figure 1.13, bottom panel). Trends in education attainment are similar: There is a strong reduction in gaps in primary education (figure 1.14). But these are averages, and convergence is not equally strong in all contexts because some groups are being left behind (as discussed later in this chapter).

BOX 1.4

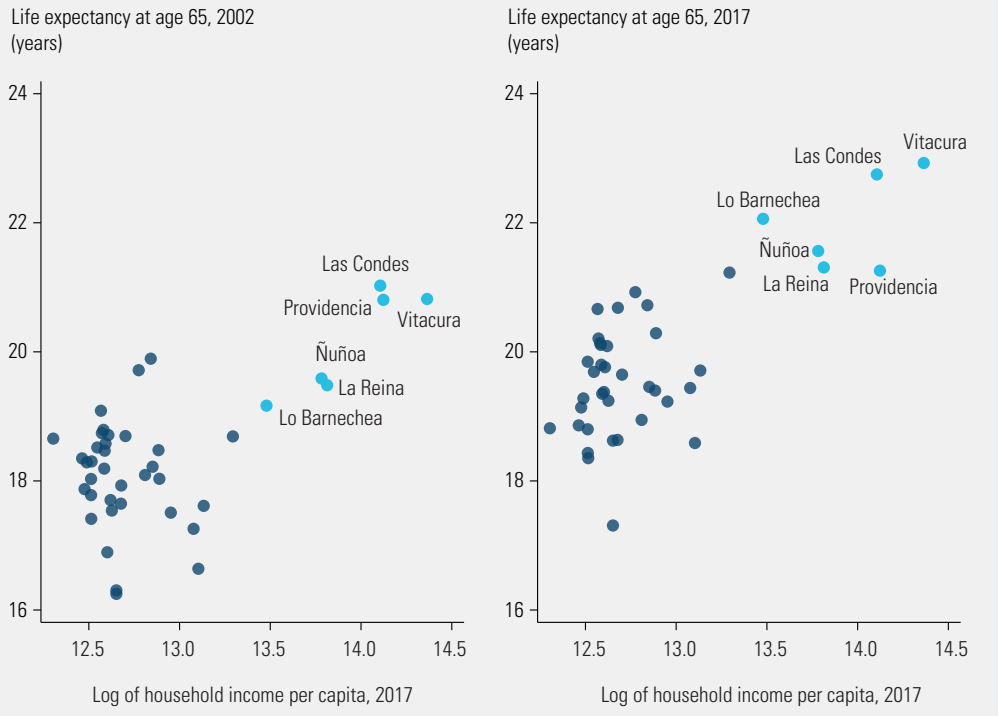
Divergence in life expectancy at older ages in Chile

Chile has historically been an unequal country in terms of income, with a Gini coefficient of 0.50 in 2017 (official figures from the CASEN Survey). For life expectancy at older ages, inequality is significant as well. In Santiago Metropolitan Region, people living in the wealthier comunas (municipalities) have a higher life expectancy at age 65—more than 2 years on average (those at the upper right in the figure). There has been generalized improvement in life expectancy over the last 15 years (between the 2002 and 2017 censuses). However, the differences between comunas are persistent and, indeed, have increased. Today, in terms of life expectancy at older ages, there is little overlap between the situation of the wealthier comunas and the rest.

There are multiple implications of the divergence in life expectancy at older ages. First, they reflect the unevenness of progress in health across the country. Advances in healthy life are taking place, but they are not reaching all social groups and territories equitably. Second, there are potentially regressive distributive effects through the pension system, which ties retirement benefits to the amount of money accumulated in an individual savings account and to the life expectancy after retirement—that is currently common across social groups.

This example shows the importance of comprehensive analysis of inequalities using the human development lens, going beyond income (assessing the health dimension), beyond averages (looking at disaggregated data in different areas) and beyond today (covering inequalities expected to become more important in the years to come). This new look at emerging inequalities is essential for the design of policies.

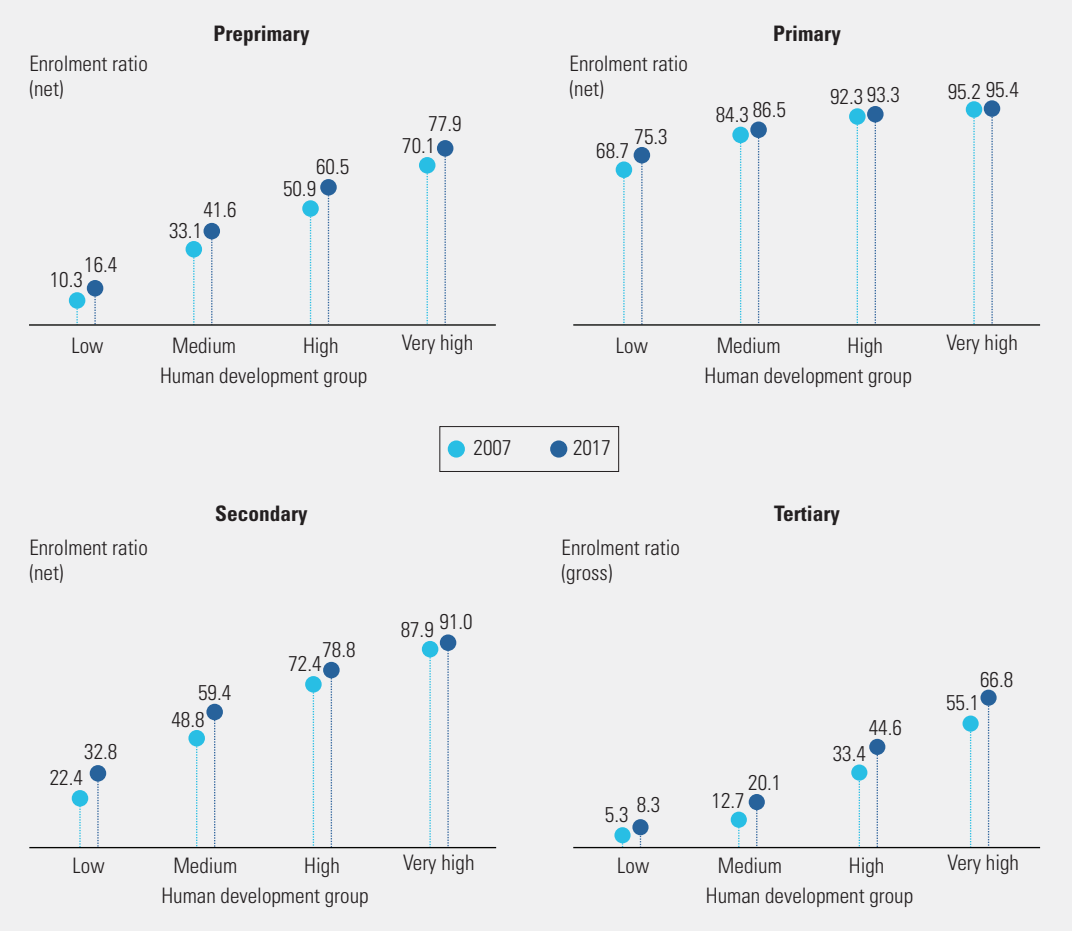
People living in the wealthiest comunas in the Santiago Metropolitan Region have, on average, increased their already higher life expectancy at older ages more than people living in poorer comunas have



Source: Based on Hsu and Tapia (2019).

FIGURE 1.11

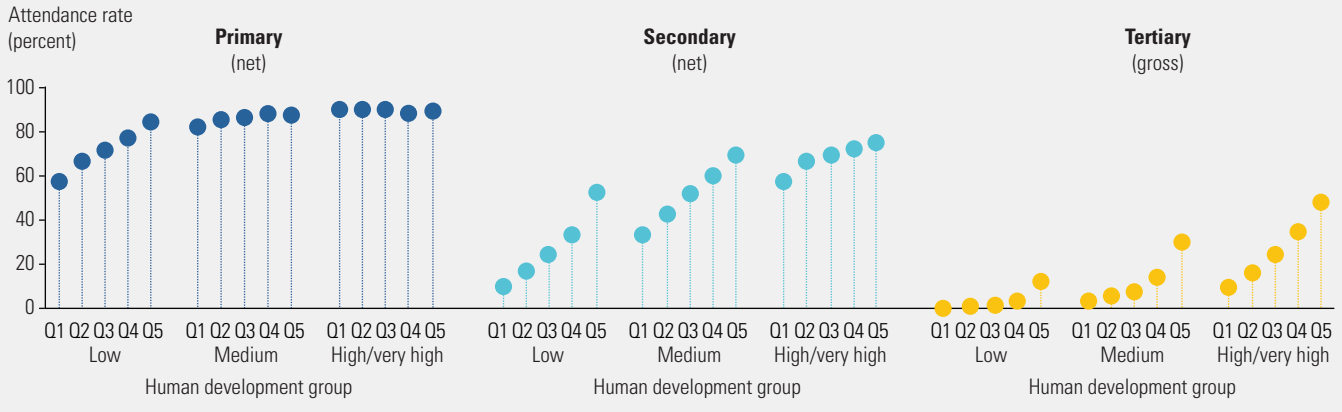
The lower a country's human development, the larger the gap in access to education



Note: Data are simple averages of country-level data.
Source: Human Development Report Office calculations based on data from the United Nations Educational, Scientific and Cultural Organization Institute for Statistics.

FIGURE 1.12

Gaps in access to education among children and youth are also large within countries



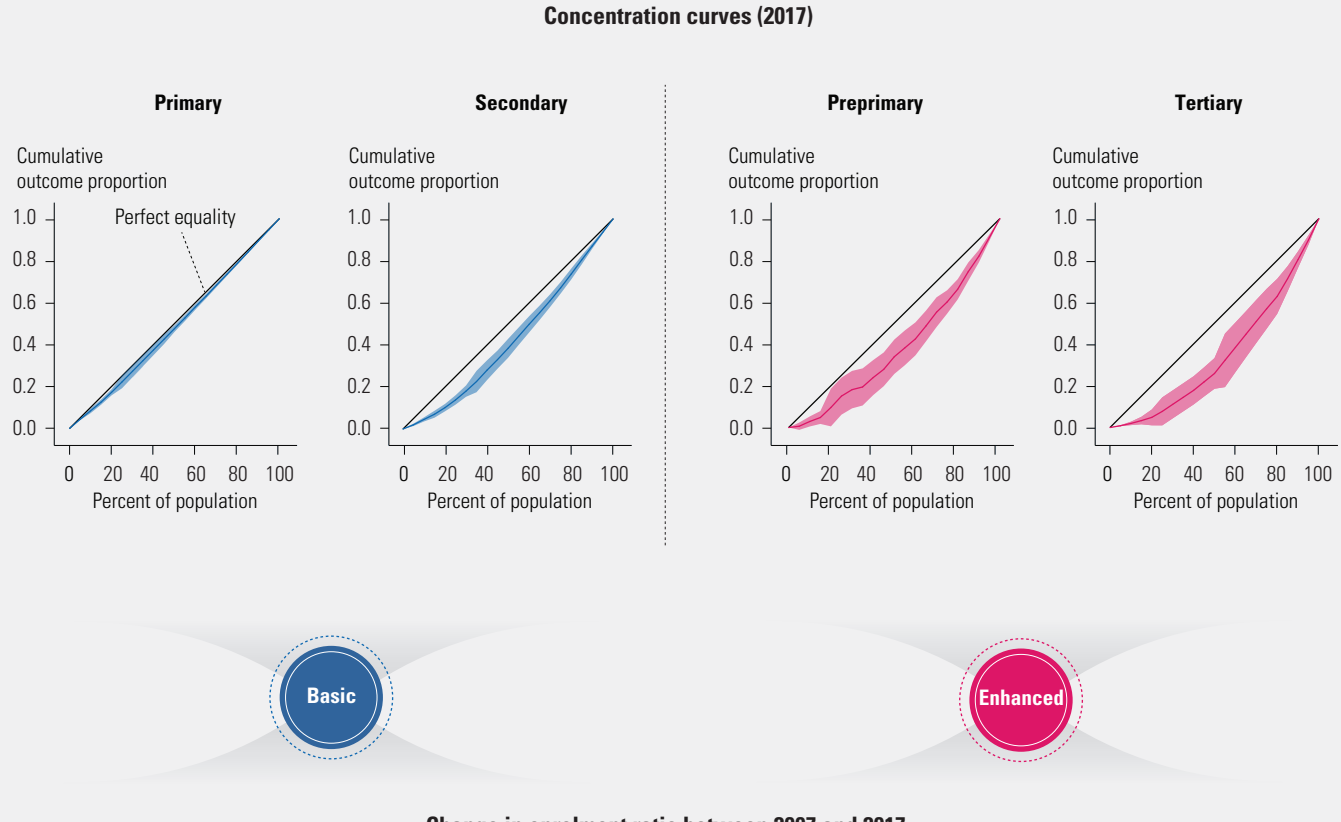
Note: Only one very high human development country (Montenegro) is included in the sample. Data are for 2016 or the most recent year available. Quintiles are based on distribution of ownership of assets within countries.
Source: Human Development Report Office calculations based on data from ICF Macro Demographic and Health Surveys, United Nations Children's Fund Multiple Indicator Cluster Surveys and the World Bank.

FIGURE 1.13

Inequality in primary and secondary education has been falling over the past decade

Inequalities in **basic capabilities** are lower and falling (convergence): This is the case of enrolment ratios in primary and secondary education. Low human development countries are catching up with high and very high human development countries.

But inequalities in **enhanced capabilities** are large and growing (divergence): Inequalities in enrolment ratios in preprimary education and tertiary education are high or growing.



Note: Concentration curves are ordered by Human Development Index value.
Source: Human Development Report Office calculations based on country-level data from the United Nations Educational, Scientific and Cultural Organization Institute for Statistics.

FIGURE 1.14

Dynamics of education attainment, 2007–2017

Note: Convergence and divergence are tested for in two ways: by using the slope of an equation that regresses the change over 2007–2017 with respect to the initial value in 2007 (with ordinary least squares, robust and median quantile regressions) and by comparing the gains of very high human development countries and the gains of low and medium human development countries. For attainment of primary education there is convergence according to both metrics (*p*-values below 1 percent in all regressions and below 5 percent in the comparison between human development groups). For attainment of tertiary education there is divergence according to both metrics, with different significance levels in regressions: the *parameter is positive in all cases; it is not statistically significant in the ordinary least squares regression, but it is statistically significant in the robust regression (p-value below 10 percent) and the median quintile regression (p-value below 1 percent) and for the comparison between human development groups (p-value below 5 percent).*
Source: Human Development Report Office calculations based on country-level data from the United Nations Educational, Scientific and Cultural Organization Institute for Statistics.

Growing inequalities in enhanced capabilities: Gaps in tertiary education and in preprimary education are wide and increasing

Inequalities in preprimary education and postsecondary education are high and, in many places, growing. Concentration curves reflect how these achievements are more unevenly distributed for preprimary and tertiary education (see figure 1.13, right side). Moreover, the gaps are growing on average: Low human development countries—already behind—tend to have slower progress.

These trends—of convergence in basic education and divergence in enhanced education—are not destiny; there is heterogeneity, reflecting space for policies. Taking information about attainment, for instance, East Asia and the Pacific and Europe and Central Asia have made notable progress in expanding tertiary education, closing in on developed countries (see figure 1.14). However, the other regions follow the overall trend, with Sub-Saharan Africa catching up very strongly in primary education and lagging behind in tertiary education.

Data for 47 developing countries show divergence in the acquisition of enhanced capabilities: Quintiles with higher access to postsecondary education 10 years ago have seen the largest gains (figure 1.15).

The unevenness in distribution has consequences for human development. The largest gaps appear in the formation of enhanced capabilities, which are the areas with the highest returns: in preprimary education, with the highest social returns,[45] and in tertiary education, with the highest private returns.[46] This analysis considers preprimary education an enhanced achievement because of its importance and because societies have come to acknowledge its importance only in recent years. The inequalities in the formation of enhanced capabilities pave the way to future inequality throughout the lifecycle, particularly in access to work opportunities and income.[47]

The distinction between basic and enhanced capabilities in education depends on the effect of various achievements on what people can do. The large and widening gaps not only show differentiated access to tertiary education and its direct impact on access to learning; they also determine inequalities in the availability of professionals between and within countries, with effects on multiple areas of human development. For instance, the inequalities in the availability of physicians are widening between countries. High and very high human development countries had significantly more physicians per capita in 2006 and have, on average, increased the gaps between themselves and low and medium human development countries (figure 1.16).

Data for 47 developing countries show divergence in the acquisition of enhanced capabilities: Quintiles with higher access to postsecondary education 10 years ago have seen the largest gains

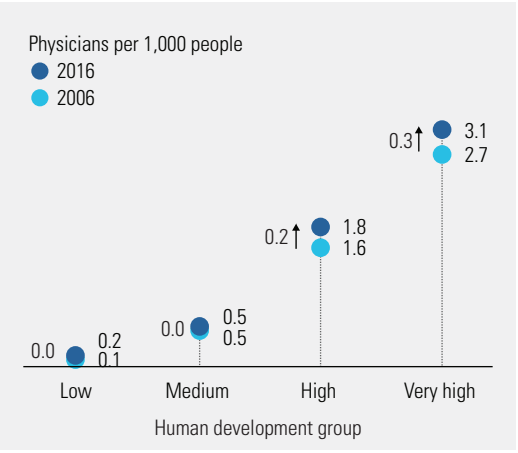
FIGURE 1.15

Inequalities in postsecondary education within countries are growing

Note: Data are simple averages for each human development group. Only one very high human development country (Montenegro) is included in the sample. Quintiles are based on distribution of ownership of assets within countries.
Source: Human Development Report Office calculations based on data from Demographic and Health Surveys and Multiple Indicator Cluster Surveys processed by the World Bank.

FIGURE 1.16

Widening inequalities in the availability of physicians between countries



Note: Data are simple averages for each human development group.
Source: Human Development Report Office calculations based on country-level data from the World Bank's World Development Indicators database.

While more than 90 percent of children in the world today receive some schooling, fewer than half of those in school achieve minimum proficiency in reading and mathematics by the end of primary school

Growing inequalities in more empowering areas: The learning crisis

Education should mean ensuring that schooling leads to learning. But the great education expansion has not translated into commensurate gains in learning, where large inequalities exist. And much remains to be done—in many countries achievement in learning is disturbingly low. While more than 90 percent of children in the world today receive some schooling, fewer than half of those in school achieve minimum proficiency in reading and mathematics by the end of primary school.[48]

The rapid expansion of education in developing countries has led to the enrolment of millions of first-generation learners, who lack support from their families when they fall behind in the curriculum. Students who fall behind may struggle if the level of classroom instruction (based on textbooks that follow ambitious curricular standards) is considerably above their learning level.[49] These problems are exacerbated at higher grades, if students are automatically promoted to the next grade without having acquired foundational skills. Low skills continue to undermine career opportunities—and earnings—long after students leave school.

In nearly all countries, family background—including parent education, socioeconomic status and conditions at home (such as access to books)—remains the strongest predictor of learning outcomes.[50]

The learning gradient compounds inequality over inequality: Those from disadvantaged groups not only have fewer opportunities to receive education; they also learn much less once in the classroom (figure 1.17). These socioeconomic inequalities have remained high and stable over the past two decades in countries with a longer history of standard data.[51]

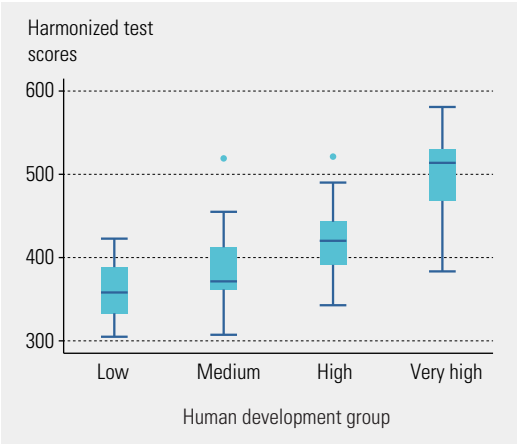
Convergence in the basics is not benefiting everyone: Identifying those furthest behind

This chapter has documented convergence across basic capabilities. But does that imply that the rising tide is lifting all boats? This section shows that, despite convergence, many people are excluded and remain stuck at the very bottom of society. Convergence in basic capabilities is not absolute—advances in health and education within countries continue to leave many behind.

Average convergence is not a sufficient condition to leave no one behind. Convergence can be characterized into four cases, from the point of view of a particular group:

FIGURE 1.17

Harmonized test scores across human development groups



Note: Each box plots the middle 50 percent of the distribution; the central line is the median; the extreme lines are the approximate minimum and maximum of the distribution.
Source: Human Development Report Office calculations based on country-level data from World Bank (2018b).

- Absolute convergence: the group catches up with respect to all those above.
- Weak convergence: a group catches up on average with those at the top.
- Simple divergence: a group records very slow progress, so the average gap with those at the top increases.
- Full divergence: there is a setback, with an increasing gap with respect to the rest and the initial situation.

Two indicators from the HDI that are more linked to basic capabilities (life expectancy at birth and mean years of schooling) can illustrate the limits of average convergence. The analysis is based on the share of the population in low, medium and high human development countries converging (or not) to very high human development achievements (table 1.1). Over 2007–2017 there was significant convergence, but it was partial (only half the population) and mostly weak (only 0.3 percent achieved absolute full convergence). The difference between absolute convergence and weak convergence was consequential: the "lost" progress in terms of life expectancy at birth was 2.8 years and in terms of mean years of schooling was 0.7 year. By contrast, 36 percent of the population was in a mixed zone, with convergence in one variable and divergence in the other (yellow cells in table 1.1). And 14 percent of the population was in the divergence zone (red cells in table 1.1).

The partial and weak convergence has implications for the future and for the achievement of the SDGs. Today, 5.4 million children, more than half of them newborns, do not survive their first five years of life;[52] 262 million children are out of school at either the primary or secondary level; and nearly 600 million people around the globe still live on less than $1.90 a day.[53] This suggests that those with low human development face a double challenge. Part of the population has not met the basic set of human development capabilities in their life expectancy, schooling and income. And a larger part is also falling behind the enhanced capability set that revolves around higher thresholds of educational achievement, labour and digital skills.

Despite greater access to immunizations and affordable medical technologies, child mortality rates in the poorest households of the world's poorest countries remain high (figure 1.18). The highest rates are concentrated in low and medium human development countries. And there are vast disparities within countries: The poorest 20 percent in middle income Guatemala have the same average mortality rate as in low income Senegal.

At current rates of progress there will be around 3 million child deaths in 2030. Most would be the result of eminently preventable causes rooted in poverty and unequal access to quality health care. Around 850,000 will reflect the gap between the SDG target and the outcomes on the current trajectory. Given that the ratio of deaths between the poorest and the richest is more than 5 to 1, accelerating progress for the poorest children would act as a powerful catalyst for overall progress—and this illustrates the power of convergence by moving up those at the bottom, which would save 4.7 million lives between 2019 and 2030 (figure 1.19).

Today, 5.4 million children, more than half of them newborns, do not survive their first five years of life; at current rates of progress there will be around 3 million child deaths in 2030

TABLE 1.1

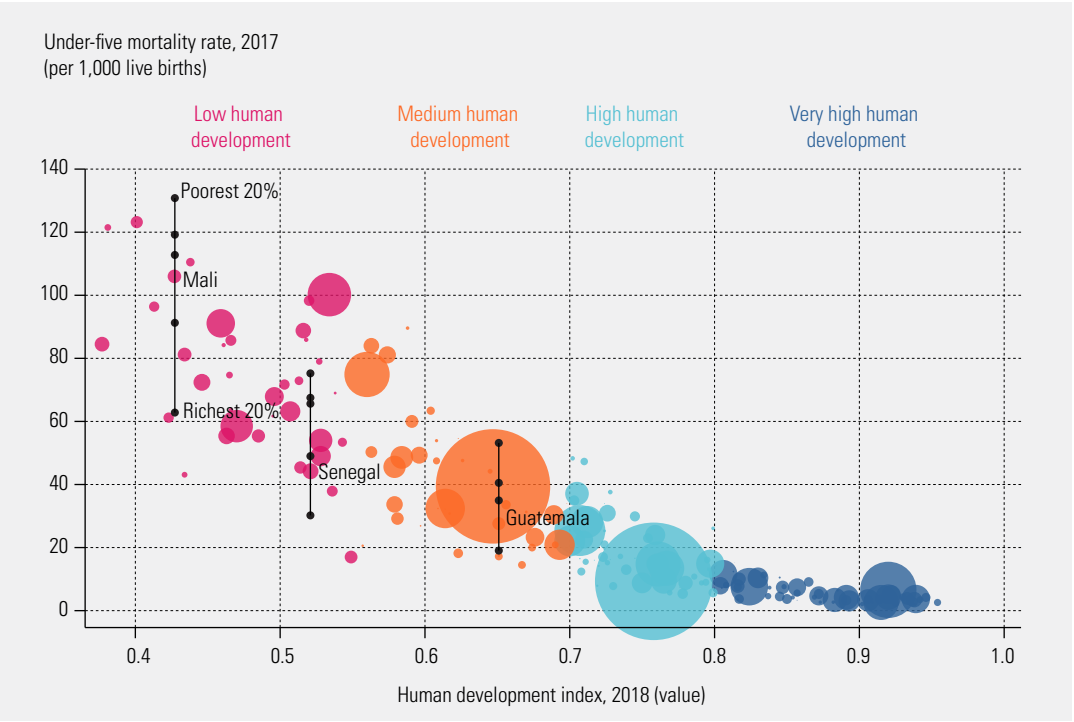
Limited convergence in health and education, 2007–2017
(percent of population in low, medium and high human development countries)

		Mean years of schooling			
		Full divergence	Divergence	Weak convergence	Absolute convergence
Life expectancy at birth	Full divergence	0.1	3.5	2.7	0.2
	Divergence	0.2	10.6	16.4	1.7
	Weak convergence	1.0	12.9	42.8	4.3
	Absolute convergence	0.0	1.4	1.7	0.3

Note: Estimates are population weighted with respect to performance of very high development countries.
Source: Human Development Report Office calculations based on subnational data from Permanyer and Smits (2019).

FIGURE 1.18

Child mortality converges with human development, but not for the poorest 20 percent

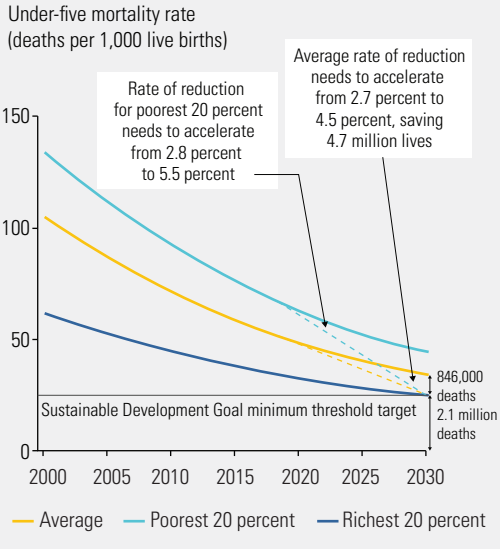


Note: Colours represent human development thresholds. Each bubble represents a country, and the size of the bubble is proportional to the country's population.
Source: Human Development Report Office estimates.

About 262 million children and youth were out of school in 2017

FIGURE 1.19

Some 846,000 of 3.1 million child deaths are preventable if the bottom 20 percent converge to the country average



Source: Fiala and Watkins 2019.

The leading causes of death among children under age 5 remain unaddressed. They include preterm birth complications (18 percent of the global total), pneumonia (16 percent), complications during birth (12 percent), with congenital anomalies, diarrhoea, neonatal sepsis and malaria each accounting for a further 5–10 percent.[54] Targeted interventions in tuberculosis, pneumonia and diarrhoea have some of the highest return for reducing under-five mortality in the developing world. And three-quarters of deaths among those ages 0–14 are from communicable, perinatal and nutritional conditions.[55] Lack of data is also an issue. Targeted interventions benefit from real-time record keeping, using home-based records to supplement health provider registries. Early adopters of electronic medical records—Peru, Kenya, Malawi and Haiti—show how information systems can help with micro-targeting of those furthest behind.

Staying in school remains a challenge at the bottom of the global distribution. About 262 million children and youth were out of

school in 2017, 64 million of primary school age, 61 million of lower secondary school age and 138 million of upper secondary age.[56] Sub-Saharan Africa has the highest rates of exclusion. And simply attending school does not guarantee that children are learning. Over half the world's children cannot read and understand a simple story by age 10.[57] As with mortality rates, there are wide disparities within countries, showing that being at the bottom of the national income distribution sharply increases the chance of dropping out (figure 1.20).[58]

On current trends the out-of-school rate will drop from 18 percent in 2017 to 14 percent in 2030. A deviation from the target, representing 225 million children[59] starting their life with a hardly reversible disadvantage.

The mixed picture of progress can be seen through the lens of the Global Multidimensional Poverty Index, produced by the United Nations Development Programme and the Oxford Poverty and Human Development Initiative. Today 1.3 billion people in developing countries are multidimensionally poor. In a detailed study of 10 countries with comparable data over time, nine saw a reduction in the multidimensional poverty rate in recent years. And in nine of them the improvement of the bottom 40 percent was faster than the improvement of the total population. This suggests overall convergence. However, the situation is heterogeneous when looking beyond the averages. While in India the territories that were lagging behind were able to catch up quite significantly—notably Bihar and Jharkhand—in Ethiopia some of the poorer territories were the ones with the slowest progress, notably Oromia.[60]

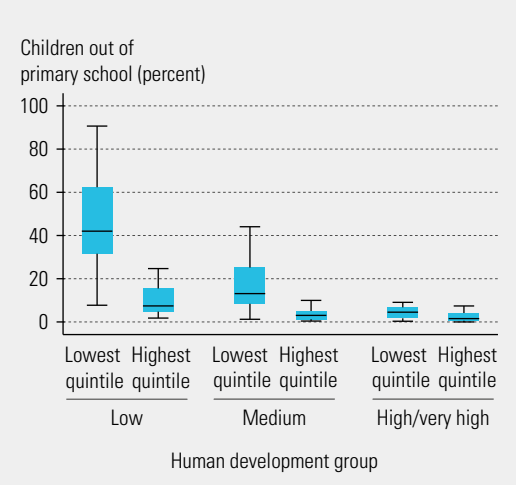
Lack of human security in a broad sense is one of the factors behind divergence in particular territories (box 1.5). Human development for those at the bottom of the distribution is thwarted by shocks—income, health, conflict or disaster—that make already vulnerable households more vulnerable. Risks refer to events possibly occurring that can damage welfare, and vulnerability can be understood as the (ex ante) magnitude of the threat to human development outcomes.[61] Individuals and households can reduce their vulnerability—that is, they can strengthen their ability to deal with shocks when they happen—by having access to assets that can soften the blow.

The stakes at the bottom are high. Shocks can affect people's actions in ways that diminish human development potential over the long run (for instance taking children out of school), but they can also push individuals and households into extreme deprivation without much notice.

On current trends the out-of-school rate will drop from 18 percent in 2017 to 14 percent in 2030. A deviation from the target, representing 225 million children

FIGURE 1.20

School dropout rates converge with human development, but not for the poorest 20 percent



Note: Each box plots the middle 50 percent of the distribution; the central line is the median; the extreme lines are the approximate minimum and maximum of the distribution.
Source: Human Development Report Office estimates.

Towards enhanced agency

The preceding section presented some stylized facts about inequalities in human development—going beyond income. But the analysis of a few dimensions using a limited set of standard indicators is far from exhaustive. Relevant inequalities in human development likely vary across geographies, cultures and time. Indeed, the people-centred human development approach is pluralist—admitting different valuations and priorities—and open-ended.

How best to manage this complexity—the multidimensional and changing nature of inequalities—to explore the inequalities emerging in the 21st century?

This section addresses this question by looking at two aspects that bear on people's agency, supplementing the aspects linked to

BOX 1.5

Crises and divergence

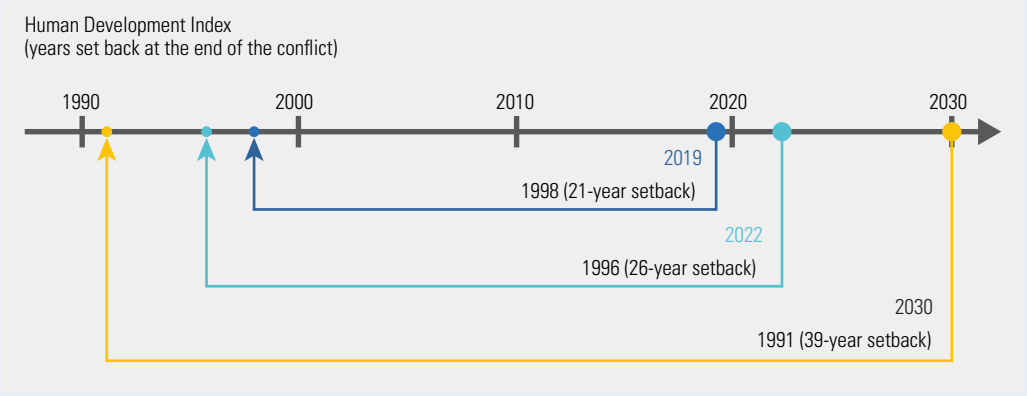
Economic crises are an important factor behind divergence in economic and social conditions. Countries suffering recessions often take several years to recover.[1] Moreover, within countries, crises tend to hurt the most vulnerable. In a study of Latin American countries all economic crises were followed by an increase in the poverty rate, and most were followed by an increase in inequality.[2]

Disasters linked to natural hazards can have devastating impacts and harm human development, as discussed in chapter 5. And such disasters will become more common as the climate crisis worsens. The effects can be truly devastating. On 14 March 2019 tropical Cyclone Idai made landfall at the port of Beira, Mozambique, before moving across the region. Millions of people in Malawi, Mozambique and Zimbabwe were hit by Southern Africa's worst natural disaster in at least two decades.[3] Six weeks later Cyclone Kenneth made landfall in northern Mozambique—the first time in recorded history that two strong tropical cyclones hit the country in the same season. The cyclones left around 1.85 million people in Mozambique alone in urgent need of humanitarian assistance.

The cyclones were only the beginning of what has become an education and health disaster. Around 3,400 classrooms had been destroyed or damaged in Mozambique, with close to 305,000 children losing out on lessons at school after the floods.[4] Malaria cases rose to 27,000, and cholera cases to almost 7,000. About 1.6 million people received food assistance, and close to 14,000 people had to live in displacement centres. The cumulative effects of the storms will be fully understood only over the next few years.

Conflicts are also devastating for human development. Before the escalation of conflict in Yemen in 2015, the country ranked 153 in human development, 138 in extreme poverty, 147 in life expectancy and 172 in education attainment. The conflict has reversed the pace of development—with nearly a quarter of a million people killed directly by fighting and indirectly through lack of food, infrastructure and health services. Some 60 percent of those killed are children under age 5. The long-term impacts make it among the most destructive conflicts since the end of the Cold War (see figure) and have already set back human development in the country by 21 years. If the conflict continues through 2022, development would be set back 26 years—more than one generation. If the conflict persists through 2030, the impact grows to nearly 40 years.

Conflict has already set back Yemen's human development by 21 years



Source: Moyer and others 2019.

Notes
1. Unemployment takes more than four years to recover; output, around two years (Reinhart and Rogoff 2009) and in many cases even more (Cerra and Saxena 2008). 2. Lustig 2000. 3. UNICEF 2019b. 4. See UNICEF (2019b).

inequalities in capabilities discussed until now. As noted, capabilities are determinants of well-being and are required for agency—but are not the sole determinants. Thus, this section first considers how inequality, often in the form of discrimination, deprives people of dignity. Inequalities hurt because they restrict access to the fruits of progress, with perverse effects on social mobility and long-term social progress (chapter 2), and because they erode human dignity—and with it social recognition and respect, which may limit agency. Second, since inequality is a social and relational concept, it responds to comparisons across social groups

and between individuals. So, social perceptions can bring information about the social differences that matter to people, given that human actions are also shaped by perceptions of fairness towards what happens to one's own and to others.

Inequalities and the search for dignity

The search for dignity is crucial in defining the constitutive aspects of development in the 21st century. This is true for both basic and enhanced capabilities and achievements, and it is a powerful insight to explore emerging sources of exclusion—sources hard to capture through indicators typically reported by national statistical offices. The search for dignity is explicit in the "central capabilities" of Martha Nussbaum.[62] Amartya Sen, in turn, emphasizes that, in defining minimally required freedoms, what matters is not only the effect of directly observable outcomes—such as income—but also the potential restrictions in the capability to function in society without shame.[63] He follows Adam Smith's *Wealth of Nations*, highlighting the role of relative deprivations—with symbolic social relevance, even if not essential for biological subsistence—as defining basic necessities. This is one of the roots of moving targets in development. And indeed, human dignity has been a central element in the evolution of the global consensus about universally shared ambitions, from the Universal Declaration of Human Rights in 1948 to the Sustainable Development Goals in 2015.

The search for dignity can also be crucial for policymaking, particularly when recognition (in the sense of equal treatment) is required to complement other pro-equity policies, including redistribution.[64] One example is progress in recognition and rights of lesbian, gay, bisexual, transgender and intersex (LGBTI) people. The ability to appear in public without shame is severely undermined when a person's identity is socially penalized. The exclusion of LGBTI people takes the form of discrimination in work and in communities. An environment hostile to LGBTI people forces individuals to choose between facing oppression and hiding their sexual identity and preferences, limiting their possibilities of open social interaction and personal realization (box 1.6).

Dignity as equal treatment and nondiscrimination can be even more important than imbalances in the distribution of income. In Chile, with its very unequal income distribution, inequality in income appeared high in the ranking of people's concerns (53 percent of people said they were bothered by income inequality) in a 2017 United Nations Development Programme survey.[65] But they expressed even more discontent with unequal access to health (68 percent), unequal access to education (67 percent) and unequal respect and dignity in the way people are treated (66 percent). Of the 41 percent of people who said they had been treated with disrespect over the last year, 43 percent said it was because of their social class, 41 percent said it was because they are female, 28 percent said it was because of where they live and 27 percent said it was because of how they dress. In this context, progress in policies to advance agency and reduce shame and discrimination appear as important as those to increase material conditions.[66] In Japan the concept and measurement of dignity also signal inequalities that other material indicators cannot capture (box 1.7).

Lack of equal treatment and nondiscrimination are also reflected in inequalities between groups, which are known as horizontal inequalities.[67] Horizontal inequalities are unfair, as they are rooted in people's characteristics, beyond their control. The SDGs encourage examining horizontal inequalities through disaggregation that spotlights priority groups—those traditionally disadvantaged by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts.[68]

Horizontal inequalities can reflect deliberate discrimination in policies, laws and actions—or hidden mechanisms embedded in social norms, unconscious biases or the functioning of markets. Often the cultural currents that drive horizontal inequality are deep enough to perpetuate it despite policies to ban or reduce it, as in India (box 1.8). In Latin America horizontal inequalities appear connected to a culture of privilege, with roots in colonial times.[69]

The search for dignity is crucial in defining the constitutive aspects of development in the 21st century

BOX 1.6

Social exclusion of lesbian, gay, bisexual, trans and intersex people

International Lesbian, Gay, Bisexual, Trans and Intersex Association

Across the globe, lesbian, gay, bisexual, trans and intersex (LGBTI) people continue to face social exclusion in different spheres of life on the basis of their sexual orientation, gender identity, gender expression and sex characteristics. Restrictive legal frameworks, discrimination and violence based on those qualities (perpetrated by state and non-state actors) and the lack of effective public policy are among the main causes behind the exclusion of LGBTI people.[1]

Restrictive legal frameworks

Criminalization is a major barrier for LGBTI people's development. As of May 2019, 69 UN Member States still criminalize consensual same-sex sexual acts between adults, and at least 38 of them still actively arrest, prosecute and sentence people to prison, corporal punishment or even death based on these laws.[2] Moreover, many UN Member States also have laws criminalizing diverse forms of gender expression and cross-dressing, which are used to persecute trans and gender-diverse people.[3]

The lack of legal gender recognition[4] is one of the most challenging barriers to trans and gender-diverse people's social inclusion. When personal documents do not match the holder's appearance, it becomes a huge obstacle to carry out common activities in daily life, such as opening a bank account, applying for a scholarship, finding a job and renting or buying property. It also exposes trans people to the scrutiny of strangers, distrust and even violence. In many countries legal gender recognition is granted only under pathologizing requirements such as surgeries, invasive treatments/inspections or third-party submissions.[5] Furthermore, when antidiscrimination laws do not expressly protect people based on their sexual orientation, gender identity, gender expression and sex characteristics, LGBTI people are unable to seek justice against acts of discrimination that may prevent them from accessing vital services, including health care, education, housing and social security, and employment.

Discrimination and violence based on sexual orientation, gender identity, gender expression and sex characteristics

Suffering violence and discrimination can deeply affect a person's ability to lead a productive and fulfilling life. There is abundant research showing how LGBTI people suffer from erasure, negation, discrimination and violence:[6] A spiral of rejection may start at a very young age within the family and continue in school,[7] employment,[8] health care facilities and public spaces.[9] State officials can be the main perpetrators of violence and abuse against LGBTI people, carrying out arbitrary arrests, blackmail, humiliation, harassment and even forced medical examinations. LGBTI people also face exclusion when seeking access to justice, which contributes to under-reporting of violence against LGBTI people and low rates of prosecution of perpetrators of such violence because LGBTI people are often isolated from state institutions for fear of self-incrimination and further abuses.[10]

Lack of effective public policy

The third main group of causes of social exclusion of LGBTI people has to do with state inaction on public policy issues of sexual and gender diversity.[11] As with other social groups that have been subjected to protracted discrimination, full social inclusion of LGBTI people requires more than removing discriminatory legislation and enacting legal protections. Effective public policies designed and implemented to tackle, reduce and eventually eradicate social prejudice and stigma are required to counter the effects of systemic exclusion, especially among those living in poverty. Affirmative action may also be necessary.

Intersex people also face particular forms of exclusion that differ from those experienced by lesbian, gay, bisexual and trans people. In particular, they are often subjected to unnecessary medical interventions at birth, characterized as intersex genital mutilation.[12] These interventions are often conducted in accordance with medical protocols that allow health professionals to mutilate intersex bodies without consent to modify atypical sex characteristics, usually when victims are infants. Such traumatizing and intrusive experiences can extend throughout childhood and adolescence and can cause severe mental, sexual and physical suffering.[13] This is usually compounded by the total secrecy about intersex conditions, lack of information among family members and societal prejudice.[14]

Source: International Lesbian, Gay, Bisexual, Trans and Intersex Association and United Nations Development Programme.

Notes

1. ILGA 2019; OutRight Action International 2019. 2. ILGA 2019. 3. Greef 2019; ILGA 2019. 4. Legal gender recognition refers to the right of trans people to legally change their gender markers and names on official documents. For a survey of the legislation in force with regard to legal gender recognition in more than 110 countries, see Chiam, Duffy and Gil (2017). 5. Chiam, Duffy and Gil 2017. 6. Harper and Schneider 2003. 7. Almeida and others 2009. 8. Pizer and others 2012; Sears and Mallory 2011. 9. Eliason, Dibble and Robertson 2011. 10. ILGA 2019. 11. Oleske 2015. 12. Wilson 2012. 13. WHO Study Group on Female Genital Mutilation and Obstetric Outcome 2006. 14. Human Rights Watch 2017.

BOX 1.7

Inequality in human security in Japan: The role of dignity

In Japan the Sustainable Development Goals present an opportunity to revisit the country's development priorities with a people-centred perspective. What defines deprivation after most material shortages have been overcome? The Human Security Index has three dimensions of human security: life, livelihood and dignity. Life and livelihood are linked to peace of mind and feelings of safety. Dignity aims for a society where every person can be proud of himself or herself.

In Japan data were collected on 47 prefectures, using a battery of 91 indicators. The dignity dimension was measured through 26 indicators: 7 about the situation of children and women, 6 about trust in the public sector, 2 about life satisfaction and 11 about community, civic engagement and sound absorption of migrants.

Early results show significant inequalities in Japan across all three main dimensions. But the dignity subindex shows a lower average than the life and livelihood subindices. From this perspective the greatest space for improvement would be in promoting dignity.

Source: Based on Takasu (2019).

Uncovering what is behind perceptions of inequalities in the 21st century

Subjective measures consistently indicate that many people around the world find current inequality too high

The proportion of people desiring more income equality has risen over the past decade (see figure 1.1). Inequality is considered a major challenge in 44 countries surveyed by Pew Research. A median of 60 percent of respondents in developing countries and 56 percent in developed countries agree that "the gap between the rich and poor is a very big problem" facing their countries.[70] Remarkably, these feelings are shared across the political spectrum.

Similarly, according to the latest perception surveys in the European Union, an overwhelming majority think that income differences are too great (84 percent) and agree that their governments should take measures to reduce them (81 percent).[71] In Latin America the perception of unfairness in the distribution of wealth has increased since 2012, returning to levels of the late 1990s, with only 16 percent of respondents assessing the distribution as fair.[72] This is not to suggest that this is the only, or even the most important, issue that people are worried about—but it is clear evidence of the great, and increasing, desire for more equality.

These perceptions matter and may depend on whether the broader context is one of stagnating or expanding incomes. Perceptions of inequality—rather than actual levels of inequality—drive society's preferences for redistribution.[73] In Argentina people who believed themselves to be higher in the income distribution than they actually were tended to want more redistribution when informed of their true ranking.[74]

The way societies process inequalities is complex. Studies in behavioural economics have quantified how much people tend to underestimate inequalities (see spotlight 1.2 at the end of the chapter). And social psychology has investigated the mechanisms and sociostructural conditions that determine the perception of inequalities, the perception of inequalities as unfair outcomes and the response to those perceptions. This literature gives new insights into why people come to terms with very high inequality from a social perspective. First, people might accept or even contribute to inequality through self-segregation following a desire for harmony. Second, motivational narratives can justify inequality, and stereotypes and social norms have enormous influence (box 1.9). This is a consistent and powerful complement to the theory of adaptive preferences—based on the individual's tendency to underestimate deprivations to make them bearable—now from a social point of view.

In summary, subjective measures consistently indicate that many people around the world find current inequality too high. Perceptions data—when the limitations are well understood—can complement objective indicators. Indeed, some of the frontier measures of capabilities and agency are subjective indicators.[75] Perceptions of inequality tend to underestimate the actual situation, so at high levels, they have particular value as a red flag. Some of the objective indicators of inequality—such as the

BOX 1.8

Horizontal inequalities in India: Different dynamics in basic and enhanced capabilities

India is a fast-growing economy. Its gross national income per capita has more than doubled since 2005. Thanks to a mix of fast economic growth and social policies, there has been a sharp reduction in multidimensional poverty. Between 2005/2006 and 2015/2016 the number of multidimensionally poor people in India fell by more than 271 million. On average, progress was more intense among the poorest states and the poorest groups.[1]

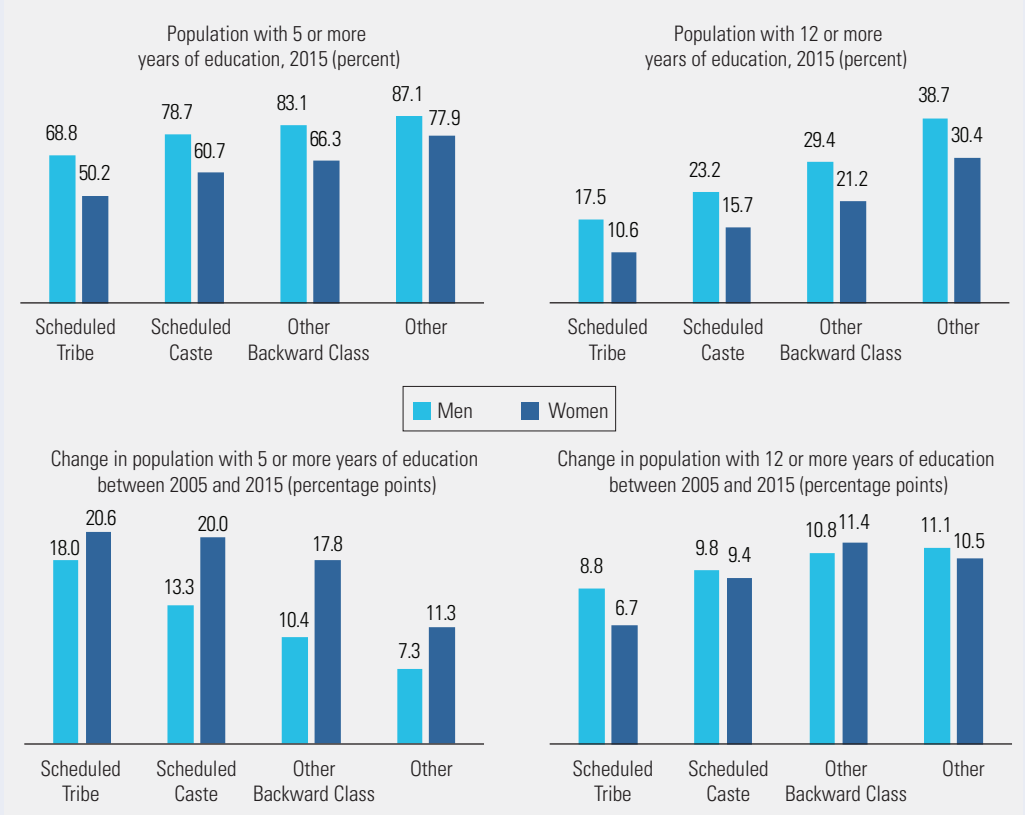
Despite progress on human development indicators, horizontal inequalities persist, and their dynamics follow the same pattern described in the context of vertical inequalities in human development: significant gaps, convergence in basic capabilities and divergence in enhanced capabilities.

First, the Scheduled Castes, Scheduled Tribes and Other Backward Classes underperform the rest of society across human development indicators, including education attainment and access to digital technologies (box figures 1 and 2).[2] These groups have suffered from stigma and exclusion for centuries. Modern India has tried to constitutionally redress the disparities through affirmative action, positive discrimination and reservation policies for these groups.[3]

Second, since 2005/06 there has been a reduction in inequalities in basic areas of human development. For example, there is a convergence of education attainment, with historically marginalized groups catching up with the rest of the population in the proportion of people with five or more years of education. Similarly, there is convergence in access to and uptake of mobile phones.

Third, there has been an increase in inequalities in enhanced areas of human development, such as access to computers and to 12 or more years of education: Groups that were more advantaged in 2005/2006 have made the most gains, and marginalized groups are moving forward but in comparative terms are lagging further behind, despite progress.

Box figure 1 India: Horizontal inequality in education of working-age people (ages 15–49)



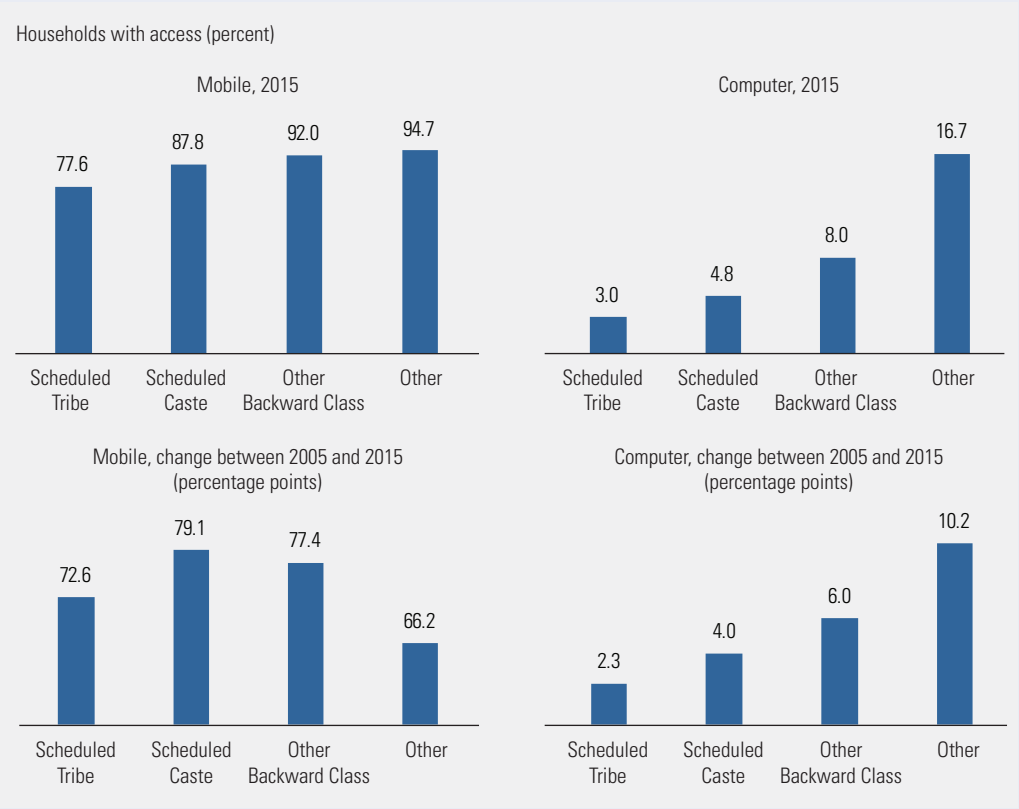
Source: Human Development Report Office calculations based on Demographic and Health Survey data.

(continued)

BOX 1.8 (CONTINUED)

Horizontal inequalities in India: Different dynamics in basic and enhanced capabilities

Box figure 2 India: Horizontal inequality in access to technology



Source: Human Development Report Office calculations based on Demographic and Health Survey data.

Notes
1. See UNDP and OPHI 2019. 2. See IIPS and Macro International (2007) and IIPS and IFC International (2017). 3. Mosse 2018.

Gini coefficient in developing countries—do not yet capture this reality, and it is plausible that those indicators might be missing part of the story.[76] The empirical discussion in this report provides numerous examples showing how going beyond income, beyond averages (and summary measures such as the Gini coefficient) and beyond today in measurement (capturing elements expected to become more important) makes a difference in uncovering the growing inequalities that might be behind those perceptions.

Finally, increasing demand for equality in perception surveys has concrete consequences for society. No matter the degree of subjectivity and potential distortion, these opinions have the chance to become part of the political discussion and to stimulate action. There is an urgent need for evidence-based policy approaches to respond to new demands.

Moving targets and 21st century inequalities

A shift in people's aspirations as a result of individual and social achievements can be a natural part of the development process. This moving target is inherently relative and, therefore, requires a more flexible way to assess inequality. A definition of inequality from a few decades ago may no longer be relevant. In a world without extreme poverty, for example, the poverty line will inevitably rise—indeed, poverty in developed countries is usually measured in relative terms. For human development a shift in focus from basic to enhanced capabilities may be relevant. And what is considered enhanced is bound to change over time: Think of how the access to electricity and sanitation infrastructure moved from ambitions to basic during the 20th

A shift in people's aspirations as a result of individual and social achievements can be a natural part of the development process

BOX 1.9

A social-psychological perspective on inequality

This box is grounded in an emerging social-psychological perspective on people as *relational beings*, motivated to regulate their network of social relationships. This perspective, which moves beyond more individualistic perspectives, suggests that social *embeddedness* (the experience of social connection within social networks and through group identities) and *relative deprivation* (the experience of being unfairly worse off than others, based in social comparisons with others) have important consequences.

Humans are an ultra-social species, with a need to belong. The psychological bonds that individuals develop with others through social interaction reflect sources of social support and agency and offer targets for social comparison (subjective assessments of whether others are doing better or worse than oneself).[1] This is key to understanding the consequences of inequality because a social-psychological perspective focuses on whether and how individuals subjectively perceive and feel about inequality depending on their network of relationships.

But even when individuals perceive inequality, they may not perceive it as unfair.[2] Social networks tend to be homogeneous because individuals tend to self-segregate ("birds of a feather flock together").[3] Individuals often compare themselves with those around them, the ones forming a "bubble," who are thus likely to affirm their opinions about inequality. Contact with others—for instance, between members of advantaged and disadvantaged groups—may increase people's awareness of inequality,[4] but research also suggests that such contact is often characterized by a desire to maintain harmony rather than to discuss the uncomfortable truth of inequality between groups (the "irony of harmony").[5] As such, social embeddedness often implies a sedative effect when it comes to perceiving inequality—one cannot act on what one cannot see within one's bubble.[6]

There is also a motivational explanation for why inequality, even when perceived, is not necessarily perceived as unfair. Specifically, individuals can be motivated to deny or justify the existence of inequality to uphold beliefs about the fairness of the broader system.[7] Income inequality may be viewed as fair by those who endorse a meritocratic belief system (affirming a level playing field for everyone). Indeed, stereotypes are often used to acknowledge inequalities in order to maintain them and thus the broader system in which they are embedded.[8]

Against this backdrop, a social-psychological perspective offers answers to questions such as why people do or do not act against inequality (such as the gender pay gap) and why they often appear to act irrationally (as in voting for a party that does not protect their interests). Such a perspective helps move beyond general correlations in aggregated data (such as between-country indicators of income inequality and public health) and zooms in on the part of the broader relationship that can be explained through such psychological processes as embeddedness and relative deprivation.[9]

A social-psychological perspective of inequality also goes beyond income inequality. Many health inequalities have social antecedents in various forms of inequality, including gender, ethnicity and race.[10] Reference and social comparison groups suggest that it is important to know whom people compare themselves with and thus who is in their network and which group identities they value—and which specific forms of inequality they are likely to perceive as unfair and feel relatively deprived in. These psychological dimensions can be easily lost as the level of analysis and aggregation goes up.

Take education. It is not just an objective factor that affords or inhibits opportunities for social mobility. It can also be a potential bubble and identity factor in political participation.[11] For example, making people aware of the status differences between different education groups only reinforces those differences, likely based in confirmation of the competence stereotypes associated with the lower and higher educated.[12] This is reminiscent of how beliefs in meritocracy can justify inequalities.[13]

Notes

1. Festinger 1954; Smith and others 2012. 2. Deaton 2003; Jost 2019; Jost, Ledgerwood and Hardin 2008; Major 1994. 3. Dixon, Durrheim and Tredoux 2005. 4. MacInnis and Hodson 2019. 5. Saguy 2018. 6. Cakal and others 2011. 7. Jost, Ledgerwood and Hardin 2008; Major 1994. 8. Jost, Ledgerwood and Hardin 2008; Major 1994. 9. Corcoran, Pettinicchio and Young 2011; Green, Glaser and Rich 1998. 10. Marmot 2005. 11. Spruyt and Kuppens 2015. 12. Spruyt, Kuppens, Spears and van Noord forthcoming. 13. Jost 2019.

Source: Based on van Zomeren (2019).

century. For development-induced gaps, reductions in inequality are desirable and expected, not from restricting gains of those taking the lead, but from broadly diffusing the newer more advanced dimensions of development.[77]

This chapter has argued for measuring human development based on the formation of capabilities, step by step, from basic to enhanced. It has documented large gaps in human development in all dimensions. But the evolution of inequalities shows two distinct patterns. Overall, the global bottom is catching up in basic capabilities, and inequality appears to be falling. But the global top is pulling ahead in enhanced capabilities, and here inequality is growing. People at the bottom are catching up with 20th century goals and aspirations, while people at the top are enhancing their advantages in those relevant for the 21st century. Between the bottom and the top of the human development distribution is the most diverse global middle class in history. It is diverse in its cultural composition, geographic location and relative position in the dynamics of convergence and divergence. It is also a middle class increasingly fragmented within countries in access to goods and services, as documented in developed countries.[78]

It can be argued that some of the new inequalities are a natural result of progress.[79] Progress has to start somewhere, so some groups go first. Based on gradual progress, the evolution of inequality might follow the shape

of an inverted-U over time, a version of the Kuznets curve.[80] When very few people achieve a "target" (say, access to a new technology), inequality is low: Most people perform equally poorly. Subsequently, as more people obtain access, inequality starts to increase, reflecting the division between the haves and the have-nots. Later on, once a large proportion of people have reached access, inequality starts to decrease: The majority of people are performing equally well. This shows that there are different types of inequalities. There are multiple processes of divergence and convergence taking place at the same time—overlapping Kuznets curves[81]—so the same person could be catching up with basic capabilities and, simultaneously, being left behind in the building up of enhanced capabilities. When these patterns are not random, and some groups tend to be in the lead, while others are consistently behind, this process is bound to be perceived as unfair.

Thus, even if transitory inequality goes along with some forms of progress, that inequality can be unfair if subsequent progress does not spread out widely and fast enough. Inequalities in enhanced capabilities that were already high 10 years ago have been increasing since. This can be changed, and it is a motivation for policies that specifically address equality in capabilities.

These simultaneous patterns of convergence and divergence are likely to play a prominent role in the 21st century. Both trends are important, not only because of their separate effects—reducing extreme deprivations in the first case and concentrating power in the second—but also because of their political implications. Progress might not mean as much if combined with increased inequality in areas people care deeply about, because of the connections with empowerment and agency.

Once most of the population has attained certain goals, other elements become more relevant for how people see themselves in relation to others and how others perceive them. They begin to focus on their place in society and the associated rights, responsibilities and opportunities. Emerging inequalities can trigger perceptions of unfairness to the extent that there is no or slow catching up.

But moving targets could also be a challenge for human development if more efforts and accomplishments are needed to get the same capabilities. People are likely to feel themselves constantly falling behind.[82]

These dynamics[83] pose new and difficult challenges that will affect development paths in the coming decades. Chapter 2 turns to a description of the mechanisms that underpin these dynamics.

But moving targets could also be a challenge for human development if more efforts and accomplishments are needed to get the same capabilities

Spotlight 1.1

Power concentration and state capture: Insights from history on consequences of market dominance for inequality and environmental calamities

Bas van Bavel, Distinguished Professor of Transitions of Economy and Society, Utrecht University, The Netherlands

The organization of markets, their functioning, their interaction with the state and their broader effects on an economy and society develop slowly. While debates on inequality are dominated by developments spanning a few decades, and often even a few years, observing and analysing how inequality emerges, how it concentrates power and how it can lead to the capture of markets and the state call for a much longer, historical perspective. Such a long-term approach may have seemed irrelevant for issues pertaining to the market economy, since it was widely held that the market economy was a modern phenomenon, having developed only from the 19th century on, closely associated with modernization. Recent economic historical work, however, has changed this idea, by identifying several market economies much earlier in history.[1]

Nine market economies, from antiquity to the modern era, have been identified with certainty, and six of them have sufficient data to investigate them well (table S1.1.1). This is thus not an arbitrary set, but these are all known cases of economies with dominant markets, which can be followed over a long period. This allows a better understanding of how market economies develop, something that theoretical and formal work and short-period cases studies cannot do.

All six market economies displayed a similar evolution. In each of three cases analysed in depth—Iraq, Italy and the Low Countries[2]—markets emerged in an equitable setting and became dominant, with an institutional organization that allowed easy market access to broad groups within society. The opportunities that market exchange offered further pushed up economic growth and well-being, with the fruits of growth fairly evenly distributed. As markets became dominant, and especially the markets for land, labour and capital, inequality also grew in a slow process as ownership of land and capital became more concentrated. Wealth inequality in these cases grew to Gini index of 0.85 or higher[3] from substantially lower levels.

TABLE S1.1.1

Certain and possible cases of market economies

Location	Period	Date	Note
Babylonia	Ur III / old-Babylonian period	c. 1900–1600 BCE	Possible case
Babylonia	Neo-Babylonian period	c. 700–300 BCE	Limited data
Athens/Attica	Classical period	c. 600 BCE–300 BCE	Possible case
Italy	Roman period	c. 200 BCE–200 CE	Limited data
Iraq	Early Islamic period	c. 700–1000 CE	
Lower Yangtse	Song period	c. 1000–1400 CE	Limited data
Italy (Center and North)		c. 1200–1600 CE	
Low Countries (especially the West)		c. 1500–1900 CE	
England		c. 1600–	
United States (North)		c. 1825–	
Northwestern Europe		c. 1980–	

Source: Bas van Bavel (Utrecht University, The Netherlands).

As inequality grew, economic growth initially continued, but it became ever less translated into broad well-being. With the stagnating purchasing power of large shares of the population, lagging demand and the declining profitability of economic investments, owners of large wealth increasingly shifted their investments to financial markets. They used their wealth to acquire political leverage through patronage and buying political positions or by acquiring key positions in the fiscal regime, bureaucracy and finance and through their dominance in financial markets and their role as creditors of the state. Over the course of 100–150 years markets became less open and equitable, through both large wealth owners' economic weight and their ability to skew the institutional organization of the markets.[4] As a result, productive investments declined, the economy started to stagnate and economic inequality rose further, coupled with growing political inequity and even coercion.

Each of the market economies started from a very equitable situation, with relatively equal distribution of economic wealth and political decisionmaking. This was the result of a long preceding period of smaller and bigger revolts and forms of self-organization of ordinary people—in guilds, fraternities, associations, corporations, commons and companies (figure S1.1.1).[5] Their organization enabled them to break existing inequities and forms of coercion and to obtain a more equitable distribution of wealth and resources. They also won the freedom to exchange their land, labour and capital without restraints by elite power, thus opening the opportunity to use the market to this end. Their struggles and forms of self-organization were thus at the base of the rise of factor markets—and the rise happened within a relatively equal setting, ensuring that large groups could access the market and benefit from market exchange.

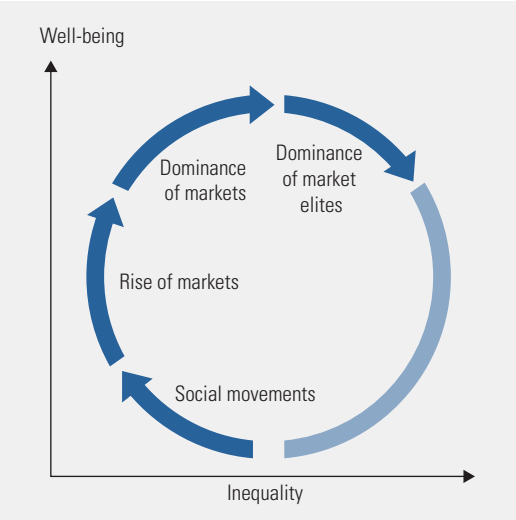
This formative, positive phase was also found in the more familiar, modern cases of market economies: England, where the market became dominant in the 17th century, and the northern United States, in the first half of the 19th century. Both were the most equitable societies of the time, with large degrees of freedom, good access to decisionmaking and relatively equal distribution of land and other forms of wealth.[6] Market economies were thus not the base of freedom and equity, as some theories would have it, but rather developed on the basis of earlier-won freedom and equity. The market subsequently replaced the associations and organizations of ordinary people as the allocation system, a process that sped up when market elites and state elites came to overlap and jointly, and often deliberately, marginalized these organizations. This reduced ordinary people's opportunities to defend freedom, their access to decisionmaking power and their grip over land and resources.

The allocation systems that prevailed before the rise of the market, whether the commons or other associations, had mostly included long-term security and environmental sustainability in their functioning, as ensured by their rules. But the market does not do so explicitly.[7] And in these other systems, cause and effect, and actor and affected person, were more closely linked, because of their smaller scale. In markets they are less so. This poses a risk, since in a market economy, owners of land, capital and natural resources are often far detached from those affected by damage from exploiting resources. They also face fewer constraints on exploitation than systems with more divided property rights.

In coastal Flanders, a mature market economy in the 14th–16th centuries, land was

FIGURE S1.1.1

Description of the stages in the development of the historical market economies



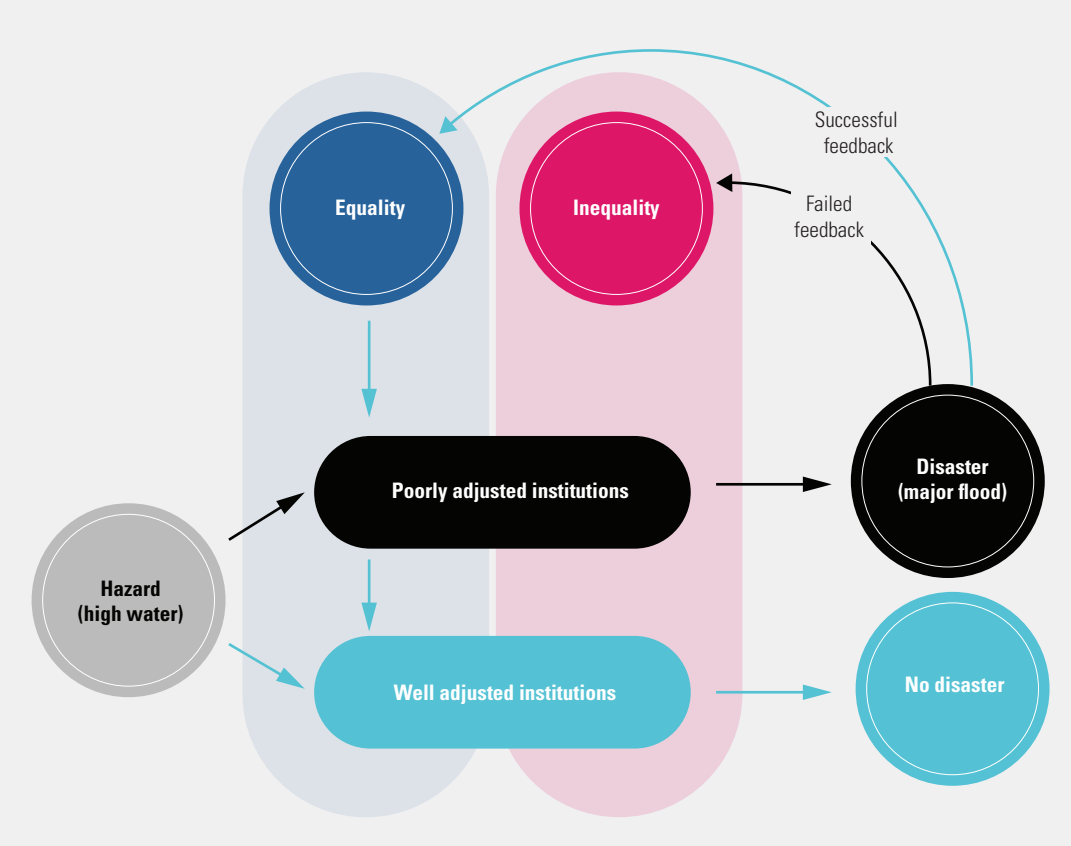
Source: van Bavel 2016.

accumulated by investors who did not live in the area. These absentee investors changed the logic of coastal flood protection from long-term security to low cost and high risk, increasing the flood risk and further marginalizing the local population.[8] More generally, all cases of market economies in their later, downward phases experienced grave ecological problems, from the salinization and breakdown of essential irrigation systems (medieval Iraq) to increasing floods and famines (Renaissance Italy) to malaria and floods (coastal Low Countries), even though the later, modern market economies increasingly avoided the negative effects of ecological degradation by acquiring resources overseas.

To see the interaction among market economies, material inequality and vulnerability to natural shocks, look at three of the most market-dominated parts of the Low Countries (coastal Flanders, the Dutch river area and Groningen) over the very long run in confronting the hazard of high water tables.[9] Growing material inequality increased the incidence of serious floods, not directly, but through the institutional framework for water management. Only where this institutional organization was adapted in line with growing material inequality were disastrous effects avoided (figure S1.1.2). This adaptation did not happen automatically or inevitably, however, even when a society was confronted with major floods.[10] When both property and decisionmaking rights were widely distributed, chances were best that institutions for water management were adapted and adjusted to changing circumstances to reduce the risk of flood disaster. When wealthy actors and interest groups controlled property rights over the main resources and held decisionmaking power, however, they upheld the prevailing arrangements to protect their particular interests, even if this actually weakened a society's coping

FIGURE S1.1.2

Linking the hazard of high water to flood disasters: Economic and political equality enhances the chance of institutions becoming adjusted to circumstances and preventing disaster



Source: Adapted from van Bavel, Curtis and Soens (2018).

capacity. And if some adaptation in these cases did take place, it was often aimed at increasing the capacity of the economic system to recover production levels after a shock—but at the expense of segments of the population that were no longer included in decisionmaking.[11] The risk of these negative outcomes happening and of institutions being poorly adjusted to ecological and social circumstances was high in market economies with high wealth inequality, where the grip of a small group of private owners over natural resources was strongest and decisionmaking power became concentrated in their hands.

How relevant are these observations for developments today? The historical cases where markets emerged as the dominant allocation system for factors of production (land, labour and capital) all showed an accumulation of wealth in the hands of a small group, which then also concentrated political power, shaping incentives in markets that increased inequality and environmental calamities. Today, even in parliamentary democracies, economic wealth again seems to be translated into political leverage—through lobbying, campaign financing and owning media and information—whereas mobile wealth owners can easily isolate themselves, for say, social disruption or environmental degradation.[12] History shows that these developments are not aberrations or accidental events. And perhaps they require broader and deeper consideration of a wider range of policy actions to curb the concentration of economic and political power. The concentration of economic power (wealth), the first stage, is easiest to curb. But after the establishment of economic power and its translation to political dominance, this is far harder to do.

Notes

1 This is true even if the market economy is defined in a very strict way—that is, as an economy where not only goods, products and services, but also inputs (land and natural resources, labour and capital) are predominantly allocated by way of the market.
2 van Bavel 2016. For an analysis of long, cyclical patterns of rising and declining inequality see also Turchin and Nefedov (2009).
3 van Bavel 2016 (see pp. 72–73 on Iraq, 128 on Florence in 1427 and 194–195 on Amsterdam in 1630).
4 This is true even in (relatively) inclusive political systems, in contrast to the argument by Acemoglu and Robinson (2012), where they are assumed to form a virtuous cycle.
5 van Bavel 2019.
6 For the United States, see Acemoglu and Robinson (2012) and Larson (2010). To be sure, a position obtained at the expense of the native population.
7 On the nonembeddedness of market outcomes, see Gemici (2007).
8 Soens 2011.
9 van Bavel, Curtis and Soens 2018.
10 See also Rohland (2018).
11 Soens 2018.
12 Gilens and Page 2014; Schlozman 2012.

Spotlight 1.2

Rising subjective perceptions of inequality, rising inequalities in perceived well-being

Subjective perceptions of inequality are at odds with the decline in extreme deprivations in objective data. Surveys have revealed rising perceptions of inequality, rising preferences for greater equality and rising global inequality in subjective perceptions of well-being. All these trends should be bright red flags—especially given the tendencies of subjective views to underestimate income and wealth inequality in some countries and to understate global inequalities in well-being.

Downward bias in perceived income and wealth inequality

On average, people misperceive actual income and wealth inequality. Underestimating inequality is common in some countries, such as the United Kingdom and the United States.[1] In one survey Americans believed that the top wealth quintile owned about 59 percent of the total wealth; the actual number was closer to 84 percent.[2] And ideal wealth distributions are significantly more equal than respondents' estimates. All demographic groups desired a more equal distribution of wealth than the status quo.[3] And the actual wage ratio of chief executive officers to unskilled workers (354:1) far exceeded the estimated ratio (30:1), which in turn was substantially higher than the ideal ratio (7:1).[4]

Other studies have asked respondents to estimate their position in the income or wealth distribution. In Argentina only about 15 percent of respondents placed their household income in the correct decile.[5] A significant portion of poorer individuals overestimated their rank, while a significant proportion of richer individuals underestimated theirs. Similar biases emerged in a randomized survey experiment in eight countries.[6]

Rising global inequality in subjective perceptions of well-being

In assessing inequalities, one way to look beyond income—a wholly objective measure—is to consider subjective perceptions of well-being and their distribution. They change from region to region (figure S1.2.1). First, both the ability to enjoy life and the ability to assess experiences through well-being play a paramount role in providing direct well-being and "evidential merit" to inform individual decisionmaking.[7] Second, subjective indicators can provide valuable information to cover some of the blind spots in objective data.

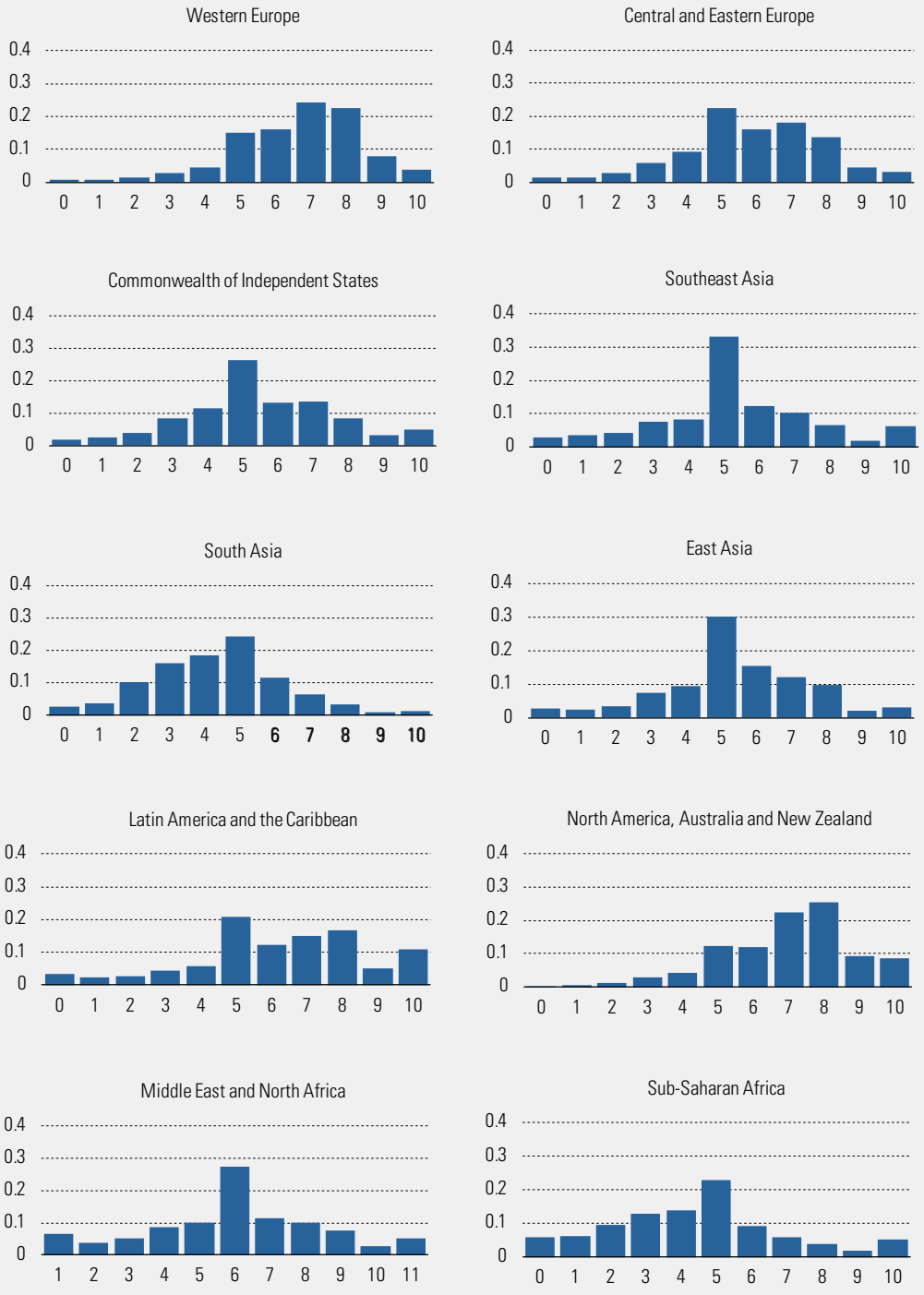
To be sure, subjective measures of well-being must be handled with care—but the very reasons for doubt strengthen the case for attending to rising perceptions of inequality. In Amartya Sen's theory of adaptive preferences, people adapt preferences to their circumstances.[8] In data on self-reported happiness, people facing deprivations moderate their preferences to make their condition more bearable. In contrast, the affluent report lower happiness than their wealth might seem to warrant, because their high satiation has reduced the space for adding to personal satisfaction.[9] For both reasons subjective measures of happiness can understate inequalities in well-being.

Remarkably, self-reported happiness shows increasing inequality in subjective well-being around the world—a trend that has steepened sharply since 2010 (figure S1.2.2). This has been an increasing trend during 2006–2018 in all regions except Europe.[10] Inequality in the Commonwealth of Independent States was stable at first but has been rising since 2013. Inequality was steady in Latin America until 2014 and has risen since and rose until 2010 in the US-dominated North America, Australia and New Zealand region but has been constant since. Inequality has been rising since 2010 in Southeast Asia but has not risen as much in the rest of Asia. In Sub-Saharan Africa inequality has followed a steep post-2010 path, similar to that in Southeast Asia. And in the Middle East and North Africa inequality rose from 2009 to 2013 but has been stable since.

The trend towards greater inequality in subjective well-being poses a challenge. First,

FIGURE S1.2.1

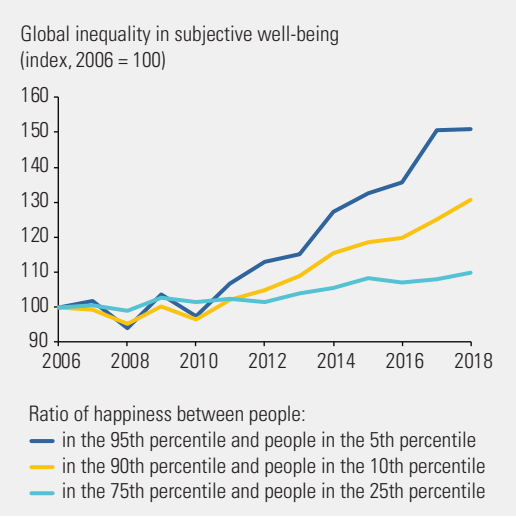
Transmitting inequalities in human development across the lifecycle



Note: Respondents' answers to life evaluation questions asked in the poll on a scale from 0 (the worst possible) to 10 (the best possible).
Source: Helliwell 2019.

FIGURE S1.2.2

Distribution of subjective well-being across the world (measured by people's overall satisfaction with their lives)



Source: Human Development Report Office calculations based on Helliwell (2019), using Gallup data.

people's overall life satisfaction is in many ways a barometer of everything else in their lives. There are strong links between higher life evaluations and several key measures of human development—including higher job satisfaction and more effective government—and moderately strong links between higher life satisfaction and greater freedom of choice and lower inequality.[11] Moreover, the variables that the literature on subjective well-being, and remarkably the *World Happiness Reports,* show to be correlated strongly with life evaluations—namely income, social support, healthy life expectancy at birth, freedom to make life choices, generosity and corruption—are all dimensions of human development.[12] So if a society is more unequal in its experience of life satisfaction, it is likely more unequal in its experience of life and human development.

Second, higher inequality in subjective well-being is associated with lower subjective well-being.[13] In other words, greater inequality in happiness makes everyone less happy.

Source: Human Development Report Office.

Notes

1 Hauser and Norton 2017.
2 Norton and Ariely 2011.
3 Norton and Ariely 2013.
4 Kiatpongsan and Norton 2014.
5 Cruces, Pérez-Truglia and Tetaz 2013.
6 Bublitz 2016. These countries include Brazil, France, Germany, the Russian Federation, Spain, Sweden, the United Kingdom and the United States. With regard to own estimated income position, individuals in the bottom income quintile have a positive income position bias, whereas individuals in higher income quintiles have a negative income position bias (except individuals in the second quintile, who show almost no income position bias).
7 See Sen (2008a).
8 See, for instance, Sen (1999, pp. 62–63).
9 Graham 2012.
10 Helliwell 2019.
11 See Hall (2013).
12 See Hall (2013).
13 Helliwell 2019.

Spotlight 1.3

The bottom of the distribution: The challenge of eradicating income poverty

Today, about 600 million people live on less than $1.90 a day.[1] There has been considerable progress in the fight against poverty in recent decades. The extreme income poverty rate fell from 36 percent in 1990 to 8.6 percent in 2018. Despite this progress, the number of people living in extreme poverty globally is unacceptably high, and poverty reduction may not be fast enough to end extreme poverty by 2030, as the Sustainable Development Goals demand. After decades of progress, poverty reduction is slowing (box S1.3.1).

Overall, extreme poverty rates tend to be higher in low human development countries, but poor people can be found in countries at all levels of development (figure S1.3.1). While poverty rates have declined in all regions, progress has been uneven, and more than half of people in extreme poverty live in Sub-Saharan Africa, where absolute numbers of people living in poverty are increasing. If current trends continue, nearly 9 of 10 people in extreme poverty will be in Sub-Saharan Africa in 2030.[2]

Income poverty is only one form of poverty. Those furthest behind suffer from overlapping deprivations, discriminatory social norms and lack of political empowerment. Risks and vulnerabilities only enhance the fragility of achievements—as explained in the United Nations Development Programme's framework on Leaving No One Behind.[3]

Among countries that are off track, most are in Africa and more than one third exhibit high levels of conflict or violence.[4] Together they pose some of the world's most severe development challenges. They also share characteristics of low tax effort and low health and education spending. They are hampered by weak private sector development in the nonagricultural service sector and share a high dependence on

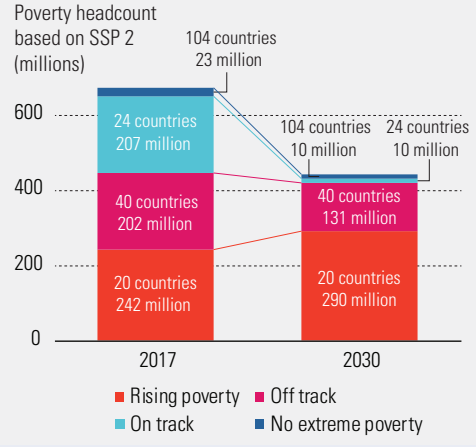
BOX S1.3.1

Income poverty reduction scenarios to 2030

Today, 70 people escape poverty every minute, but once most countries in Asia achieve the poverty target, the rate of poverty reduction is projected to slow to below 50 people per minute in 2020. The projected global poverty rate for 2030 ranges from 4.5 percent (around 375 million people) to almost 6 percent (over 500 million people) (see figure). Even the most optimistic projections show more than 300 million people living in extreme poverty in Sub-Saharan Africa in 2030.

According to the benchmark scenario, 24 countries are on track to reach the poverty target, with 207 million people expected to move out of poverty before 2030. In 40 off-track countries, even though poverty headcounts will fall, 131 million people are expected to remain in poverty by 2030. In 20 countries the number of people living in poverty is projected to increase from 242 million to 290 million (see figure). However, the benchmark scenario is a relatively optimistic view of future economic development, especially in Sub-Saharan Africa.

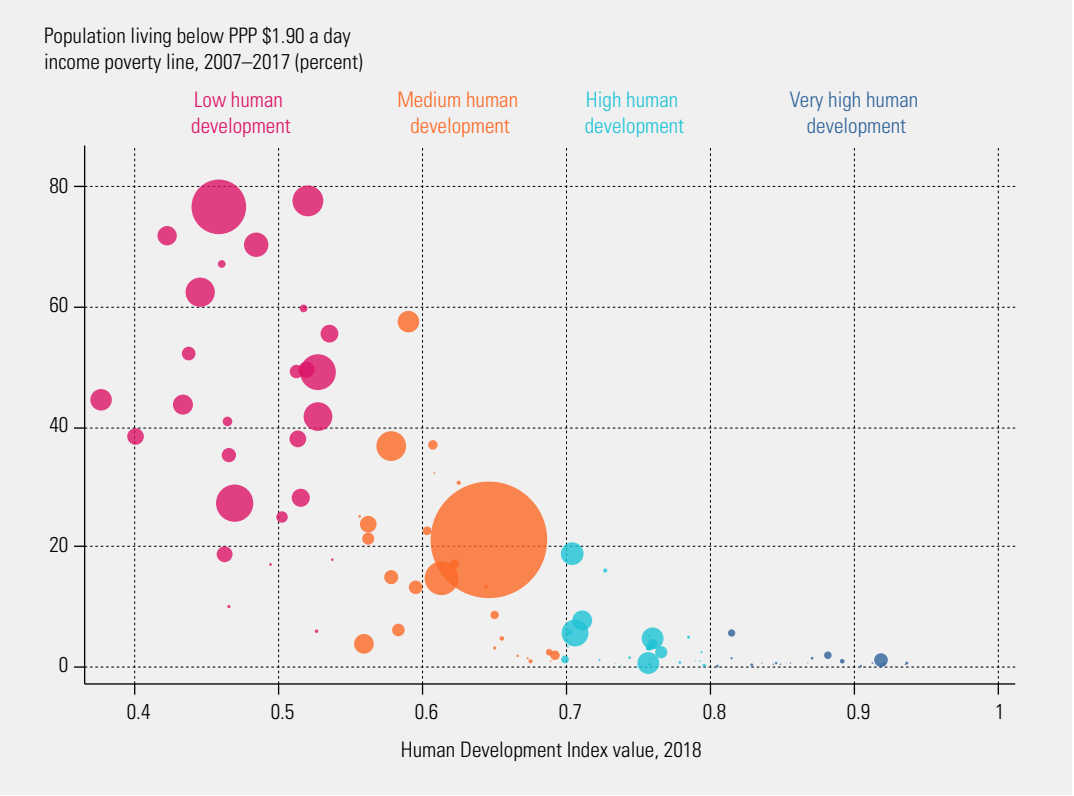
Box figure 1 Poverty headcount by track classification, 2017 and 2030



Note: The Intergovernmental Panel on Climate Change's Shared Socioeconomic Pathways reflect different degrees of climate change mitigation and adaptation. SSP2 corresponds to the benchmark scenario and assumes the continuation of current global socioeconomic trends.
Source: Cuaresma and others 2018.

FIGURE S1.3.1

Some 600 million people live below the $1.90 a day poverty line



Note: Each bubble represents a country, and the size of the bubble is proportional to the country's population in income poverty.
Source: Human Development Report Office estimates.

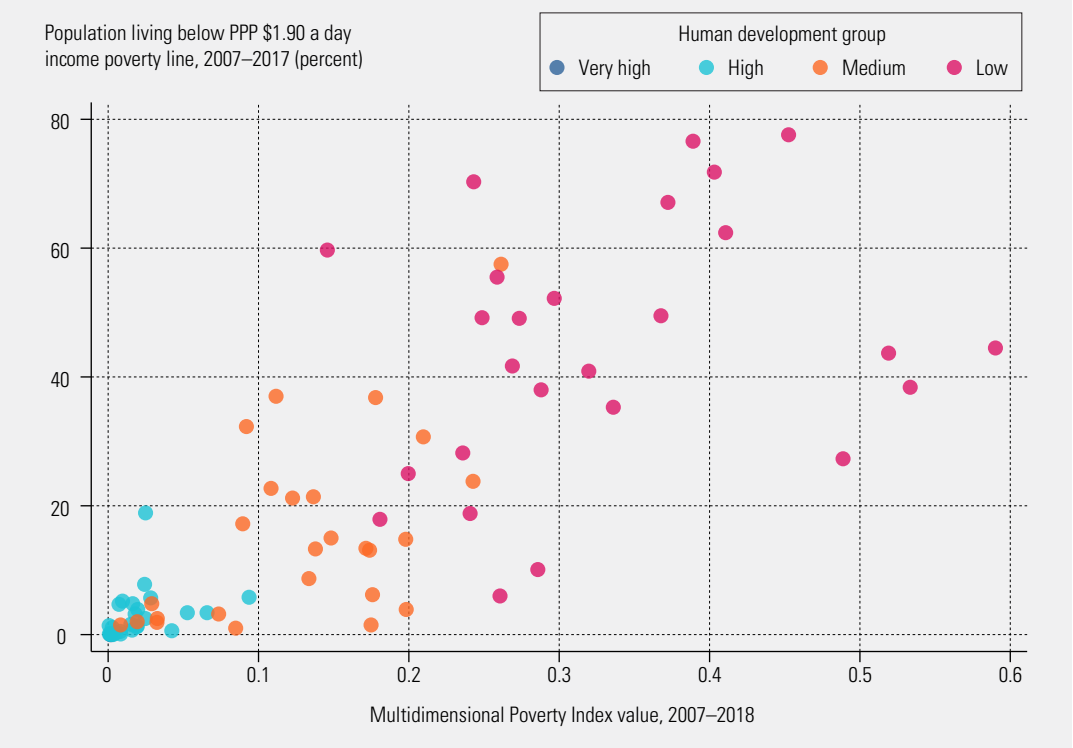
natural resources. Increasing labour income is critical for those at the very bottom.[5] Access to physical and financial assets is also important—land, capital and other inputs for production or services help as income-generating streams and buffers against shocks.[6] Social protection, in the form of a noncontributory minimum payment, providing for the most vulnerable is also important.[7]

Human development progress involves the capacity to generate income and translate it into capabilities, including better health and education outcomes. This process plays out throughout the lifecycle. Each person's development starts early—even before birth, with nutrition, cognitive development and education opportunities for infants and children. It continues with formal education, sexual health and safety from violence before entering the labour market. For the poorest people the lifecycle is an obstacle course that reinforces deprivations and exclusions.

Multidimensional poverty indices can shed further light on the people furthest behind by capturing overlapping deprivations in households and clusters of households in a geographic area. These are linked to income poverty, but with significant variations (figure S1.3.2). Some people might be multidimensionally poor even if they live above the monetary poverty line. The global Multidimensional Poverty Index (MPI) covers 101 countries, home to 77 percent of the world's population, or 5.7 billion people. Some 23 percent of these people (1.3 billion) are multidimensionally poor. The MPI data illustrate the challenge of addressing overlapping deprivations: 83 percent of all multidimensionally poor live in South Asia and Sub-Saharan Africa, 67 percent in middle income countries, 85 percent in rural areas and 46 percent in severe poverty.[8] Poor people in rural areas tend to have deprivations in both education and access to water, sanitation, electricity and housing. But the challenges extend

FIGURE S1.3.2

Poverty at the $1.90 a day level is tied to multidimensional poverty



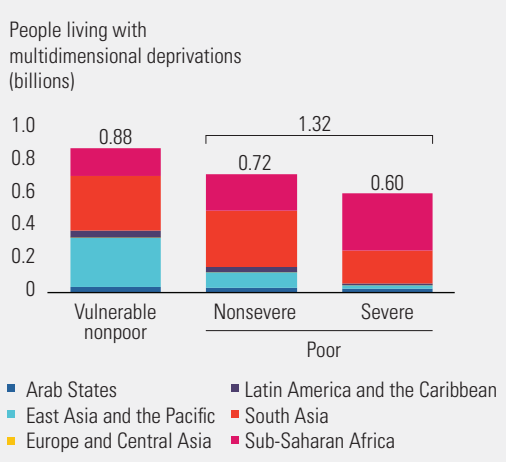
Source: Human Development Report Office estimates.

to urban areas, too: Child mortality and malnutrition are more common in urban areas.[9] Sub-Saharan Africa has the most overlapping MPI deprivations—with more than half the populations of Burundi, Somalia and South Sudan experiencing severe multidimensional poverty, with 50 percent or more of overlapping deprivations (figure S1.3.3).

As countries develop, people tend to leave poverty, but the process is neither linear nor mechanic. It comprises both an upward motion (moving out) and a risk of downward motion (falling back in). The very definition of a middle-class threshold can be computed by thinking of the threshold as a probability rather than an absolute line. That is, a person might be considered middle class when he or she is not poor and is at very little risk of becoming poor. For dozens of countries that have reduced poverty, the stakes of not losing the progress of the past 15–20 years are significant. As Anirudh Krishna points out in his analysis of the life stories of 35,000 households in India, Kenya, Peru, Uganda and North Carolina (United States), many low-income

FIGURE S1.1.3

Sub-Saharan countries have the most overlapping deprivations



Note: Vulnerable nonpoor population refers to people with 20 percent or more and less than 33 percent of overlapping deprivations. nonsevere poor population refers to people with 33–50 percent of overlapping deprivations, and severe poor population refers to people with 50 percent or more of overlapping deprivations.
Source: Human Development Report Office calculations based on the methodology to compute the Multidimensional Poverty Index in HDRO and OPHI (2019).

individuals are just one illness away from poverty.[10] Even relatively well-off households can drop below the poverty line after personal (such as severe health problems) or communal shocks (such as a disaster or the termination of the main source of employment). Another study shows that just 46 percent of Ugandans who were in the bottom quintile in 2013 had been there two years before.[11] In Indonesia 52 percent of households with children were new to the bottom quintile from one year to the next.[12]

Between 2003 and 2013, tens of millions of people moved out of poverty in Latin America. Yet, large numbers of people remain vulnerable to falling back in poverty. In Peru having the head of the household covered by a pension increased the probability of exiting poverty by 19 percentage points and reduced the probability of falling back into poverty by 7 percentage points. By contrast, access to remittances reduced the probability of falling back into poverty by 4 percentage points.[13]

Horizontal inequalities also have dynamic effects. Between 2002 and 2005 ethnicity reduced the probability of transitioning out of poverty in Mexico by 12 percentage points and increased the probability of falling back into poverty from vulnerability by 10 percentage points.[14]

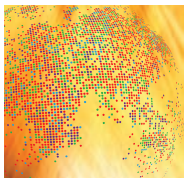
Notes

1 See World Bank (2018a) and the World Poverty Clock (https://worldpoverty.io).
2 See www.worldbank.org/en/topic/poverty/overview.
3 UNDP 2018b. See also UNSDG 2019.
4 Based on the classification by Gert and Kharas (2018).
5 See Azevedo and others (2013).
6 See López Calva and Castelán (2016).
7 See ILO (2017).
8 OPHI and UNDP 2019.
9 Aguilar and Sumner 2019.
10 Krishna 2010.
11 Kidd and Athias 2019.
12 This analysis follows Martínez and Sánchez-Ancochea (2019a).
13 Abud, Gray-Molina and Ortiz-Juarez 2016.
14 See Abud, Gray-Molina and Ortiz-Juarez (2016).

Chapter **2**

Inequalities in human development: Interconnected and persistent

2.



Inequalities in human development: Interconnected and persistent

"Inequality is not so much a cause of economic, political, and social processes as a consequence. [...] Some of the processes that generate inequality are widely seen as fair. But others are deeply and obviously unfair, and have become a legitimate source of anger and disaffection."[1]

How do the patterns of inequalities in human development emerge? Where are the opportunities to redress them? Much of the debate on these questions has centred on the thesis that income inequality, in and of itself, has detrimental effects on human development. So reducing income inequality—primarily through redistribution using taxes and transfers—would also enhance capabilities and distribute them more equally.

Yet, this is far too reductionistic and mechanistic a formulation of the links between income inequality and capabilities. As in chapter 1, it is crucial to go beyond income and lay out the mechanisms through which inequalities in human development emerge—and often persist.

This chapter's approach follows Amartya Sen's argument in *Development as Freedom* that addressing deprivations in one dimension not only has benefits in and of itself but can also support the amelioration of others.[2] For instance, deprivations in housing or nutrition may hinder health and education outcomes. While income is also a factor, deprivations are not necessarily tied to household ability to buy goods and services in markets. That is the motivation for the global Multidimensional Poverty Index, the nonmonetary measure of deprivation published in the Human Development Report since 2010.[3] Being in poor health and having low education achievements, in turn, can hinder the ability to earn income or participate in social and political life. These deprivations can reinforce each other and accumulate over time—driving and even amplifying disparities in capabilities.

The difficulty with this approach, however, is similar to the one in chapter 1: where to start?

This chapter addresses the question by following a dual approach. The first takes a lifecycle perspective, similar to the one that inspired the analysis of capabilities linked to health and education in chapter 1 (with climate change and technology addressed at length in part III of the Report), and considers what happens to children from birth, and even before birth, and how families, labour markets and public policies shape children's opportunities.[4] Parents, through their actions and decisions, pass on to their children the qualities that the labour market values or devalues, explaining in part how family background determines personal income. Children's education attainment depends on their parents' socioeconomic status, which also determines children's health, starting before birth, and cognitive ability, in part through early childhood stimuli. That status also determines the neighbourhood they grow up in, the schools they attend and the opportunities they have in the labour market, in part through their knowledge and networks.

While this lifecycle approach is helpful to illuminate mechanisms at the individual and household levels, the determinants of the distribution of capabilities cannot be fully accounted for by behaviour at these levels. Policies, institutions, and the rate of growth and change in the structure of the economy, among other factors, also matter a great deal. Thus, the chapter follows a second approach to consider how income inequality interacts with institutions and balances of power, the way societies function and even the nature of economic growth. Going beyond income does not imply excluding income inequality. Instead, it means that income inequality should, in the words of Angus Deaton, not be considered some sort of "pollution" that directly harms human development outcomes.[5] It is crucial to spell out the mechanisms through which income inequality

Addressing deprivations in one dimension not only has benefits in and of itself but can also support the amelioration of others

interacts with society, with politics and with the economy in ways that can both beget more inequalities and harm human development.

One example is how income inequality, institutions and balances of power co-evolve. When elite groups can shape policies that favour themselves and their children, that drives further accumulation of income and opportunity at the top. High income inequality is thus related to lower mobility—individuals' ability to improve their socioeconomic status.

Intergenerational income mobility—the extent to which parents' income accounts for their children's income—is persistently low in some societies.[6] When that happens, the skills and talent in an economy are not necessarily allocated in the most efficient way, reducing economic growth from a counterfactual that allocates resources to earn the greatest returns. The point to emphasize is less the precision of cross-country econometric estimates and more the identification of a plausible mechanism that runs from high inequality through opportunity (key for human development) to economic growth—and back.

The nature of inequalities also matters. For example, horizontal inequalities—which, as highlighted in chapter 1, refer to disparities among groups rather than among individuals—seem to matter for conflict. Once again, spelling out the mechanism is crucial: In this case, horizontal inequalities not only lead to shared grievances within a group but can also interact with political inequality to mobilize collective action for that group to take up arms.

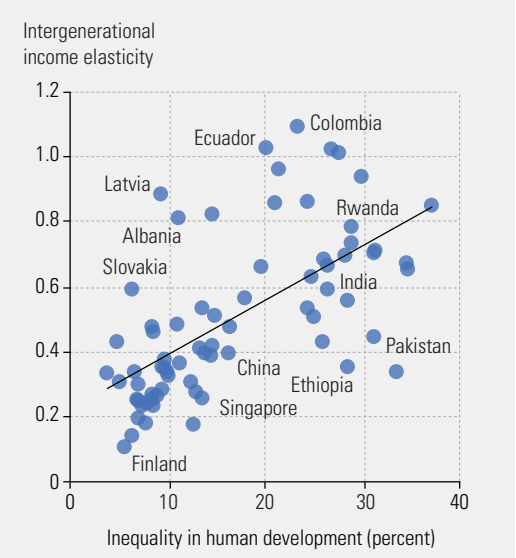
How inequalities begin at birth—and can persist

In countries with high income inequality the association between parents' income and their children's income is stronger—that is, intergenerational income mobility is lower

In countries with high income inequality the association between parents' income and their children's income is stronger—that is, intergenerational income mobility is lower. This relation is known as the Great Gatsby Curve,[7] often portrayed in a cross-plot of country data with income inequality on the horizontal axis and a measure of the correlation between parents' income and their children's income on the vertical axis. The Great Gatsby Curve also holds using a measure of inequality in human development instead of income inequality alone (figure 2.1):

FIGURE 2.1

Intergenerational mobility in income is lower in countries with more inequality in human development



Note: The measure of inequality used is the percentage loss in Human Development Index (HDI) value due to inequality in three components: income, education and health. The loss can be understood as a proxy for inequality in capabilities. The correlation coefficient is .6292. Inequality in income is the strongest correlate among the three components (with a correlation coefficient of .6243), followed by inequality in education (.4931) and inequality in life expectancy (.4713).
Source: Human Development Report Office using data from GDIM (2018), adapted from Corak (2013).

The greater the inequality in human development, the greater the intergenerational income elasticity—that is, the lower the mobility. This relation does not imply direct causality in either direction and can be accounted for by a number of mechanisms running in both directions.[8] This section explores how "the adult outcomes of children reflect a series of gradients between their attainments at specific points in their lives and the prevailing socioeconomic inequalities to which they are exposed."[9]

The underlying mechanisms of this relation can be understood, departing from inequality (because it is possible to account for the relationship also in the direction running from low mobility to high inequality), as follows: "Inequality lowers mobility because it shapes opportunity. It heightens the income consequences of innate differences between individuals; it also changes opportunities, incentives, and institutions that form, develop, and transmit characteristics and skills valued in the labour market; and it shifts the balance of power so that some groups are in a position

to structure policies or otherwise support their children's achievement independent of talent."[10] Opportunities are thus shaped by incentives and institutions that interact as drivers behind the Great Gatsby Curve. In more unequal countries it tends to be more difficult to move up because opportunities to do so are unequally distributed among the population.[11] But what factors constitute inequality of opportunity? There are several, including—but not limited to—family background, gender, race, or place of birth—all crucial in explaining income inequality.[12] The above hypothesis is supported by a negative association between a measure of inequality in opportunity and mobility in education, finding that the share of income inequality that is attributable to circumstances is higher in countries with lower education mobility.[13] A similar relation was found between inequality in opportunity and mobility in income.[14]

Inequality in opportunity is thus a link between inequality and intergenerational mobility: If higher inequality makes mobility more difficult, it is likely because opportunities for advancement are more unequally distributed among children. Conversely, the way lower mobility may contribute to the persistence of inequalities is by making opportunity sets very different among the children of the rich and the children of the poor.[15] These opportunities not only affect the level of welfare that will be attained; they also determine the efforts that will have to be invested to achieve certain outcomes.[16] A measure of inequality that assesses only outcomes will thus never be able to fully assess the fairness of a certain allocation of resources.[17]

But relative mobility is not alone in being important for human development. Without absolute mobility, education and income would not increase from one generation to the next, which is important for progress, especially for low human development countries that need to catch up in capabilities (see chapter 1).[18]

As introduced in chapter 1, a gradient describes how achievements along a dimension (say, health or education) increase with socioeconomic status. A vast literature describes how gradients emerge and persist. Angus Deaton described how health gradients were flat—with very little difference in health outcomes between the rich and the poor—until health innovations around the 18th century made it possible for the richest to start having access to health technologies: "Power and money are useless against the force of mortality without weapons to fight it."[19] In the second half of the 19th century health gradients were carefully documented in Britain and elsewhere, with their persistence remaining an enduring area of policy and academic debate.[20]

How do health and education gradients evolve to opportunity? Some interactions can describe what happens over the lifecycle (figure 2.2).

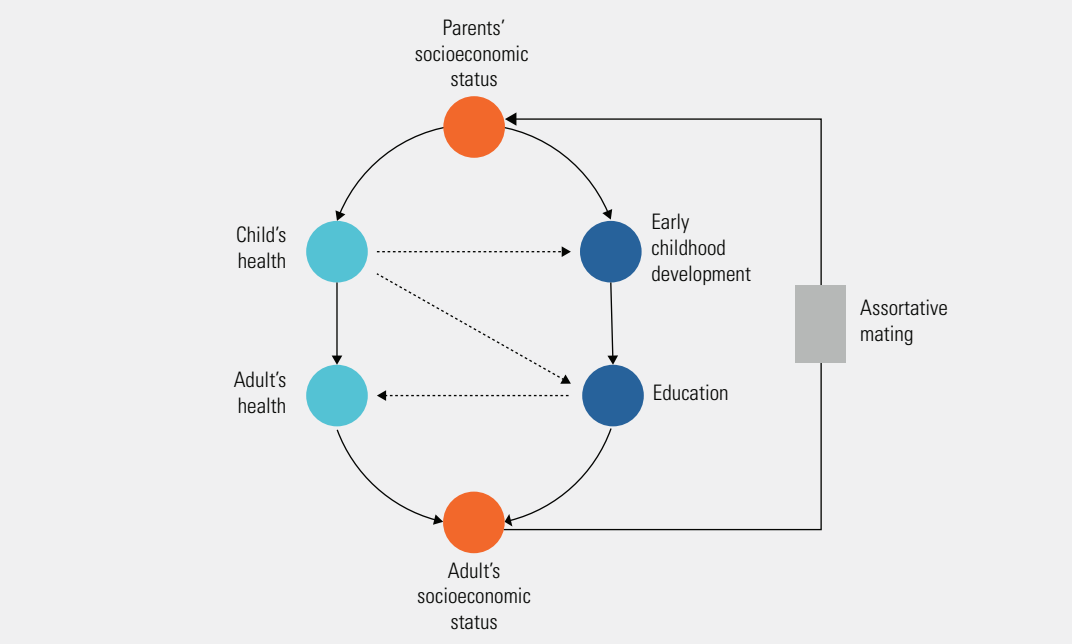
A key channel for a potential vicious cycle of low mobility is an education loop. Education mobilizes individuals to improve their lot, but when low education is passed on from parents to children, those opportunities for improvement are not fully seized. To break the cycle requires understanding how these loops operate, pointing to opportunities for interventions, considered in the next section. Another significant loop relates to health status, starting at birth and evolving through life depending on family choices and health policies.[21] The unequal distribution of health conditions can contribute to inequalities in other areas of life, such as education and the possibility to generate income.[22] The relation also goes the other way, with health gradients in income suggesting that higher income "protects" health, which in turn enables people to be less prone to losing income as a result of being sick (with a vicious cycle in reverse potentially happening to those with lower income).

Inequalities in key areas of human development are thus interconnected and can be persistent from one generation to the next. Many aspects of children's outcomes can be carried through to other stages of the lifecycle, where they affect adults' ability to generate income. The resulting socioeconomic status shapes mating behaviours among adults.[23] People with a certain income and education tend to marry (or cohabit with) partners with similar socioeconomic status (assortative mating).[24] When these couples have children, the feedback loop can start from the top again,[25] with parents' socioeconomic status shaping their children's health and early childhood development.[26]

People with a certain income and education tend to marry (or cohabit with) partners with similar socioeconomic status

FIGURE 2.2

Education and health along the lifecycle



Note: The circles represent different stages of the lifecycle, with the orange ones resenting final outcomes. The rectangle represents the process of assortative mating. The dashed lines refer to interactions that are not described in detail in this chapter. A child's health affects early childhood development and prospects for education. For example, an intellectually disabled child will not be able to benefit from early childhood development and education opportunities in the same way as a healthy child. Education can also promote a healthy lifestyle and convey information on how to benefit from a given health care system if needed (Cutler and Lleras-Muney 2010).
Source: Human Development Report Office, adapted from Deaton (2013b).

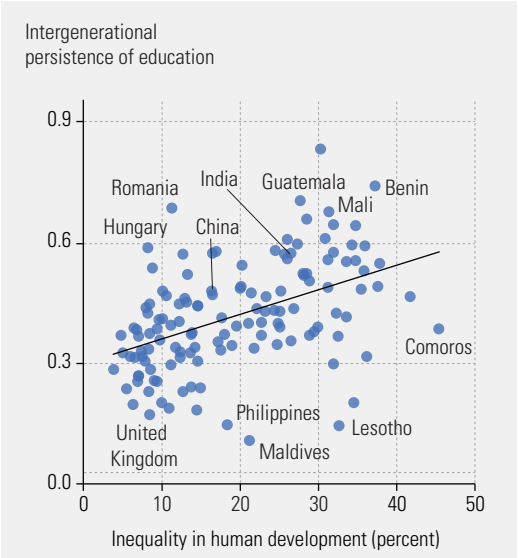
Education: how gaps can emerge early in life

Countries with higher inequality in human development see higher intergenerational persistence of education

Similar to the Great Gatsby Curve and to figure 2.1, countries with higher inequality in human development see higher intergenerational persistence of education (a coefficient that estimates the impact of one additional year of parents' schooling on respondents' years of schooling).[27] This means that education levels across generations are stickier (that is, there is less relative mobility) in more unequal countries (figure 2.3). The component with the strongest correlation coefficient is education, meaning that intergenerational persistence in education is higher the more unequally distributed the mean years of schooling in a given society are. As above, no direct causation should be inferred without looking at the mechanisms behind the correlation, which requires examination at the individual level rather than the country level. The questions are how parents' socioeconomic status (most importantly their education levels) and health status (see the next section) are related to their children's

FIGURE 2.3

Intergenerational persistence of education is higher in countries with higher inequality in human development



Note: The measure of inequality used is the percentage loss in Human Development Index (HDI) value due to inequality in three components: income, education and health. The loss can be understood as a proxy for inequality in capabilities. The correlation coefficient is .4679. Inequality in education is the strongest correlate among the three components (with a correlation coefficient of .5501), followed by inequality in life expectancy (.4632) and inequality in income (.1154).
Source: Human Development Report Office using data from GDIM (2018).

education, and what role do institutions play in the relationship?

Inequalities in education start during infancy. Exposure to stimuli and the quality of care, both in the family and in institutional environments, are crucial for expanding children's choices in later life and for helping them develop their full potential.[28] Parents provide stimuli for young children, and families can be nurturing. Parents' education shapes the nurturing care provided to a child from conception to early childhood: a home environment that is responsive, emotionally supportive, conducive to children's health and nutrition needs, and developmentally stimulating and appropriate, including opportunities for play, exploration and protection from adversity.[29] But parents are unequally able to exploit the opportunity to nurture. For example, children in US professional families are exposed to more than three times as many words as children in families receiving welfare benefits.[30] This has effects on early learning and later achievement test scores, leading to intergenerational persistence in education.

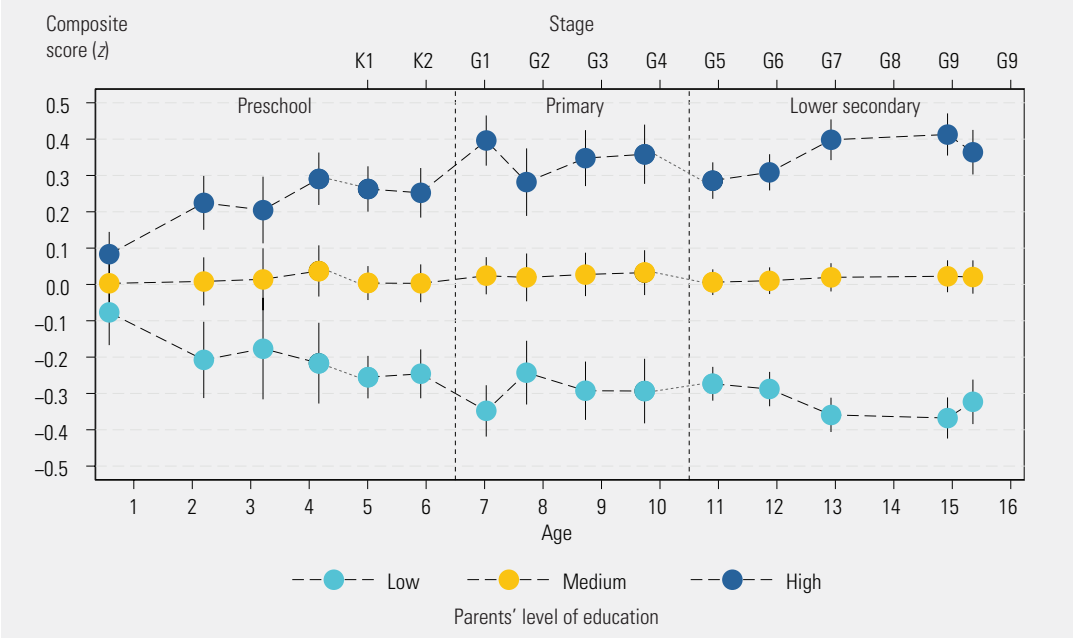
Institutions can play a crucial role in fostering mobility. For example, there is a 13.7 percent return on investment for comprehensive, high-quality, birth-to–age 5 early education, which is even higher than previously estimated.[31] However, children from families with different socioeconomic status also have unequal access to these programmes, nationally and globally. Enrolment in preprimary programmes (age 3 to school entrance age) ranges from 21 percent in low human development countries to 31 percent in medium human development countries to 74 percent in high human development countries and to 80 percent in very high human development countries.[32]

But even if children attend preprimary programmes, disparities in learning abilities are often already apparent for the reasons explained above. Consider the relation between average achievement test scores by a child's age and levels of parents' education in Germany (a proxy for socioeconomic status; figure 2.4). The differences in age-specific scores are substantial, and they increase enormously during the first five years of a child's life and persist throughout childhood. This does not mean that children do not learn in school (as the tests

Inequalities in education start during infancy, because parents are unequally able to exploit the opportunity to nurture. But institutions can play a crucial role in fostering mobility

FIGURE 2.4

Skill gaps emerge in early childhood, given parents' education



Note: Dashed vertical lines emphasize the temporal dynamics of achievement gaps from preschool through lower secondary school. The composite index (z) involves multiple measures at all measurement occasions except 7 months of age, which includes only one assessment (sensorimotor skills), and age 4, which also includes only one assessment (mathematical competence). Predictions are based on life stage–specific regression models. The vertical lines on each dot are 95 percent confidence intervals for predictions. *K* refers to kindergarten, and *G* refers to grade level in school. Long-dashed black lines connect data from the same National Educational Panel Study cohort.
Source: Skopek and Passaretta 2018.

become more difficult), nor does it mean that schooling contributes nothing to help disadvantaged children (because the gaps could, and probably would, significantly increase throughout childhood were it not for the equalizing effect of schooling). But it does highlight the substantial influence of parents' education on the education achievements of their children—even in a very high human development country with low inequality in human development and low intergenerational persistence in education.[33] Therefore, universal participation in early childhood development programmes, even before preprimary education, has the potential to reduce inequality in education as well as increase education mobility.

In many lower human development countries unequal early childhood stimuli are not the only barrier to mobility in education. Children from lower socioeconomic status families may be unable to attend school because they have duties around the house or on the farm or because they need to earn income for the family.[34] But even if all children had the same grade attainment, the gap in universal numeracy would close by only 8 percent in India and 25 percent in Pakistan, and the gap in universal literacy would close by only 8 percent in Uganda and 28 percent in Pakistan. So, even if a child from a poor household completed as many grades as a child from a rich household, the likelihood of becoming numerate or literate would still not be the same for both children. Children from the poorest 40 percent of households usually show lower abilities in numeracy and literacy at each grade. If these children had the same learning profiles—that is, the same relation between years of schooling and a measure of skills or learning—as children from rich families, the gap in universal numeracy would close by 16 percent in Pakistan and Uganda and 34 percent in India, and the gap in universal literacy would close by between 13 percent (Uganda) and 44 percent (India).[35] Hence, in addition to expanding access to education, gaps in learning ability have to be reduced, the earlier the better, as the example from Germany shows.

Early childhood stimuli are not the only advantage children from high socioeconomic status families have. Even if they perform poorly in school, they are still much more likely to move on to higher education, as evidenced in France, Germany and other European countries as well as in different institutional and political contexts, such as Soviet Leningrad in the late 1960s and the United States in the late 1970s.[36] Parents with high socioeconomic status can provide direct help, pay for private tutoring, computers and travel or move their children to remedial school or to a less demanding school and thus give them a second chance.[37]

Another potential source of divergence is social and emotional learning, which is critical for creating productive adults (box 2.1).[38] Social and emotional learning is conducive not only for productivity but also for peaceful social interaction in cohesive societies.[39] Modern forms of education increasingly take such learning into account when designing curricula, but it is an additional challenge for many low and medium human development countries that are undertaking substantial efforts to provide universal basic education. There is thus potential for even more divergence between countries.

This illustrates a crucial point consistent with the evidence of chapter 1: While much attention has been paid to raising people above a certain "floor," that does not eliminate the persistence—and in some cases the generation—of steeper gradients in achievement. Policies geared to raising people above a floor fail to boost young people's opportunities to move on to higher education. Interventions thus need to consider both how to finish closing the gap in basic education achievements and how to stem the persistent—or even the increasing—divergence in more advanced education achievements.

Interventions need to consider both how to finish closing the gap in basic education achievements and how to stem the persistent—or even the increasing—divergence in more advanced education achievements

The effect of the gradient is also carried on to the labour market. Someone with high socioeconomic status but low final education attainment—such as a member of a privileged family who lacks a university degree or an upper secondary diploma—has a much higher chance than a less privileged person of working at a well paid job and avoiding manual labour. People from families with high socioeconomic status often manage to avoid downward occupational mobility relative to their parents, even with poor education performance.[40] A crucial role in this can be attributed to social networks and family networking activity.[41] In some countries improvements in mobility in education have not had the expected equalizing effect on income because of the increasing importance of networks and

BOX 2.1

Key competencies of social and emotional learning

Five key social and emotional competencies have been identified as essential: self-awareness, self-management, social awareness, relationship skills and responsible decisionmaking (see figure). They are interrelated, synergistic and integral for children's and adults' growth and development.[1] Including and strengthening learning material that teaches social and emotional competencies in core curricula have been highly effective in European countries, especially for at-risk children such as children from ethnic and cultural minorities, children from deprived socioeconomic backgrounds and children experiencing social, emotional and mental health challenges.[2] Social and emotional learning can thus flatten the education gradient by expanding capabilities, with the potential to reduce inequalities in human development and promote equity and social inclusion.

Five key social and emotional competencies and how to obtain them

Source: Jagers, Rivas-Drake and Borowski 2018.

Notes
1. Jagers, Rivas-Drake and Borowski 2018. 2. Cefai and others 2018.

networking activities that may at times be more effective than higher levels of education in the labour market.[42]

In sum, children start on an unequal footing because of their experiences before entering the formal education system—particularly, the early education and stimuli that their parents provide. Together with differences in the access to and quality of education (see chapter 1), this accounts for intergenerational persistence in education within countries. Children from low socioeconomic status families are less likely to continue education, even if it is available and accessible. Moreover, networks are crucial for entering the labour market. So, important opportunities to redress inequalities exist at three main points in the lifecycle: early childhood, school age and youth (especially during the transition from school to the labour market). Additionally, there is a need for lifelong learning. Especially in today's job markets, which are subject to constant technological advances and thus reskilling, substantial investments are needed at every stage of life. This is both an economic and a social strategy, in the search for ways to expand

In today's job markets, which are subject to constant technological advances and thus reskilling, substantial investments are needed at every stage of life

capabilities throughout life.[43] (Part III elaborates on concrete ideas of interventions.)

Parents' income and education have profound effects on their children's health, which in turn affects the children's education achievement (and health in adulthood) and thus future income, if not counteracted

Health: How unequal outcomes both drive and reflect unequal capabilities

Parents' income and education have profound effects on their children's health, which in turn affects the children's education achievement (and health in adulthood) and thus future income, if not counteracted.[44] Hence, health gradients—disparities in health across socioeconomic groups—start at birth, or even before, and can accumulate over the lifecycle. Higher socioeconomic status families invest in health, consume more healthily and are mostly able to avoid physically and psychosocially demanding work conditions. This in turn increases the gap between low and high socioeconomic status individuals, even resulting in differences in life expectancy.[45]

Health conditions at birth, or even before, strongly influence health throughout the lifecycle.[46] And when affected adults become parents themselves, the socioeconomic status health gradient can be carried on to future generations, because health inequality starts very early in life—indeed, with the foetus.[47] For example, parents' occupational status and home postal code indicate a baby's health at birth for several reasons:[48] the mother's eating and other health behaviour (smoking), which are closely related to education; the mother's exposure to pollution, which is related to parents' socioeconomic status; and whether the mother received prenatal health care.[49]

And parents' health behaviour also shapes children's health after the child is born. For example, child obesity is a result of both nature and nurture, depending partly on genes and partly on family eating and living patterns.[50] For adolescents the mechanism of the socioeconomic status health gradient works differently. Subjective social status is more important for self-reported health than is parent-reported household income and assets, even when parents' education is controlled for. This is either because subjective social status and self-reported health feed into each other due to their bidirectional causal relation or because other factors that are more important at this stage of the lifecycle weigh strongly on the subjective social status evaluation (doing well in school, having friends).[51] Even adults' health outcomes can sometimes be affected by perceived socioeconomic status (box 2.2).

The debate around the relationship between income inequality and health outcomes has used mainly the proxies of life expectancy at birth and infant mortality.[52] But the effects of the socioeconomic status health gradient may not always be fatal, and they may also not be immediate. A nuanced look at different types of health outcomes reveals how socioeconomic status affects some specific areas of health later in the lifecycle (figure 2.5). A summary calculation shows that in selected middle-income countries the probability

BOX 2.2

How perceived relative deprivations affect health outcomes

Perceived relative deprivation—how people perceive their situation compared with others'—leads to poorer health outcomes.[1] Why is this so? One answer is that perceived relative deprivation is experienced as an emotional state. People feel worse off than others, which causes feelings of anger and resentment.[2] Even people who are objectively well off may feel this, while those who are objectively worse off may not. These emotional states, not always related to actual average inequality in a country, cause poorer health outcomes such as greater self-reported stress and mental and physical illness.[3]

A potentially mitigating factor for this mechanism is social embeddedness—social connections in interpersonal relationships within social networks and group identities.[4] Social embeddedness acts as a buffer, dubbed the "social cure," reducing stress and anxiety.[5] Social embeddedness also promotes health because socially integrated people exercise more, eat better, smoke less and adhere to medical regimes, unless they engage in toxic networks that foster risky behaviours.[6] Health and social embeddedness thus reinforce each other.

Notes
1. Mishra and Carleton 2015; Sim and others 2018; Smith and others 2012. 2. Smith and others 2012. 3. Van Zomeren 2019. 4. Van Zomeren 2019. 5. Jetten and others 2009. 6. Uchino 2006.

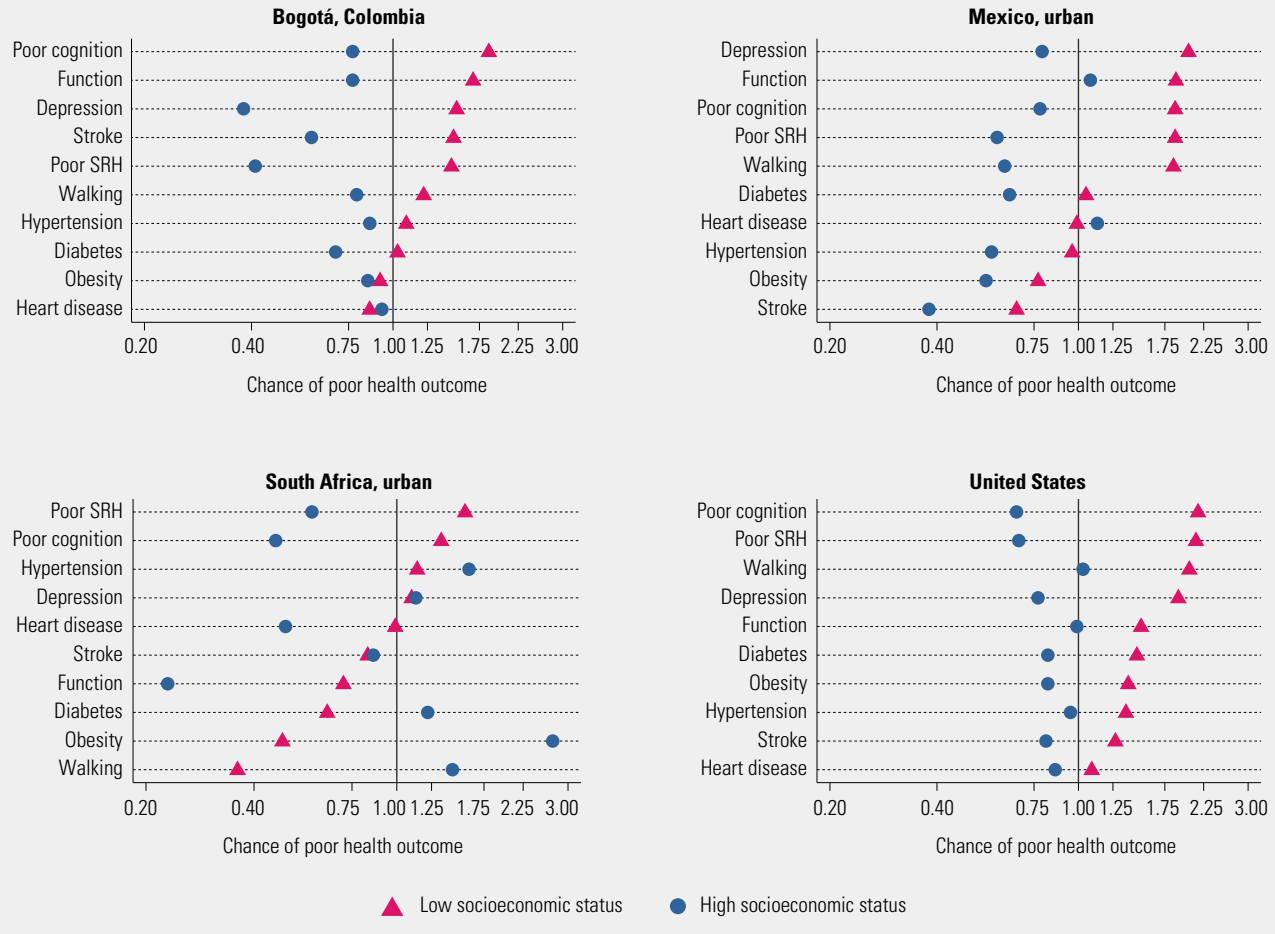
of poor health outcomes in some aspects of health is two to almost four times higher for those in the lowest socioeconomic status group than for those in the highest socioeconomic status group—a pattern that is similar in the United Kingdom and the United States.[53] The gradients in middle-income countries can be partially related to urbanization (the steepest gradients are in urban areas). They could also reflect deficiencies in the countries' public health systems. But even in Sweden, a country well served through universal health coverage, gradients in health achievements persist and sometimes increase throughout the lifecycle. Most significantly, having medical experts in the family benefits family members' health as reflected in longevity, low drug use and vaccination at all ages.[54] Hence, it is not enough to raise people above a certain floor to ensure that gradients do not persist.

Socioeconomic status thus influences health, which in turn is pivotal for other opportunities in life. Policies that redistribute income cannot break this cycle without addressing the underlying mechanisms. Universal health coverage is needed so that people can use the preventive, curative, palliative and rehabilitative health services they need (see Sustainable Development Goal target 3.8). The available services need to be communicated and promoted to the public together with information on healthful lifestyles so that people can make educated choices. Still,

It is not enough to raise people above a certain floor to ensure that gradients do not persist

FIGURE 2.5

Socioeconomic status affects specific areas of health later in the lifecycle



SRH is self-reported health.

Note: The chance of poor health outcome was calculated with the odds ratio (log scale). Data for Colombia are from the Survey on Health, Well-being and Aging), data for Mexico and South Africa are from the Study on Global Ageing and Adult Health and data for the United States are from the Health and Retirement Study. Values greater than 1 (the vertical line) indicate a greater chance of a particular health outcome compared with people with mid-socioeconomic status, and values less than 1 indicate a lower chance. For example, in Bogotá, Mexico and the United States the chance of poor cognition is nearly two times higher for people with low socioeconomic status than it is for people with mid-socioeconomic status but much lower for people with high socioeconomic status.

Source: Adapted from McEniry and others (2018).

tackling gradients in health cannot be achieved simply by gearing policies towards providing a minimum level of access to health services to all. Other social determinants are also relevant.

How inequalities interact with other contextual determinants of human development

This section moves beyond the individual-level, lifecycle analysis and considers how inequalities interact with other contextual determinants of human development. Not intended to be comprehensive, it considers four dimensions that are crucial for human development: the economy (how inequalities interact with patterns of economic growth), the society (how inequalities affect social cohesion), the political arena (how political participation and the exercise of political power are influenced by inequalities) and peace and security (how inequalities interact with violence, which is influenced by economic, social and political factors).

Income and wealth inequalities, economic growth and structural change

There are longstanding debates on the relation among structural change in an economy, economic growth, and income and wealth inequality. Sustained economic growth typically happens with structural shifts in the economy (with employment and value added moving from agriculture to both manufacturing and services). But the relation with income distribution is more ambiguous. Simon Kuznets was the first to take up the issue systematically, putting forward the hypothesis that with economic growth, as labour moved away from the agricultural and rural sector to nonagricultural and urban economic activities (with a higher mean wage than agriculture and a more widespread distribution of earnings), there would be two stages in the evolution of overall income distribution.[55] During the initial stage economywide inequality would increase with economic growth as the relative weight of the nonagricultural sector expanded from very low levels. But as the share of labour in the agricultural sector shrank, a tipping point would eventually be reached, and inequality would start to fall (given the very low weight of the agricultural and rural sector).

What came to be known as the Kuznets hypothesis thus predicted an inverse-U relation (or curve) between income levels and income inequality, with structural change as the main mechanism accounting for the relation. This became the most enduring legacy of Simon Kuznets's 1955 article, but it was by no means the only contribution of that work.

Simon Kuznets analysed other mechanisms that he thought influenced the interplay among growth, structural change and inequality. These ranged from demographic changes (including the economic paths of immigrants into fast-growing modernizing economies) to the influence of political processes in determining the distribution of income: "In democratic societies the growing political power of the urban lower-income groups led to a variety of protective and supporting legislation, much of it aimed to counteract the worst effects of rapid industrialization and urbanization and to support the claims of the broad masses for more adequate shares of the growing income of the country."[56] The more nuanced and sophisticated analysis in Kuznets's original article has been lost over time, replaced almost exclusively by a description of a mechanistic relation between growth and inequality.[57] And perhaps the Kuznets hypothesis can be best understood as describing the evolution of income during major phases of structural change, in "Kuznets waves," as opposed to a deterministic "once and for all" pathway for inequality as economies develop.[58]

In addition, structural change, growth and inequality can interact through mechanisms other than the changes in sectoral composition highlighted by Simon Kuznets. The nature of technological change and how it interacts with labour markets is a particularly important channel. Jan Tinbergen posited that if technological change is skill-biased—that is, if it demands higher skilled workers—then a "race" between technology and skill supply would be expected.[59] With technology forging ahead, if skill supply lags, then a wage premium would be expected for higher skills, increasing wages at the top of the skill/income distribution and thus inequality, as lower skilled workers fail to

What came to be known as the Kuznets hypothesis predicted an inverse-U relation (or curve) between income levels and income inequality, with structural change as the main mechanism accounting for the relation

keep up with the race. There is some evidence that is consistent with this hypothesis for some developed economies in the latter part of the 20th century,[60] but Tinbergen's "race" does not seem to account fully for more recent developments in labour markets this century.

Rather than a steep gradient, many labour markets in developed economies have polarized. This polarization is sometimes manifested with an increase in the labour shares both at the bottom and the top of the skill distribution and a hollowing out at the middle.[61] Jan Tinbergen's race model, therefore, needs to be adjusted to account for wage growth at the bottom—assuming that the same mechanism can explain either wage increases or gains in employment shares at the top. A large literature has emerged to account for job polarization, premised on the concept that not only technology but also other factors—including trade—determine the demand for skills.

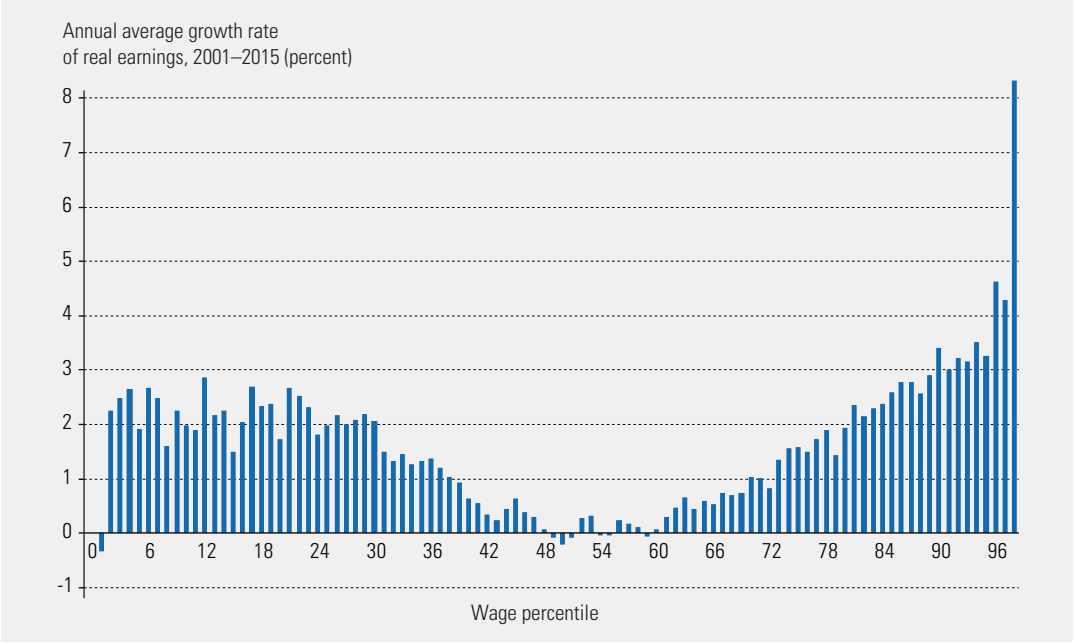
The most influential approach in this field considers tasks and assesses the extent to which they can be easily replaced by either technology or globalization (with production moving to lower labour cost economies). With this framework, some tasks that are nonroutine (thus difficult to automate) and more immune to globalization (nontradable, in more technical terms, such as personal and social care, for instance) can be in high demand, even if they correspond to low skills.[62] It is in the middle of the skill distribution, with several tasks in the manufacturing sector, that there is higher vulnerability to offshoring or technology replacement, which explains the hollowing out of the middle.[63] These factors seem to be at play in some developing countries as well.[64] Over the course of this century there has been a hollowing out of the middle, in this case measured by changes across the wage distribution in South Africa (figure 2.6).[65] This can be accounted for in part by these mechanisms, along with the fact that labour market institutions such as the minimum wage do not protect those in the middle and that trade unions have been captured in part by those at the top. The relation between polarization and inequality is still contested, with the impact on aggregate inequality measures ambiguous.[66]

The debate has ebbed and flowed on the empirical validity of the Kuznets hypothesis, its interpretation, alternative mechanisms, directions of causality and the relation between economic growth and income inequality.[67] Assessing the weight of the empirical evidence

With technology forging ahead, if skill supply lags, then a wage premium would be expected for higher skills, increasing wages at the top of the skill/income distribution and thus inequality, as lower skilled workers fail to keep up

FIGURE 2.6

The hollowing out of the middle in South Africa



Source: Bhorat and others 2019.

What matters is to identify policies that can lead both to growth and to more inclusive sharing of the gains from expanding income

is particularly challenging, given the range of income inequality measures in the literature as well as the difficulty of disentangling measurement error from plausible causal relations.[68] Further compounding the analysis are factors that, at some point in history and in some contexts, have a greater bearing on inequality than either growth or structural change. This is at the heart of Thomas Piketty's critique of the Kuznets hypothesis, which argues that inequality dynamics depend primarily on institutions and policies.[69] And Walter Scheidel argues that violence and major epidemics have historically been the greatest downward drivers of inequality, not structural change or policies.[70]

Beyond the more secular and longer term structural approach explored by Simon Kuznets and the subsequent debate is the related question of whether there are tradeoffs between growth and inequality over shorter time spans. Concerns with efficiency, or how much income is growing, have traditionally dominated concerns with equity, or how it is distributed. Arthur Okun has suggested a tradeoff between economic efficiency and equality, arguing that more equality could weaken economic growth by harming incentives to work, save and invest.[71] And because income growth has such an overwhelming impact over the longer run in improving living standards, the impact of redistributing production would pale in comparison with the "apparently limitless potential of increasing production."[72] Yet recent empirical studies have found that higher income inequality can be associated with lower and less durable growth,[73] including in developing countries.[74] But both the data and techniques used in some of these econometric studies remain contested, casting a shadow of uncertainty over claims that inequality is either "bad" or "good" for economic growth.[75]

Ultimately, it is less relevant to explore whether inequality is harmful to growth (in a mechanistic way) than to understand the impact of policies on income distribution and economic growth.[76] And the evaluation of the impact of policies on distribution, in turn, depends on the weights that society and policymakers attribute to different segments of the population. Thus, blanket statements on the effect of inequality on growth are not helpful, in part because they do not enable insights into whether income is accruing to the middle class or to the bottom of the distribution. Moreover, since at least Simon Kuznets's 1955 article, it has been well understood that growth processes can at times be unequalizing. What matters is to identify policies that can lead both to growth and to more inclusive sharing of the gains from expanding income.

Identifying these more inclusive growth patterns matters in particular for those at the bottom of the income distribution. In this case, the redistribution of productive capacity (leading to the accumulation of assets, access to markets and connection of returns to asset use at the bottom) can lead to both growth and income gains at the bottom, reducing inequality.[77] More mechanically, interactions between growth and inequality affect how much income flows to poor people.[78] As a matter of pure arithmetic decomposition, the impact of expanding mean income on poverty depends on the growth rate as well as on how much additional income flows to the bottom of the distribution.[79] Redistribution to the bottom can create more than a one-off reduction in poverty and inequality—it can change the poverty elasticity of income, which would make growth more impactful on poverty reduction over time.[80] A recent simulation exercise quantifies how reducing inequality could help reduce poverty using those direct relationships. The number of extremely poor people would remain above 550 million in 2030 if GDP per capita were to grow according to International Monetary Fund forecasts and inequality were held constant. But reducing the Gini index by 1 percent a year in each country would cut the global poverty rate to about 5 percent in 2030, which would bring 100 million more people out of extreme poverty.[81]

In the spirit of understanding further possible mechanisms for the interaction between inequality and growth, one hypothesis is that if high inequality reduces mobility, that would lead to an inefficient allocation of resources (talent, skills and capital) that, compared with a counterfactual in which the resources are allocated efficiently, would hurt growth. If this mechanism holds, there would be a negative impact of income inequality on economic growth, with the channel running through inequalities

in opportunity.[82] Yet, once again, the empirical support for this channel is ambiguous.[83]

Another hypothesis is that the relation works through efficiency: Productivity, and hence GDP, increase most when resources are efficiently used and the potential for technological learning is fully exploited.[84] This has been shown historically by the East Asian growth model. Investments in education, among others, have contributed to economic growth through productivity increases.[85] Productivity is lower in most countries with high income inequality than in countries with low income inequality.[86] One reason could be that inequality reduces incentives for innovation and investment through various supply-side mechanisms.[87]

The relation could also work in reverse: Slow economic growth could increase inequality under certain circumstances. For instance, when rates of return are higher than economic growth, especially for large wealth portfolios, wealth inequality tends to increase.[88] Together with other mechanisms contributing to the rise of top-end bargaining power and high incomes (including top executive compensation), this dynamic could create a vicious circle of slow growth and high inequality.

Trust and social interaction in unequal societies

Income inequality can damage social cohesion in societies. Trust, solidarity and social interaction can be diminished by large income gaps, impairing the social contract (sets of rules and expectations of behaviour with which people voluntarily conform that underpin stable societies). But does income inequality simply damage social cohesion, or is the relation two-way—does low social cohesion block redistributive policies?

Important features of social cohesion include the strength of social relationships, shared values, feelings of identity and the sense of belonging to a certain community.[89] One of the most common measures of social cohesion is the level of trust among society. Trusting people means accepting strangers as part of the community and sharing with them the underlying commonality of values. Trust is based on senses of optimism and control: Putting faith in strangers is not seen as risky.[90] But higher inequality may cause the less wealthy to feel powerless and less trusting in a society generally perceived as unfair, while people at the top may not feel that they share the same fate as people at the bottom or that they should strive towards a common goal.[91]

Empirical evidence shows that in developed countries the higher the income inequality, the lower the level of trust within society.[92] And in European countries with higher income inequality, people are less willing to improve the living conditions of others, independent of household income, while there is probably less solidarity and people are less likely to support redistributive institutions.[93] The interaction between inequalities and solidarity may thus go in both directions.

When horizontal inequalities are high, or perceived to be high, people may withdraw from certain social interactions (box 2.3), which can also diminish trust and social cohesion.[94] In highly unequal countries people from different social strands are also less likely to mingle and interact.[95] They probably live in different neighbourhoods, their children attend different schools, they read different newspapers and they are in different groups on social media (box 2.4). Their worldviews likely differ, and they know little about the fate of their fellow citizens. People who do not meet and interact do not directly see the concerns and needs of others (see box 1.9 in chapter 1),[96] which may reduce support for equalizing policies.

A comparison between Canada and the United States at the subnational level shows the effect of segregation on intergenerational income mobility. On average, mobility is lower in the United States than in Canada, but at the subnational level the southern United States is least mobile, like northern Canada. One reason for low mobility in the southern United States is the history of exclusion of African Americans, many of whom have not been fully integrated into the economic mainstream.[97] Some parts of northern Canada also have lower mobility than the rest of the country, due most likely to the remote geographic locations of some indigenous peoples, which make their integration into the economy challenging. However, their proportion of the population is much smaller

When horizontal inequalities are high, or perceived to be high, people may withdraw from certain social interactions, which can diminish trust and social cohesion

BOX 2.3

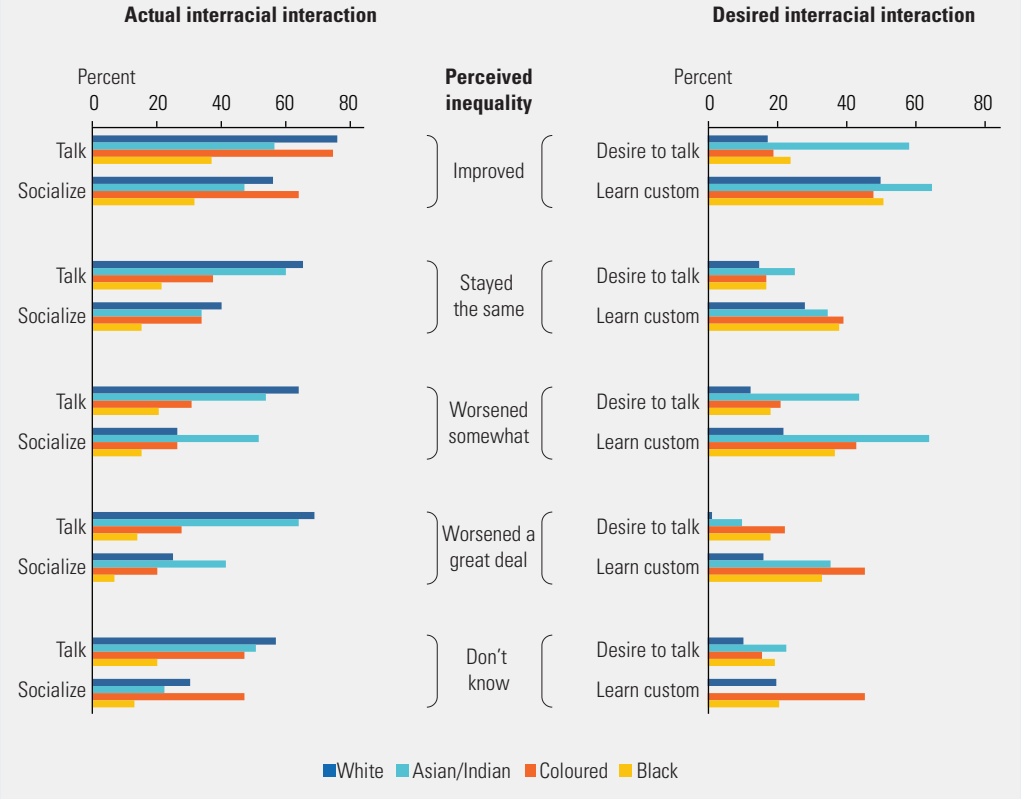
The power of perceived inequalities in South Africa

South Africa is an interesting case study of social cohesion and inequalities, given its history of racial segregation and related vertical and horizontal inequalities. According to multidimensional living standards measures, inequality has declined significantly among individuals and among races since 2008. And yet interracial interactions—measured by actual interracial social interactions, the desire to interact and the desire to know about the customs of people of other races—have also declined since 2010. While interracial interaction is just one part of social cohesion, it is crucial in South Africa. These findings are thus counterintuitive and run contrary to the empirical findings of other countries.

One possible explanation is that perceived trends in inequality, which are substantially different from actual trends, are more important for predicting interracial socialization. The roughly 70 percent of South Africans who feel that inequality has not changed much or has even increased over time are less likely to participate in interracial socialization than those who perceive that inequality is declining. Across race groups, interracial socialization and the desire to interact increase as perceived inequality declines (see figure). The desire to interact is crucial here, as it varies from the actual interactions due to circumstances. The finding remains significant even after a multidimensional Living Standards Measure, race, education, trust and other measures are controlled for.

These findings are important because interracial interaction is crucial for social cohesion in South Africa. Social cohesion in turn increases the possibility of consensus on equalizing policies that reduce inequality. There is also weak evidence for reduced objective inequality improving social cohesion. This opens an opportunity to create a virtuous cycle of social cohesion and low inequalities.

More interracial interaction with lower perceived inequalities



Source: David and others 2018.

Source: David and others 2018.

BOX 2.4

The power of your neighbour

Human beings do not act in isolation—their behaviour depends partly on the behaviour of people in their cognitive neighbourhood.[1] An example from agent-based models demonstrates the emergent nature of human inequalities.[2] A model of neighbourhood segregation along ethnic lines—which can be thought of as a form of geographic inequality—shows that even when there are few individual prejudices, segregation can nonetheless arise merely from the interaction of individuals.[3]

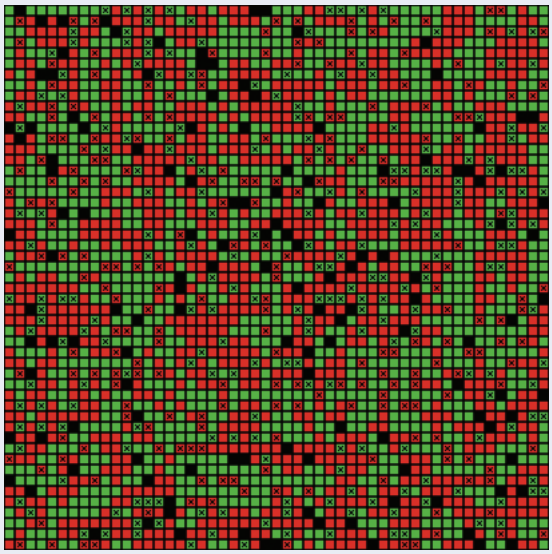
The segregation model has two types of agents—red and green—in equal numbers, each occupying one "patch" of the model's environment (equivalent to a house). On average, each agent begins with an equal number of green and red neighbours. A key parameter is the average percentage of same-colour neighbouring agents wish to live near (such as 30 percent or 70 percent). If an agent does not have enough neighbours of its own colour (according to the preference parameter), they move to a spot nearby.

The results of the simulation are dramatic. Starting from a preference for perfect equality (having 50 percent of one's neighbours the same colour), agents' individual movements give rise to an aggregate segregation of around 86 percent (in other words, roughly 86 percent of one's neighbours end up being the same colour despite each person wishing to have a 50 percent level of diversity). Reducing the preference to 40 percent results in the overall rate of segregation dropping to around 83 percent; reducing it to 30 percent brings segregation down to about 75 percent (see figure).[4] Only lowering the preference to the single digits results in very low emergent segregation (for example, 9 percent leads to 52 percent). This means that people of similar ethnic characteristics automatically move closer together. These behavioural patterns can accelerate inequalities due to the power of the neighbourhood effect—an expression used to describe the impact of neighbourhood on the possibility of an individual moving up the social ladder, especially through the influence of peers and role models. In most developing countries neighbourhood effects are likely to be even stronger given the vast differences in the provision of public goods and services, especially between rural and urban areas.[5]

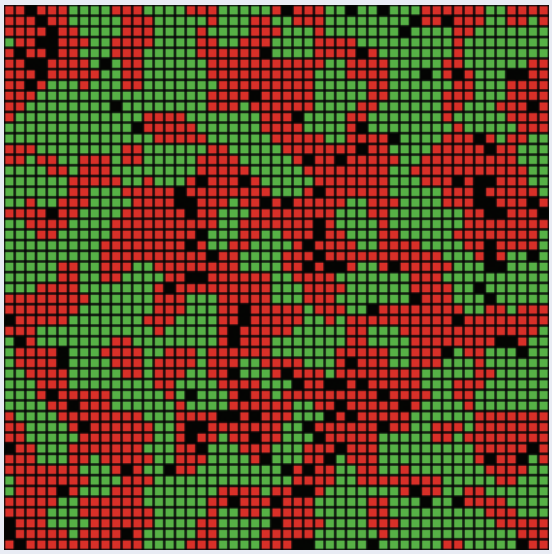
However, public policy interventions can help shape human behaviour, providing counterincentives to mitigate the power of the neighbourhood effect. In the United States inequality in housing prices limits workers' ability to move to a location with higher earning potential.[6] Similarly, the quality of public services such as schools can differ across neighbourhoods, further heightening inequalities. Government subsidies for housing or equally good quality public schools could help offset this effect. The Moving to Opportunity experiment showed the effectiveness of these policies by offering randomly selected families housing vouchers to move into better off neighbourhoods. The move increased college attendance and earnings for people who moved during childhood.[7]

How segregation can arise from interaction

Starting point with equal number of green and red neighbours



After interaction between agents



Source: Wilensky 1997.

Notes

1. Iversen, Krishna and Sen 2019. 2. Agent-based models have been used to predict human behaviour. Using a variety of software tools, agent-based models typically create a group of agents (people, firms, trees, animals, societies, countries and so on), design simple behavioural rules (either for all agents or for subgroups), place the agents in a given simulated environment (usually consisting of time and space dimensions) and then set the agents free to interact based on the behavioural rules. The point of the simulation is to see what emergent phenomena and aggregate properties arise from the interactions based on these basic settings, with no ex ante determination of equilibrium or any other goal. 3. Schelling 1978. 4. The exact numbers depend on the specific run of the simulation and on the density parameter (that is, the proportion of the neighbourhood that is occupied; in this case 95 percent). 5. Iversen, Krishna and Sen 2019. 6. Bayoumi and Barkema 2019. 7. Chetty, Hendren and Katz 2016.

than the African American population in the southern United States.[98]

When more incentives for interaction are directed towards diversity (including people from all ethnicities, religions and social strands) interaction, trust, networks and social cohesion can be built.[99] Ethnicity quotas and subsidies for cultural activities, civic associations, schools and the like could be an effective way of facilitating interaction in the long run. Initially people may resist interaction, and there could be a temporary decline in trust, but in the long run intergroup interaction counters these initial negative effects, increasing trust and even improving the perceived quality of life.[100]

The cycle of social cohesion and inequalities is strongly connected to the cycle of education and inequalities, which, again, is connected to the cycle of health gradients. Education can create strong social bonds among different groups in a society by teaching people about different cultures and bringing them into contact with people of different backgrounds. Likewise, it can teach norms and values and promote participatory and active citizenship. But schools can also act as a flattener for the health gradient, teaching children healthy habits and how to follow a balanced and nutritious diet.[101] The convergence in primary and secondary education (see chapter 1) thus gives hope for creating virtuous cycles of equity in the future.

How inequalities are transferred into political inequality—and back

Most of the literature has found that in high human development countries inequalities depress political participation, specifically the frequency of political discussion and participation in elections among all citizens but the richest.[102] Economic elites (or sometimes even the upper middle class) and organized groups representing business interests thus shape policies substantially more than average citizens or mass-based interest groups do. Additionally, mechanisms through which this can happen include opinion making, lobbying and clientelism.[103] Income and wealth inequalities are thus transferred into political inequality (box 2.5), with privileged groups moulding the system according to their needs and preferences, leading to even more inequalities. Government policy space to address inequalities becomes constrained because political decisions reflect the balance of power in society. This is often referred to as elite capture of institutions.[104]

Power asymmetries can even lead to breakdowns in institutional functions, constraining the effectiveness of policies. When institutions are afflicted by clientelism and captured by elites, citizens may be less willing to cooperate on social contracts. When that translates into, for instance, lower compliance with paying taxes, the state's ability to provide quality public services is diminished. This, in turn can lead to higher and more persistent inequalities—for instance, in health and education. As the overall system will be perceived as unfair, people tend to withdraw from political processes, which further strengthens the influence of elites.[105]

In a world in which information becomes more and more accessible and important, media is a decisive channel through which the imbalances of power can be further amplified. Different stakeholders "create, tap, or steer information flows in ways that suit their goals and in ways that modify, enable, or disable the agency of others, across and between a range of older and newer media settings."[106] Even though information is easily accessible for many people, not everyone is equally well informed. In countries with high internet penetration, income inequality correlates positively with both information inequality (measured by the Gini coefficient estimated over the number of news sources individuals use) and information poverty (the probability of using zero or only one news source). In Australia, the United Kingdom and the United States, where income and information inequality are high, 1 individual in 10 uses zero or only one news source (information poverty).[107] Less well informed voters become more susceptible to the above described political influence by the few media sources they consume. Depending on how these sources are financed, they may promote and protect the interests of a specific group. This form of biased reporting has been referred to as media power.[108] A combination of high information poverty and media power can weaken democratic processes[109] because it can influence voters' behaviour, which is especially delicate with fake news.[110]

Inequalities can also increase both the demand for and supply of populist and authoritarian

Government policy space to address inequalities becomes constrained because political decisions reflect the balance of power in society. This is often referred to as elite capture of institutions

BOX 2.5

Economic inequality and human development

Elizabeth Anderson, Arthur F. Thurnau Professor and John Dewey Distinguished University Professor of Philosophy and Women's Studies at the University of Michigan

How does inequality matter for human development? It limits the prospects for development of the less advantaged. It undermines the ability of untargeted pro-growth policies to reduce poverty because most of the growth will be appropriated by the better-off. And it reduces social mobility by enabling advantaged groups to hoard opportunities and close ranks against those beneath them.

Beyond these concerns, political theorists have drawn attention to the relational aspects of inequality, beyond the bare facts of distributive inequality: Distributive inequalities reflect, reproduce and sometimes constitute oppressive social relations of domination, esteem and standing.[1] It is not simply the material injury of wage theft or of being physically beaten by a domestic partner but the fact of living in subjection to others who wield the power to inflict harm with impunity and who feel free to sacrifice one's vital interests to their own greed or vanity that not only deprives but also oppresses. It is not simply the bare fact of lacking adequate clothing but the stigma others attach to such deprivation that makes poverty sting. It is not simply the physical difficulty the disabled have of navigating public spaces but also the little account public architects and public policy have given to their interests that not only inconveniences but constitutes their diminished standing in the eyes of others.

Across the world, inequality tracks differences of social identity such as gender, race, ethnicity, religion, caste, class and sexual orientation—arbitrarily marking some social groups as superior to others in the opportunities they enjoy, the powers they command and the respect others owe them. Under such conditions members of subordinated groups lack effective means to vindicate their human rights, even in states that legally acknowledge these rights. Groups targeted for sexual harassment and assault cannot vindicate their rights if social or legal norms systematically disparage the credibility of their testimony. Groups subject to disproportionate siting of toxic waste dumps and polluting industries cannot vindicate their rights if they are disenfranchised or if state decisionmakers are otherwise unaccountable to them. Groups denied effective access to education cannot vindicate their rights if they do not know what their rights are or lack the ability to navigate the judicial and bureaucratic processes needed to secure them.

Distributive inequality for social relations undermines trust among members of society as well as trust in institutions. It depresses political, civic, social and cultural participation. It spurs communal violence and crime. It undermines democracy by enabling the rich to capture the state and thereby appropriate a disproportionate share of public goods, shift tax burdens in a regressive direction, enforce fiscal austerity and avoid accountability for predatory and criminal behaviour. Even the laws and regulations that constitute the basic economic infrastructure of markets, property and firms have been designed under the influence of powerful groups to rig purportedly neutral rules in their interests.[2]

These effects occur in states at all levels of human development, even those with low poverty. They are exacerbated by extreme inequalities in the top 1 percent of income and wealth distributions[3] as well as by a small or stagnant middle class.

The independent normative significance of inequality suggests that abolishing poverty and deprivation should not be the only aim; the concentration of income and wealth at the top should also be limited.[4] In 2019 the richest 26 individuals in the world owned as much wealth as the bottom half of the world's population.[5] There is no normative justification for such extreme inequality. The wealth of the ultra-rich has not always been accumulated legally—given the vast scale of global corruption, organized crime, financial manipulation, money laundering and tax evasion. But even when it has, that would only call into question the justification of laws so heavily tilted towards the interests of the rich. It is absurd to credit such inequality to differences in merit, given the rising capital share of income, which rewards mere ownership, and the large impact of chance on outcomes. Nor can such extreme inequality be rationalized as necessary for poverty reduction or as socially advantageous in any other way. Extreme wealth does not even enhance the consumption possibilities of the ultra-rich, who cannot personally consume all of their wealth or even a significant fraction of it.

Indeed, most of what the ultra-rich do with their wealth is exercise power over others. If they own, direct or manage a firm, they deploy their wealth to control their workers and their working conditions. If they hold a monopoly or monopsony position, they may dominate consumers, suppliers and the communities where they operate. If they lobby or donate money to politicians, they capture the state. The ultra-rich also have disproportionate clout in global institutions, particularly regarding the rules of global finance, which have contributed to systemic financial risks and to the instability experienced by many countries around the world.

The current era is witnessing global democratic backsliding, following a surge of democratization in the 1990s and early 2000s. Freedom House reports that 22 of 41 democracies have become less free in the last five years.[6] While the causal connections between distributive inequality (including extreme concentrations of wealth at the top and declining prospects for the global middle) and the decay of democratic norms and institutions have yet to be fully explored, what is already known should raise alarms. While the ultra-rich might escape the worst of unmitigated global climate change, what will happen to the billions left homeless, sick or stateless by rising sea levels, extreme floods, droughts, heat waves and attendant social conflict and civil war? The great inequalities defined by citizenship status threaten the freedom of environmental and wartime refugees, while politicians in receiving states attack democratic institutions in the name of closing their borders. Just at the point where meeting the challenges of climate change is demanding ever-greater international cooperation, states are retreating from global institutions. Greater attention to the case for equality, both within and between states and in the governance of global institutions, is needed to promote human development and cope with the greatest challenge humanity faces in the 21st century.

Notes

1. Anderson 1999; Fourie, Schuppert and Wallimann-Helmer 2015. 2. Harcourt 2011; Pistor 2019. 3. Piketty 2014. 4. Robeyns 2019. 5. Oxfam 2019. 6. Freedom House 2019.

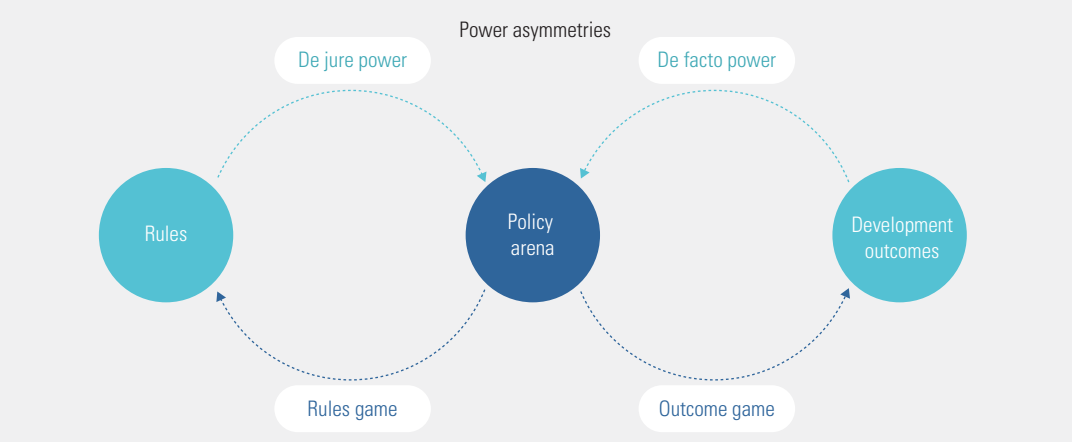
leaders. When higher inequalities lead to an enhanced sense of systemic unfairness, it can raise the public's openness to nonmainstream political movements.[111] In some contexts political participation increases under high income inequality, when populist leaders trigger grievances by explicitly connecting political and socioeconomic exclusion.[112] More generally, populist leaders use economic anxiety, public anger and the reduced legitimacy of status quo parties to build narratives that exploit one of the following two cleavages: Right-wing populism thrives on cultural cleavages, including religious, ethnic or national differences, while left-wing populism emphasizes economic differences between the wealthy elite and the lower classes.[113] Both divide society and weaken social cohesion.

The way in which power asymmetries play out in the policy arena can exacerbate and entrench inequalities or pave the way to more equalizing and inclusive dynamics

One way of understanding the interplay between inequality and the dynamics of power is to draw on a framework that explores one of the processes through which inequalities are generated and perpetuated. At its core, this process is often referred to as governance—or the way in which different actors in society bargain to reach agreements (policies and rules). When these agreements take the form of policies, they have the power to directly impact the distribution of resources in society (the bottom arrow in the right loop of figure 2.7, "outcome game"). For example, policies on taxation and social spending determine who pays into the fiscal system and who benefits from it. These policies directly influence development outcomes such as economic inequality (and growth). However, by redistributing economic resources, these policies are also redistributing de facto power (the top arrow in the right loop of figure 2.7). This can generate (or reinforce) power asymmetries between actors bargaining in the policy arena, which can in turn adversely affect the effective implementation of development policies. For example, power asymmetries can manifest in the capture of policies by elite actors—undermining the ability of governments to commit to achieving long-term goals. Or they may manifest in the exclusion of certain population groups from accessing high-quality public services—undermining cooperation by harming tax morale. This can lead to a vicious cycle of inequality (inequality traps) in which unequal societies begin to institutionalize the inequality. This loop plays out in prevailing institutions and social norms (the outcome game) and can lead to actors deciding to change the rules of the game (the bottom arrow in the left loop of figure 2.7). In this way, de jure power is also redistributed. This can be far more consequential because it not only changes current development outcomes but also sets the conditions that shape actors' behaviour in the future. Once again, the way in which power asymmetries play out in the policy arena can exacerbate and entrench inequalities or pave the way to more equalizing and inclusive dynamics. This is one clear way in which inequality may undermine the effectiveness of governance.[114]

FIGURE 2.7

The effectiveness of governance: An infinity loop



Note: *Rules* refer to formal and informal rules (norms). *Development outcomes* refer to security, growth and equity.
Source: World Bank 2017b.

Violence and inequalities: The cruellest vicious cycle

This last section expounds on what can be considered the two cruellest vicious cycles: the relations between inequalities and homicides and violent conflict. There are more homicides in countries with higher income inequality across all categories of human development. For high and very high human development countries the association is strong: Income inequality explains almost a third of the overall variation in homicide rates, even after years of schooling, GDP per capita, democratization and ethnic fractionalization are accounted for.[115] Education has a moderating effect on this relation, but only in high and very high human development countries: 1.8 more years of average schooling more than halves the association between income inequality and homicide rates.[116] Findings from a study of Mexico's drug war are in line with the hypothesis that income inequality is associated with more violence. A 1 point increase in the Gini coefficient between 2006 and 2010 translated into an increase of more than 10 drug-related homicides per 100,000 inhabitants.[117]

The mechanism behind this relation is less clear. Some suggest that the feeling of shame and humiliation in unequal societies drives violence, predominantly by young men pressured to ensure status.[118] Others suggest a psychosocial explanation: Income inequality intensifies social hierarchies, causing social anxiety and class conflict, damaging trust and social cohesion.[119] This is empirically supported by data showing a negative correlation between trust and income inequality—at least in developed countries (see above). Societies with low trust and weak social cohesion have lower capacity to create safe communities, and this, together with high pressure for status, may increase violence.

On a macro level, evidence about the relation between inequalities and violent conflict is mixed. Some studies find that income inequality triggers instability that may lead to violence.[120] Others find no relation between income inequality and violent conflict.[121] More recently, Frances Stewart has argued that political disturbances—including violent conflict and civil war—arise from horizontal inequalities between different groups, each distinguishing itself from the others by its history, religion, language, race, region, class or the like.[122] Group differences appear in all societies, but they are only likely to lead to conflict and violence when social, economic and political inequalities are exacerbated by politically excluding certain groups.[123]

A condition for horizontal inequalities to lead to conflict is that leaders or elites have an interest in mobilizing groups and initiating a conflict. That interest often arises from horizontal political inequalities among the elite.[124] Added to this are more determinants of conflict: the nature of the state, the role of local institutions, the presence of natural resources[125] and the struggle between some groups for access to power, resources, services and security.[126]

Shocks can also interact with horizontal inequalities and contribute to outbreaks of instability. One example is the contribution of the drought that affected Syria prior to the uprisings of 2011, showing how shocks and horizontal inequalities (primarily between the rural population affected by the drought and the population in urban areas) can interact to trigger instability.[127]

While only 9 percent of armed conflict outbreaks between 1980 and 2010 coincided with disasters such as droughts or heatwaves, the proportion increases to 23 percent in ethnically fractionalized settings, where disruptive events seem to play out in a particularly tragic way.[128] Droughts also significantly increase the likelihood of sustained violent conflict in low-income settings where ethnically or politically excluded groups depend on agriculture. This leads to a vicious cycle between violent conflict and environmental shocks, with the groups' vulnerability to one increasing their vulnerability to the other.[129]

Comparisons of civil and communal conflicts among 155 politically relevant ethnic groups in Africa show that both political and economic horizontal inequalities can lead to conflict. But the targets of violence differ. Political exclusion leads to violence that targets the central government. Horizontal income or wealth inequalities act more broadly as a determinant of organized political violence, increasing the risk of civil and communal conflicts. Communal conflicts appear to be driven

Political disturbances—including violent conflict and civil war—can arise from horizontal inequalities

Some forms of horizontal inequalities increase before, during and in the immediate years after the onset of conflict

mostly by politically included groups with less reason to fear government intervention.[130]

Afrobarometer perceptions data suggest that not only real horizontal inequalities but also perceived inequalities and exclusion matter for conflict (see box 2.3). The likelihood of social unrest increases when individuals perceive their group as disadvantaged. Support for violence is highest when included groups enjoying high political status perceive that the government treats them unfairly. But the effect of exclusion on support for violence can also

BOX 2.6

Internal armed conflict and horizontal inequalities

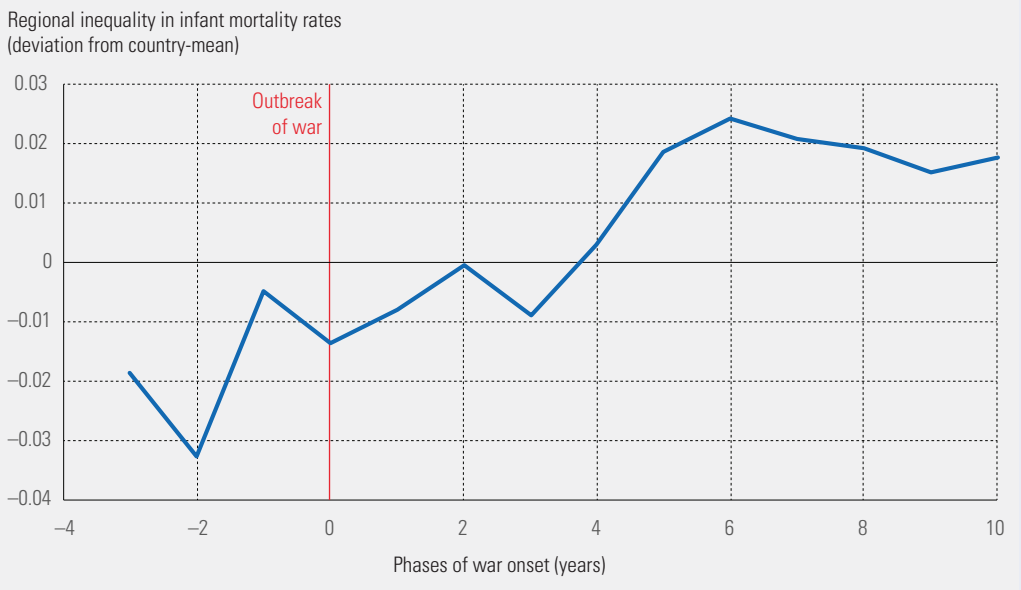
Peace Research Institute Oslo

The impact of internal armed conflict on horizontal inequalities can play out in several ways. In some cases it can reduce horizontal inequalities,[1] while in others it can exacerbate them. First, if the costs of internal conflict are greatest for those who are already poorest,[2] horizontal inequalities may increase. Many countries and areas experiencing armed conflicts had high horizontal inequalities prior to the conflict, and such inequalities are exacerbated when the most disadvantaged groups are disproportionately affected by it. Second, internal armed conflict is often restricted to or focused largely in certain areas of a country. These areas, and the groups that reside in them, may be cut off from the rest of society and the economy. Some areas will also suffer disproportionally from the destruction of facilities, buildings and human lives.

In the postconflict phase these outcomes may wear off, as the economy picks up and the conflict no longer imposes direct costs (on some areas).[3] Yet, postconflict redistributions of power and resources may depend on the outcome of the conflict. Patterns of inequality in the aftermath of conflict may be contingent on whether the outcome is a postconflict agreement securing the interests of both the losers and the winners.

In the years prior to armed conflict, regional inequality in infant mortality rates—used here as a proxy for one dimension of horizontal inequalities—increases (see figure). This increase continues in the immediate years (1–5) after the onset of conflict, which is consistent with the argument that horizontal inequality increases during conflict. But this acceleration wears off after 5–10 years. Hence, some evidence suggests that the postconflict phase is associated with a decrease in a measure of one dimension of horizontal inequalities.

Regional inequality in infant mortality rates prior to and after conflict onset



Note: The x-axis is the number of years prior to and after the onset of conflict. Conflict is defined here as armed conflict with at least 1,000 battle deaths. The y-axis is the global average of countries' deviation from their mean level of horizontal inequality. In other words, it captures whether countries have higher or lower horizontal inequality than usual. Regional inequality is measured using the ratio between best- and worst-performing region in infant mortality rates.
Source: Dahlum and others forthcoming.

Notes
1. Women's political participation, for instance, often increases in postconflict settings (World Bank 2017b). 2. Gates and others 2012. 3. Bircan, Brück and Vothknecht 2017.
Source: Dahlum and others forthcoming.

be attenuated by subjective perceptions (on perceptions of inequalities, see spotlight 1.2 in chapter 1).[131]

Horizontal inequalities can drive violent conflict, and in some cases they may increase even more before, during and in the immediate years after the onset of conflict (box 2.6). Even though major conflicts such as World War I and World War II can bring income inequality down (essentially by increasing the bargaining power of labour, when there is a need for mass mobilization),[132] empirical evidence from recent (internal) conflicts shows that income inequality increases during violent conflict and during the first five years of typical postwar reconstruction. The rise in income inequality associated with violent conflict is not permanent—but it takes 19–22 years for inequality to fall again, and it may take up to 40 years to return to prewar levels of income inequality if peace is sustained.[133]

Violent conflicts can also widen inequalities in other areas of human development, such as health and education. This is because violent conflicts disproportionately affect poor people: They increase undernourishment, infant mortality and the number of people deprived from access to potable water.[134] Given that social spending often declines as a consequence of rising military expenditure,[135] public service provision is also weakened—another potential source for increasing inequalities in human development.

Preventing violence at the early stage of conflict is without a doubt the best approach to avoid suffering, deaths and other costs of violent conflict. Violence is path dependent: Once it starts, incentives and systems work in a way that sustain it. Group grievances have to be recognized early so that patterns of exclusion and institutional weaknesses can be addressed.[136] When prevention is ineffective, postconflict settlements, which often involve political power sharing and could also include economic redistribution, offer opportunities to prevent recurrence.[137]

Inequalities can accumulate through life, reflecting deep power imbalances

This chapter has taken a dual approach in revealing the mechanisms through which inequalities in key areas of human development emerge, reproduce and persist across generations. It has also shown how these areas of human development are connected and how they interact, transferring inequalities in one area of human development to another.

The first part took a lifecycle perspective, arguing that parents' socioeconomic status strongly influences children's health and early childhood development, both of which shape the way children benefit from universal primary and secondary education. Their education attainment in turn constitutes the stepping stone for a successful start in the labour market. But parents' socioeconomic status is relevant at this stage of the lifecycle as well. Depending on parents' knowledge and networks, adolescents may receive a jump start for better opportunities in the labour market. Assortative mating then closes the feedback loop by creating families in which both parents come from a similar socioeconomic status.

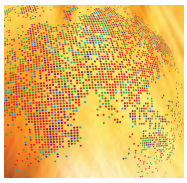
The second approach transcended individual outcomes and looked at the macro framework for these mechanisms. It considered how inequalities affect institutions and balances of power, how societies function and whether inequalities nurture economic growth. One key point was that the nature of inequality matters as well: Inequalities between groups can determine war or peace—a pivotal decision for any desired expansion of capabilities at the individual and societal levels.

Income inequality increases during violent conflict and during the first five years of typical postwar reconstruction. But violent conflicts can also widen inequalities in other areas of human development, such as health and education

Part II

Beyond averages

PART II.



Beyond averages

Part I of the report focuses on inequalities of capabilities, going beyond income. In parallel, part I points out that, even within segments of the population the disparities are large, particularly for those at the bottom. The evolution of indicators such as the poverty headcount ratio fail to account for what happens to those who are left behind, as well as to those who, having escaped or not even having been deprived, fall into destitution.[1] Part I also highlights that a consequential aspect of inequality has to do with group—or horizontal—inequalities. Some groups get ahead, while others are in practice blocked—sometimes insidiously—from full economic and social participation. Even so, information on group inequality is often ignored, and sometimes is simply not available, despite the strong call in the Sustainable Development Goals to collect such data.

These aspects have one thing in common: They hide behind average patterns of inequality that harm progress in human development.[2] Part II tackles this issue head-on. It goes beyond averages[3] to report on what is happening across entire distributions of income and wealth, uncovering patterns in the evolution of these distributions.[4] And it zooms in on horizontal inequality's most systematic and widespread manifestation—inequality across gender—often obscured because biases in data collection and analysis hurt women in a world "designed for men."[5] Spotlight 3.1 at the end of chapter 3 illustrates the importance of looking within countries and even within households to better identify those farthest behind, who may have been hidden by averages.

Tackling inequality starts with good measurement and good data. Indeed, a major weakness of today's public discourse on inequality is its reliance on summary measures, whose choice is far from trivial (see spotlight 3.2 at the end of chapter 3). This is not an academic issue—it is critical for policy.

Conventional summary measures of inequality can fail to identify what truly concerns people about the distribution of income, wealth and other human development outcomes. For instance, income share ratios are insensitive to regressive transfers within the poor (as noted in spotlight 3.1), a matter of importance for policymaking. Income inequality is often described using the Gini coefficient. True, the Gini coefficient is sensitive to regressive transfers throughout the distribution and is frequently used in this Report—as it is in policy and much of the inequality research. But it may not fully express what is of concern to people and so may need to be complemented with more information.

In fact, summary measures of inequality are sensitive to different parts of the distribution. Every summary measure implies judgements about how much to value the income shares of poorer and richer people. Sometimes these are called "weights" in a social welfare function. Each summary statistic assigns these weights implicitly—and, for most people, not that transparently. Some may even be using social weights that do not reflect social values. Tony Atkinson, writing in the late 1960s, asserted: "[In examining] the problem of measuring inequality [...] at present this problem is usually approached through the use of such summary statistics as the Gini coefficient [...]. This conventional method of approach is misleading [because the] examination of the social welfare functions implicit in these measures shows that in a number of cases they have properties which are unlikely to be acceptable, and in general there are no grounds for believing that they would accord with social values. [...] I hope that these conventional measures will be rejected."[6] In other words, the concept of inequality one uses, and its implied ethical judgements, will determine the conclusion one reaches about it.[7]

As it happens, the Gini coefficient is more sensitive to transfers of income in the middle of the distribution than at the bottom or the top—while in many countries most of the action on income and wealth dynamics is precisely at the ends of the distribution (chapter 3). In particular, much of the inequality action occurs at the very top, so that measures looking at the top 10 percent—even, in some

cases, the top 1 percent—lack the resolution to fully capture the accumulation of income and wealth.

In addition, concepts and measurement interact, each shaping how the other evolves. It is historically inaccurate to assume that the complete axiomatic foundation of all inequality measures was developed before these measures were used. The Human Development Index, which Human Development Reports issue regularly, is a good illustration. As Amartya Sen said, it was introduced as a "rough and ready" measure of basic capabilities, and several aspects of it—including changes introduced over the years—remain controversial.[8] But the same can be said of national accounts estimates and the origin of macroeconomic aggregates such as gross domestic product (GDP). In the edifice of statistical manuals agreed to by the United Nations Statistical Commission, national accounts may seem an unassailable construction—but they are no more than just that: a construction.

Tracing the history of national accounts and GDP, Diane Coyle recounts the 1940s debate in the United States on whether to include government spending in GDP.[9] The Commerce Department at the time argued that government spending should be included. But a founding father of GDP measurement, Simon Kuznets, argued for leaving it out (partly because he viewed some government spending as not necessarily enhancing welfare). Ultimately, Coyle argues, the decision to include it had profound implications for the government's perceived role in the economy as another agent alongside private actors (the same approach advocated by John Maynard Keynes). Hugh Rockoff goes further, showing how economic statistics such as price indices and unemployment rates originated "in bitter debates over economic policy, ultimately debates over the distribution of income."[10]

Clearly, measurement influences policy. Yet the issue is more complex that just measurement. It is one thing to agree to look beyond summary measures of income inequality, and another to have the data to do this. To be sure, summary measures are constructed from information on the very distribution that they collapse into a single summary statistic, although the data on that distribution are often too coarse. Thanks to innovative efforts combining information from various sources on income and wealth distribution, however, it is now feasible to estimate at a more granular level how income is distributed and how this distribution changes over time for various population segments. Meeting the growing demand for comparable cross-country inequality estimates, a number of databases with regional or global coverage provide estimates for a range of countries and years. Although there is much agreement across different databases, there are differences across the concepts of income that are used, with important implications for conclusions, such as the extent to which fiscal redistribution affects inequality (see spotlight 3.3 at the end of chapter 3).[11]

To go beyond averages, part II has two chapters. Chapter 3 presents recent findings on inequality levels and trends in global pretax incomes and wealth, pointing out that, as things stand, the wealthiest 1 percent of the population is on track to capture 35 percent of global wealth by 2030. The chapter breaks out these trends across regions, using recent data and new methods to survey income inequality. It then delves into the dynamics of wealth concentration.

The use of innovative methods to account for the evolution of income and wealth inequality across the distribution has captured previously hidden patterns of accumulation at the very top in many countries. The drivers of this accumulation need to be understood in depth and are likely to vary by country. (For instance, recent analysis has shown that the typical top earners in the United States derive their high incomes from founding or managing their businesses rather than from financial capital).[12] The innovative methods in this chapter are still evolving, requiring assumptions that are contested in the literature.[13]

Chapter 3 is transparent about assumptions and decisions in dealing with data challenges to encourage the type of scrutiny that, over time, will improve data and information on inequality. It bears recalling that even the best-established economic statistics have some uncertainty. The chapter argues that today's innovations in measuring economic inequality can open the way for the more systematic measuring and reporting of income

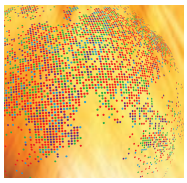
and wealth distribution. Such reporting would complement the aggregate measures that tend to dominate literature and policy at present, whether GDP growth rates or changes in the Gini coefficient.

Chapter 4 considers gender inequality. While there are signs of progress, the chapter points out that it may be slowing. In fact, there are troubling signs of reimposing inequality—linked to backlash in social norms observed in half the countries with data. It is true that most girls around the world are catching up in the basics, such as primary education. These practical achievements are evident. But as women catch up, targets move, and the enhanced capabilities that bring strategic empowerment all too often elude them. The chapter documents that gender inequalities are multidimensional, pervading life in varying degrees across developing and developed countries alike. That is because they are cultural and rooted in social norms—biases and gender discrimination are endemic to our social institutions.[14] The chapter discusses how the challenge of reducing gender inequalities ranges from how to create enabling conditions for cultural change to how to avert societal reactions against progress towards gender equity.

Chapter **3**

Measuring inequality in income and wealth

3.



Measuring inequality in income and wealth

A contribution by the World Inequality Lab

Measuring income inequality is a key step to properly address it. Public debates grounded in facts are critical for societies to determine to what extent they accept inequality, what policies they should implement to tackle it and what taxation they will use—a particularly difficult decision.

Transparency in income and wealth dynamics is also essential to evaluate public policies and track government progress towards more inclusive economies. Sound data on income and wealth are also required to fight (legal) tax avoidance and (illegal) evasion, made possible in part by the built-in opacity of the global financial system.[1] Greater transparency would thus support the highest return to tax policy, part of the policy package to reduce inequality and to finance investments for the Sustainable Development Goals.[2]

The secrecy surrounding ownership of assets around the globe—particularly financial assets—currently makes it impossible to properly track capital accumulation, just as it makes it impossible to ensure that top earners and wealth holders pay their fair share of taxes. Some progress on financial transparency has been made since the 2008 financial crisis, but it has been too slow and limited in relation to the challenge. The share of global wealth hidden in tax havens is an estimated 8 percent of global GDP.[3]

The current lack of transparency on income and wealth dynamics is a political choice. While most governments have (or can find, if they wish) detailed information on the top incomes and wealth, they do not disclose it. This is a digital age paradox: Multinationals have detailed information on individuals' lives and can trade it in the global marketplace. Yet people struggle to get basic information about how growth in income and wealth is shared across the population. Public statistics still rarely move beyond reporting averages. This weakness applies to economic inequality and to other forms of inequality—particularly inequality related to pollution—which are not scrutinized by most statistical institutions today (see chapter 5).

Tackling inequality starts with good measurement

Publishing timely, standardized and universally recognized statistics is key to properly address inequality. Indeed, the production of standardized GDP statistics from the 1950s onwards,[4] thanks to the United Nations Systems of National Accounts, has had huge impacts on framing policy debates and policymaking over the past seven decades. A new generation of growth statistics distributed across income groups (distributional national accounts[5]) is also likely to shape these policy debates. Moving towards developing and publicizing such indicators requires efforts from all actors: policymakers, academia and civil society. The synergies among different actors committed to transparency become apparent when, for example, information on evaded taxes is released by journalists and subsequently analysed by researchers, including some at the World Inequality Lab.[6]

This chapter discusses challenges and recent advances in methodology and data collection to fill a crucial gap in data on human development. It first introduces a new inequality data transparency index. Then, based on data from the World Inequality Database and analysis from the *World Inequality Report*, it presents recent findings on inequality in global incomes. It also surveys income inequality in three country groups, assessing the evolution of inequality by comparing the rate of income growth of the bottom 40 percent with that of the entire population—a target for Sustainable Development Goal 10. The first country group is African countries—where new inequality estimates have recently become available. The second is for Brazil, China, India and the Russian

Publishing timely, standardized and universally recognized statistics is key to properly address inequality

Federation. And the third is European countries and the United States, noting the relative impact of different policies on income distribution. Finally, the chapter turns to the measurement of wealth inequality around the world.

Measuring the transparency gap

Data for tracking income and wealth inequality remain scarce across the globe (figure 3.1). To measure inequality in a country, national statistical authorities ideally would produce rich annual household surveys of individuals' living conditions. And the tax administration would publish income and wealth administrative tax each year. To track income and wealth inequality, survey data and tax data would be linked so that it would be possible to know the fiscal income reported in the tax data by an individual who participated in the living conditions survey. But linked survey and tax data are an exception across the globe, done by only a few countries: for example, Sweden and other Nordic countries. And even there, the ability to measure inequality has deteriorated in recent decades, partly because of the large wealth hidden in offshore financial assets without a proper international registration system to follow them.[7]

In many countries tax data are not available to the public. The production of administrative tax data has historically been closely related to the existence of an income or wealth tax in a country. It was the introduction of the income tax in the United States in 1913, and in India in 1922, that led public administrations to publish income tax statistics. Such information is critical for tax administrations to properly administer taxes and for legislators and taxpayers to be informed about tax policy. But governments are sometimes unwilling to publicly release the data.[8]

While some countries have released new tax data over the past decade, others have actually stopped producing them. And when governments repeal income or wealth taxes, the statistical tools to measure inequality also disappear. The deterioration of administrative tax data thus raises serious concerns, since proper information on wealth and income is key to track inequality and inform public debates. But the situation is worsening in several countries rather than improving.

On a new inequality data transparency index that ranges from 0 to 20, no country scores above 15, and dozens have a score of 0

On a new inequality data transparency index that ranges from 0 to 20, no country scores above 15, and dozens have a score of 0 (see figure 3.1). Data are particularly scarce in Africa and Central Asia. This simple index is preliminary and will be improved as more information is released on income and wealth taxes and availability of survey data. But it already provides an overview of the efforts required to supply transparent data on inequality.

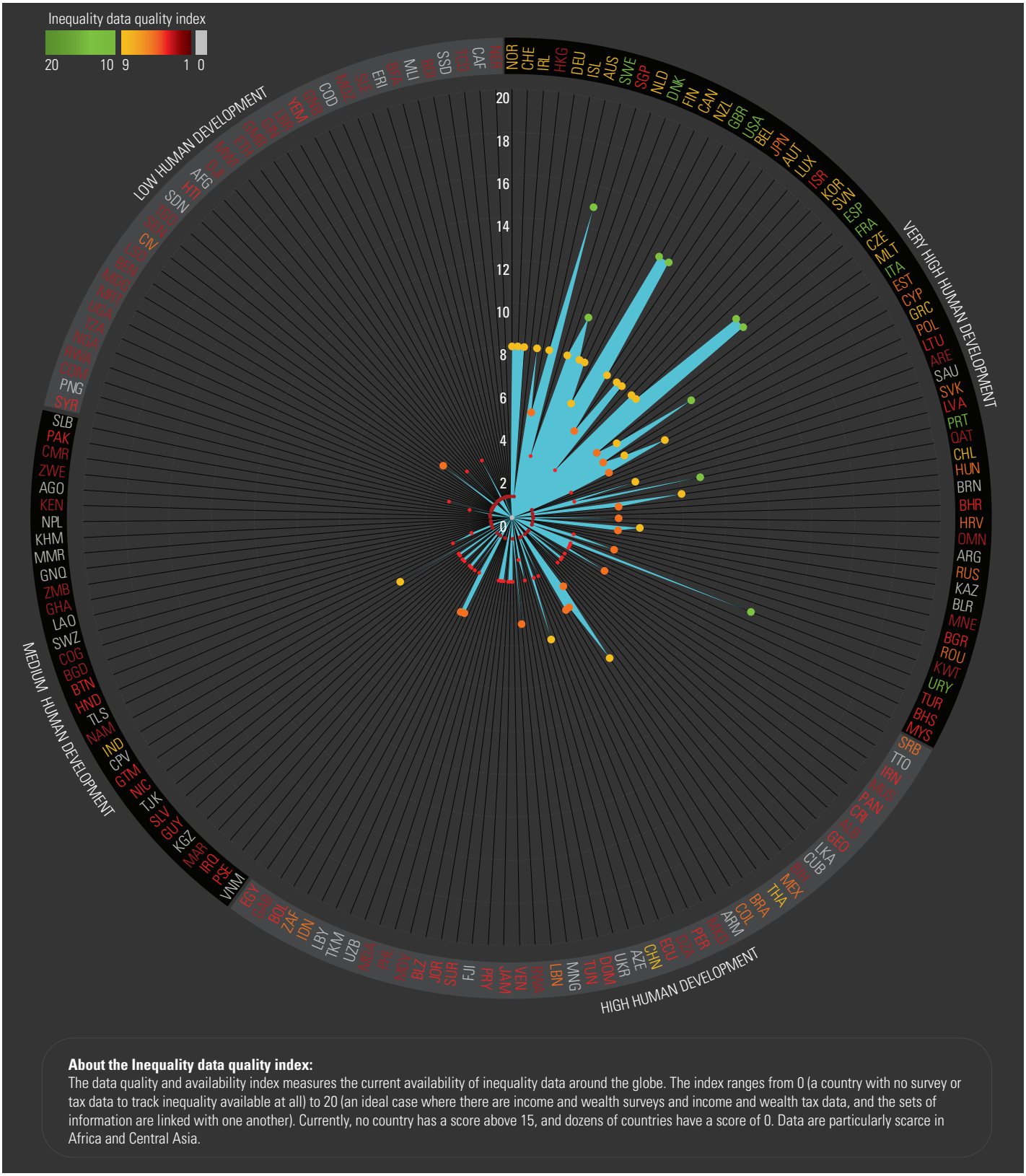
Though the availability of official data is low, the triangulation of different sources has shed new light on income and wealth inequality. Investigative journalism has played a critical role, providing new information that has influenced public discussions and decisionmaking (box 3.1).

Where to look for global income inequality data

Several global income inequality databases have been constructed over the past decades.[9] They include the World Bank's PovcalNet, which provides inequality data from household surveys; the World Inequality Database, which produces distributional national accounts based on tax, survey and national accounts; the LIS Cross-National Data Center in Luxembourg (LIS),[10] which harmonizes to a high level of detail income and wealth concepts in rich countries using household surveys; the Organisation for Economic Co-operation and Development's Income Distribution Database,[11] which contains distributional survey data for advanced economies; the University of Texas Inequality Project Database,[12] which uses industrial and sectoral data to measure inequality; and the Commitment to Equity Data Center,[13] which provides information on fiscal incidence—the impact of taxes and transfers on different income groups. The United Nations University World Institute for Development Economics Research's World Income Inequality Database provides a range of statistics on income inequality for several countries.[14] There are also detailed regional databases such as the Socio-Economic Database for Latin America and the Caribbean,[15] the harmonized regional statistics maintained by the Economic Commission for Latin America and the Caribbean[16] and the European Union Statistics on Income and

FIGURE 3.1

Dozens of countries have almost no transparency in inequality data



About the Inequality data quality index:
The data quality and availability index measures the current availability of inequality data around the globe. The index ranges from 0 (a country with no survey or tax data to track inequality available at all) to 20 (an ideal case where there are income and wealth surveys and income and wealth tax data, and the sets of information are linked with one another). Currently, no country has a score above 15, and dozens of countries have a score of 0. Data are particularly scarce in Africa and Central Asia.

Note: The index presents the level of availability and quality of data on income and wealth inequality.
Source: World Inequality Lab (http://wid.world/transparency); accessed 17 July 2019.

BOX 3.1

Investigative journalism uncovering inequality

Investigative journalism can shed light and generate data on aspects of inequality for which no measurement standards exist or that have remained opaque because of asymmetries in the distribution of power (see chapter 2). New and widespread protocols to assess who is being left behind or extreme wealth concentration might take years or even decades to generate, with constraints ranging from corruption to pressure by interest groups.

Investigative journalism has played a remarkable role in informing the public of important dimensions of inequality. Today, we know more about the globalization of hidden wealth because of disclosures such as those in the Panama Papers and the Paradise Papers.[1] On the other side of the distribution, decentralized reporting based on investigative journalistic research routinely uncovers abuse towards disadvantaged groups: When all other mechanisms that give voice to excluded groups fail, journalism is often their last hope.[2]

Amartya Sen has argued that a free press and an active political opposition constitute an effective early warning systems against famines because information and political pressure push for action.[3] By the same token, the media has played an important role in thwarting behaviours that impede human development—human trafficking and, in the worst instances, slavery; child labour; child marriages; genital mutilation; and malnutrition, especially among children, which can cause stunting that has lifelong effects.[4] Journalistic exposure of corruption can also protect public finances.[5]

In a globalized world, internationally coordinated efforts to find and disclose information can catch up with actors that operate strategically in different countries, taking advantage of transparency blind spots. The Global Investigative Journalism Network and the International Consortium of Investigative Journalism are two prominent examples of this approach.[6] These networks have the potential to develop and defend standards of responsible reporting and diversify the risks of pressure from interest groups.

Quality journalism tends to face financial, political and safety challenges. When journalism and media produce information and knowledge that has the characteristics of a public good, indirect and direct subsidies remain fundamental to avoid underprovision.[7] Journalists can be subject to pressures, intimidation and attacks, which appear to be on the rise in many countries,[8] highlighting the importance of protecting an independent, plural and diverse media.

Investing in quality investigative journalism has high social returns, deterring and correcting corruption, protecting those left behind and informing public policies. One area to explore is an enhanced role for international cooperation: Currently only around 0.3 percent of official development assistance is spent in media development, a small fraction of which is clearly linked to investigative journalism.[9]

Notes

1. In additional to the increase in public awareness and accountability, these data have been used as part of academic research. See, for instance, analysis of the relation of tax evasion and inequality by Alstadsæter, Johannesen and Zucman (2019). 2. See examples and discussion in Brunwasser (2019). 3. Sen 1982, 1999. 4. Schiffrin 2019. 5. Brunwasser 2019; Schiffrin 2019. 6. Brunwasser 2019; Schiffrin 2019. 7. Schiffrin 2019. 8. In resolution 33/2, the United Nations Human Rights Council expressed "deep concern" at the increased number of journalists and media workers who had been killed, tortured, arrested or detained in recent years as a direct result of their profession (UNHRC 2018). 9. Over 2010–2015, $32.5 million appears to be clearly linked to investigative journalism. See annex 1 of Myers and Juma (2018). This is a small amount compared with the net benefits associate with individual investigative journalism projects. See examples in Hamilton (2016) and Sullivan (2016).

Source: Human Development Report Office based on Brunwasser (2019) and Schiffrin (2019).

Living Conditions database (see spotlight 1.3 at the end of the chapter for more sources).[17]

These databases have helped researchers, policymakers, journalists and the general public focus on the evolution of inequality over the past decades. There is no one perfect database on inequality, and there will never be: The different datasets support complementary insights on inequality, and whether to use one or another depends largely on the specific issues to be studied.[18] Some, such as PovcalNet have been used to compute global poverty measures. Others, such as the LIS database, have been used by generations of researchers to study economic inequality and its interactions with other dimensions of welfare in an international perspective. Regional databases, such as the Socio-Economic Database for Latin America and the Caribbean and the European Union Statistics on Income and Living Conditions database, enable detailed regional analyses of inequality, while the Commitment to Equity Data Center can be used to analyse the impact of tax and transfer policies.

Most of these databases rely almost exclusively on one type of information source—household surveys with face-to-face or virtual interviews that ask individuals about their consumption, income, wealth and other socioeconomic aspects

of their lives. Surveys, like any other data source, have pros and cons in the measurement of inequality (table 3.1). One way of overcoming the limitations of each data source is to combine data from different types of sources, particularly combining administrative tax data with survey data.

For example, consider the level and evolution of inequality in Brazil and India. In Brazil household surveys show that the richest 10 percent received just over 40 percent of total income in 2015, but when all forms of income are considered—not just income reported in surveys—the revised estimates suggest that the top 10 percent actually received more than 55 percent of total income. In India estimates based on administrative tax data show that the top 1 percent may have an income share close to 20 percent. But households report an income share of around 10 percent, suggesting that household survey data starkly underestimate incomes at the top of the distribution. The extent to which they do so varies by country but is likely to be substantial. In addition, surveys may also miss important evolutions. In Brazil, household surveys indicate the income share of the top 10 percent has fallen over the past two decades.[19] But revised estimates based on additional sources of information from national accounts and tax data suggest that the income share has been fairly stable. Household surveys captured fairly well the increase in wage income across most of the distribution, which has indeed taken place in Brazil since the 2000s, but failed to fully capture the dynamics of top incomes—particularly capital incomes.

TABLE 3.1

Main data sources for inequality measurement

Data source	Pros	Cons
Household survey data	• Survey data gather information about income or assets as well as social and demographic dimensions, key for human development. • Households surveys support a better understanding of the determinants of income and wealth inequality and allow income and wealth inequality to be analysed in combination with other dimensions—such as racial, spatial, education or gender inequality.	• Limited sample size is a problem. Given the small number of extremely rich individuals and of some vulnerable groups, the likelihood that they will be included in surveys is typically very small. These are called sampling errors. • Self-reported information about income and wealth is erratic. Generally, it largely underestimates the income share of the top. Oversampling cannot correct this bias. These are called nonsampling errors. • Concepts and scope may vary widely across countries and over time, rendering international and historical comparisons difficult. Surveys may be administered with uneven frequency. • Income and wealth totals generally do not match national accounts totals, so growth rates are typically lower in surveys than in macroeconomic growth statistics.
Administrative (tax) data	• In countries with sound enforcement of taxes, tax data capture the income and wealth of those at the top of the wealth distribution. • Tax data also cover longer periods than surveys. Administrative data are usually available annually starting at the beginning of the 20th century for income taxes and in some countries as far back as the early 19th century for inheritance taxes.	• Tax data have limited coverage of the lower tail of distribution. Particularly in developing countries, they typically cover only a small share of the population. • Tax avoidance and evasion affect tax data. Tax data tend to underestimate income and wealth at the top. In most cases inequality estimates based on these data should be viewed as lower-bound estimates. • Tax data are subject to changes in fiscal concepts over time and across countries, making historical and international comparisons difficult.
National accounts data (gross national product, national income, national wealth)	• National accounts data follow internationally standardized definitions for measuring the economic activity of countries, so they allow for a more consistent comparison over time and across countries than fiscal data. National account definitions, in particular, do not depend on local variations in tax legislation or other parts of the legal system.	• National accounts do not provide information on the extent to which different social groups benefit from growth of national income and gross domestic product. • National accounts are heterogeneous across countries, determined by quality of national data and country-specific assumptions.

Source: Based on Alvaredo and others (2018).

World Inequality Database and distributional national accounts

The World Inequality Database project seeks to combine data sources transparently and consistently in order to estimate the distributions of national income and national wealth

Studying inequality in a context of extreme data opacity is difficult, and results are necessarily imperfect and preliminary. Yet, income and wealth dynamics must be tracked as systematically as possible. The World Inequality Database project seeks to combine data sources transparently and consistently in order to estimate the distributions of national income and national wealth. In doing so, the project's main objective is to reconcile the macroeconomic study of income and wealth (which deals with economic growth, public debt or international capital flows) with the microeconomic study of inequality (which considers how the income and wealth growth rates actually experienced by individuals in a single country differ depending on their position in the income distribution).

The World Inequality Database project began with renewed interest in using tax data to study the long-run dynamics of inequality, following the pioneering work on income and wealth inequality series by Simon Kuznets and by Tony Atkinson and A.J. Harrison.[20] Top income shares, based on fiscal data, were initially produced for France[21] and the United States[22] and rapidly expanded to dozens of countries thanks to the contribution of more than 100 researchers.[23] These series had a large impact on the global inequality debate because they made it possible to compare the income shares of top groups (say, the top 1 percent) over long periods of time, revealing new facts and refocusing the discussion on long-run historical evolutions of income and wealth inequality.

More recently, the World Inequality Database project has sought to go beyond the top income shares based on tax data to produce distributional national accounts, relying on a consistent and systematic combination of fiscal, household survey, wealth and national accounts data sources.[24] The objective of the distributional national accounts is to make the most of all data sources (see table 3.1). Tax data are used to track the top of the distribution properly—and when available, information on tax evasion is also used.[25] Survey data are used to obtain information not available from administrative records. And national accounts data are used as the overarching framework, since they provide the most universally recognized concepts of income and wealth to date.

The World Inequality Database project emphasizes the distribution of national income and national wealth equally. There are two main reasons for this. First, it is impossible to properly track income inequality, particularly at the top of the distribution, without a sound measure of wealth inequality dynamics. Indeed, where there has been a recent rise in income inequality, it has often been due largely to the surge in capital income (rents, dividends, retained earnings and so on) among the wealthy.[26] Second, rates of return on wealth have been much higher than macroeconomic income growth over the past four decades, implying that wealth is taking an increasingly important place in 21st century economies.[27] How the fast growth of wealth is distributed across the population becomes a pressing question. Unfortunately, available official data are even scarcer for wealth than for income, so distributional national accounts estimates for wealth inequality cover only a few countries at this stage.

For transparency, the distributional national accounts project releases distributional national accounts estimates and the methods used to compute them. Technical details and the computer codes used to produce the estimates (including those presented in this chapter) are published online on the World Inequality Database website.[28] This level of transparency should become the norm for existing economic statistics databases.

Inequality series published online should also be as comprehensive as possible, given the limitations of summary measures of inequality (as discussed in the introduction to part II of the Report), which can mask relevant inequality dynamics behind a veil of stability. Beyond offering summary measures and a limited set of decile shares, the World Inequality Database project publishes average income and wealth levels for each 1 percent of the population in a given country or region (that is, income and wealth percentiles). Given the importance of the very top groups in income and wealth growth, the project decomposes the top 1 percent itself into smaller subgroups (up to the

top 0.001 percent) and estimates income and wealth levels for each.

Currently, the United Nations System of National Accounts includes standards and guidance only for aggregate indicators.[29] The next revision, due sometime in 2022–2024, might consider how to cover distribution of income and wealth growth across the population, in line with the recommendations of the 2008 Report of the Commission on the Measurement of Economic Performance and Social Progress.[30] Such an evolution would represent significant progress for global public statistics and global public debates on growth and inequality. The distributional national accounts framework considered in this chapter provides a concrete model of how this shift beyond averages could work.

The elephant curve of global inequality and growth

The release of new tax data and the recent methodological developments by researchers collaborating with the World Inequality Database and at the World Inequality Lab make it possible to produce new inequality estimates (see boxes 3.2 and 3.3 for definitions of income and consumption concepts used throughout the Report).[31] A starting place in tracking the evolution of income inequality over time and across countries is to estimate the share of total income received by the richest 10 percent of the population. But such an indicator should be complemented by others—ideally, the income level or growth of each percentile, or 1 percent of the population, as below.

BOX 3.2

What income concepts are we measuring?

This chapter focuses on the distribution of national income, which is the sum of all income received by individuals in an economy. This corresponds to gross domestic product, to which are added net income from abroad (when a Brazilian citizen owns a company in India, the income from the capital of the company is counted in Brazil) and from which are subtracted the amounts required to replace any productive apparatus (roads, machines, computers) that has become obsolete.

There are two broad ways to measure income received by individuals in a country: before taxes and government transfers (pretax income) and after taxes and government transfers (post-tax income). There are different ways to define pre- and post-tax incomes, and definitions can affect the results substantially. In the World Inequality Lab's distributional national accounts framework, pretax national income is defined as the sum of all personal income flows, before taking into account the tax and transfer system but after taking into account pension and unemployment insurance systems. This concept adjusts traditional computations of "market income," as explained in spotlight 3.3. Contributions to pension and unemployment insurance schemes are considered deferred income and therefore deducted, but the corresponding benefits are included.

The adjustment is crucial for good comparability of pretax inequality across countries. Otherwise a country with a public pension system would appear to have artificially high pretax inequality (because retired individuals would have no pretax income and would appear as "virtual poor" before taxes), while a country with private pensions would have positive pretax income for the elderly (because they would benefit from pretax income from their pension plans). Differences in inequality measures between the countries would not reflect differences in income concentration or the effectiveness of pension systems but simply different choices made for organizing the pension system.

In the end, pretax income is similar to the taxable income of many countries, but its definition is usually broader and more comparable across countries. Several variants of pretax income should be looked at, and the distributional national accounts guidelines discuss them in more detail. Unless stated otherwise, the income concept in this chapter is pretax income.[1]

Post-tax national income equals pretax income after subtracting all taxes and adding all forms of government transfers. In line with the distributional national accounts methodology, all forms of government spending are allocated to individuals, so that post-tax income sums to national income. Not doing so would make countries with a stronger provision of public goods appear mechanically poorer. By definition, at the aggregate or macroeconomic level—when summing all income of all individuals in a country—post-tax national income is exactly equal to pretax national income and to national income.

Note

1. See Alvaredo and others (2016) for a technical description of income concepts and methods used for this chapter.

BOX 3.3

What about consumption?

For the distributional national accounts project of the World Inequality Lab and its network of partners, the objective is a fully integrated representation of the economy. It would link the microeconomic study of income and wealth inequality (typically focusing on household wages, transfers and poverty or inequality) with macroeconomic issues such as capital accumulation, the aggregate structure of property and privatization or nationalization policies. Too often, "micro" and "macro" issues have been treated separately.

To be clear, however, a lot of progress is needed before it will be possible to publish a fully integrated approach to these issues, analysing the joint evolution of inequality of income and wealth in all countries. Indeed, that approach requires careful measurement not only of pretax and post-tax income inequality but also of the distribution of savings rates across different income groups.

The production of such series—pretax inequality, post-tax inequality and savings rate inequality—will make it possible to systematically relate income, wealth and eventually consumption (income minus savings). In our view, however, it would be a mistake to overemphasize the consumption perspective, as the literature on poverty has sometimes done. Consumption obviously is a very important indicator of wealth, particularly at the bottom of the distribution. The problem is that household surveys routinely used to measure consumption tend to underestimate income, consumption and wealth at the top.

In addition, consumption is not always well defined for top income groups, which generally save a very large share of their income, choosing to consume more in later years, but more generally to consume the prestige or economic or political power conferred by wealth ownership. To develop a consistent and global perspective on economic inequality—one that views economic actors not only as consumers and workers but also as owners and investors—requires putting equal emphasis on income and wealth.

Source: Extracted from Alvaredo and others (2018).

Income inequality based on the top 10 percent's income share has risen since 1980 in most regions but at different rates

The European Union stands out as the most equal region based on the top 10 percent's share of pretax income, with 34 percent. The Middle East is the most unequal, with the top 10 percent holding 61 percent of pretax income.[32] In between are a variety of inequality levels that do not appear to be correlated with average income. The top 10 percent received an estimated 47 percent of income in the United States, 41 percent in China and 55 percent in India.[33]

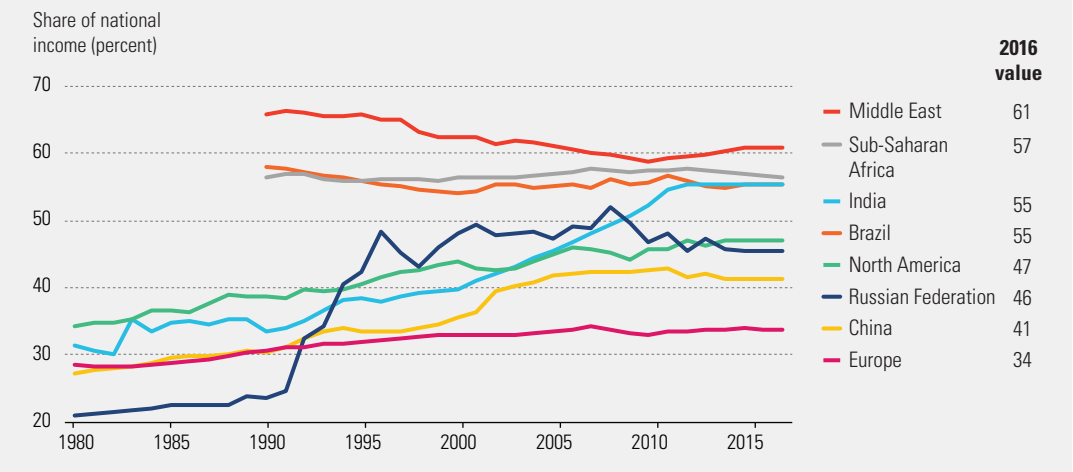
Income inequality based on the top 10 percent's income share has risen since 1980 in most regions but at different rates (figure 3.2). The rise was extreme in the Russian Federation, which was one of the most equal countries in 1990 (at least by this measure) and became one of the most unequal in just five years. The rise was also pronounced in India and the United States, though not as sharp as in the Russian Federation. In China, after a sharp rise, inequality stabilized in the mid-2000s. The rise in inequality in Europe was more moderate than in other regions. Inequality in Sub-Saharan Africa, Brazil and the Middle East stayed extremely high, with the 10 percent's income share around 55–60 percent. These extreme inequality levels in low- and middle-income countries also deserve particular attention.[34]

The diversity of patterns across countries since 1980 shows that the extreme rise in inequality in some parts of the world was not inevitable but resulted from policy choices. Openness to trade and the digitalization of the economy are often put forward to explain the rise in inequality in a country, but such arguments fail to fully account for the diversity of trajectories just presented. The radical divergence of the United States and Europe—despite similar exposures to technological change and trade openness—shows that other factors were at play—specifically, factors related to national policies. Differences between the United States and Europe were due less to direct taxes and transfers and more to other policy mechanisms, particularly health, education, unemployment and pensions systems, as well as labour market institutions.[35] Fiscal redistribution and monetary transfers to the worse-off indeed helped low-income groups in Europe but did not play the main role in restraining the increase in income inequality.[36]

What happened to inequality among individuals globally—treating the world as just one

FIGURE 3.2

Income inequality based on the top 10 percent's income share has risen since 1980 in most regions but at different rates



Source: Based on Alvaredo and others (2018), with data from the World Inequality Database (http://WID.world).

single country? Branko Milanovic pioneered such analysis, arguing for its relevance in a more integrated and globalized world.

A graph of income growth from 1980 to 2016 for the world population, ranked from the poorest to the richest,[37] presents the silhouette of an elephant with a raised trunk (figure 3.3).[38] At the bottom of the global income distribution (the left side), the low- and middle-income emerging countries had high growth: above 100 percent—for a doubling of income per adult since 1980. In some countries, such as China, the bottom 50 percent of the population saw growth of around 400 percent—incomes quintupled.[39]

The dynamics illustrate how hundreds of millions of individuals were lifted out of income poverty and saw improvements in their living standards. Note that the figure represents relative gains, which for the bottom of the distribution are from very low levels—a figure representing absolute gains looks essentially flat except for a spike for people at the very top.[40] In India the absolute poverty rate was more than halved over the period, and at the global level the share of people living in absolute poverty was reduced by a factor of more than three.[41] In the upper half of the distribution, however, incomes grew much less rapidly, with less than 50 percent since 1980. That segment of the global income distribution corresponds to the bottom and middle-income groups in Europe and North America. In the United States the situation was even worse: The bottom 50 percent was almost entirely left out of economic growth.

At the very top of the global income distribution, growth rates were extremely high—more than 200 percent. The global top 1 percent, the economic elite of rich and poor countries, made huge gains over 1980–2016. In China and India, for instance, growth rates at the top of the income ladder reached triple digits. These results, based on new and more precise data (combining tax, survey and national accounts data), magnify the results of previous studies using fewer sources of data.[42]

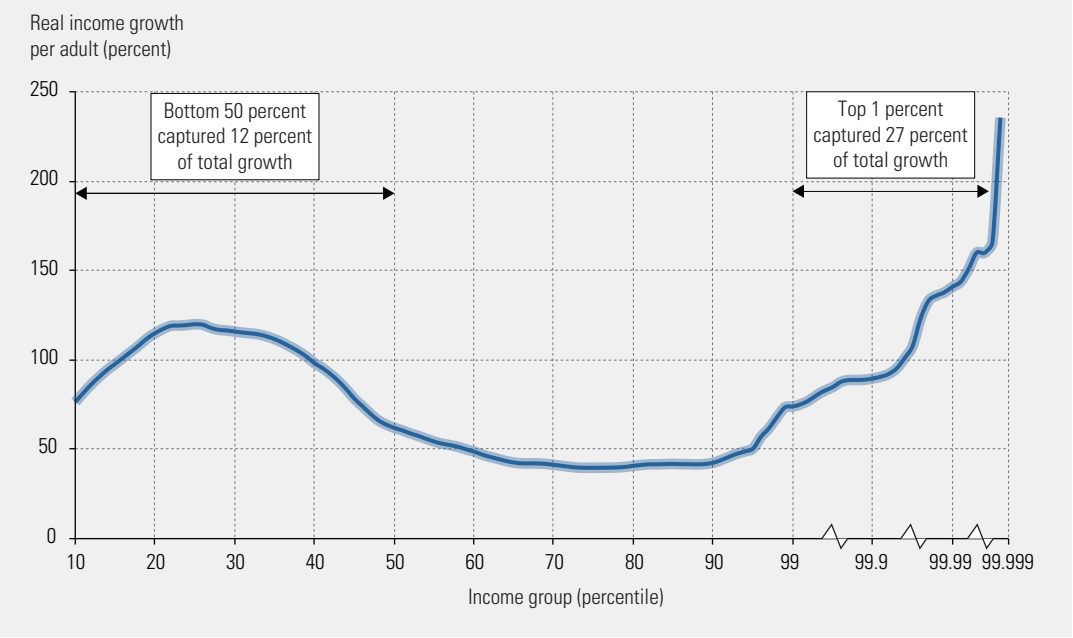
The top 1 percent alone received 27 percent of income growth over the period, compared with the 12 percent received by the bottom 50 percent. A huge share of global growth thus benefited the top of the global income distribution.

Was such a concentration of global growth in the hands of a fraction of the population necessary to trigger growth among bottom income groups? Country and regional case studies provide very little empirical support to the trickle-down hypothesis over recent decades.[43] Higher income growth at the top of the distribution are not correlated with higher growth at the bottom. The comparison between the United States and Europe is an illustration. As

The global top 1 percent, the economic elite of rich and poor countries, made huge gains over 1980–2016

FIGURE 3.3

The elephant curve of global inequality and growth



Note: On the horizontal axis the world population is divided into 100 groups of equal population and sorted in ascending order from left to right by each group's income. The top 1 percent group is divided into 10 groups, the richest of which is also divided into 10 groups of equal population and the richest of that group is again divided into 10 groups of equal population. The vertical axis shows the total income growth of an average individual in each group between 1980 and 2016. For percentile group p99p99.1 (the poorest 10 percent among the world's richest 1 percent), growth was 74 percent between 1980 and 2016. The top 1 percent captured 27 percent of total growth over this period. Income estimates account for differences in the cost of living between countries. Values are net of inflation. The composition of each group evolved between 1980 and 2016.
Source: Based on Alvaredo and others (2018), with data from the World Inequality Database (http://WID.world).

noted, growth at the top was much higher in the United States than in Europe, but the bottom 50 percent benefited little from growth, while Europe was more successful at triggering growth for the majority of its people, despite lower growth at the top.

Between-country convergence versus within-country divergence

To understand the dynamics of global income inequality over the past four decades, it is also useful to decompose global inequality into two components.[44] One is the evolution of global inequality between countries, driven by the rise in productivity in emerging countries and the technological catch-up with countries at the frontier. The other is inequality within countries. Both forces have been at play over the past four decades, but the latter appears to have dominated.

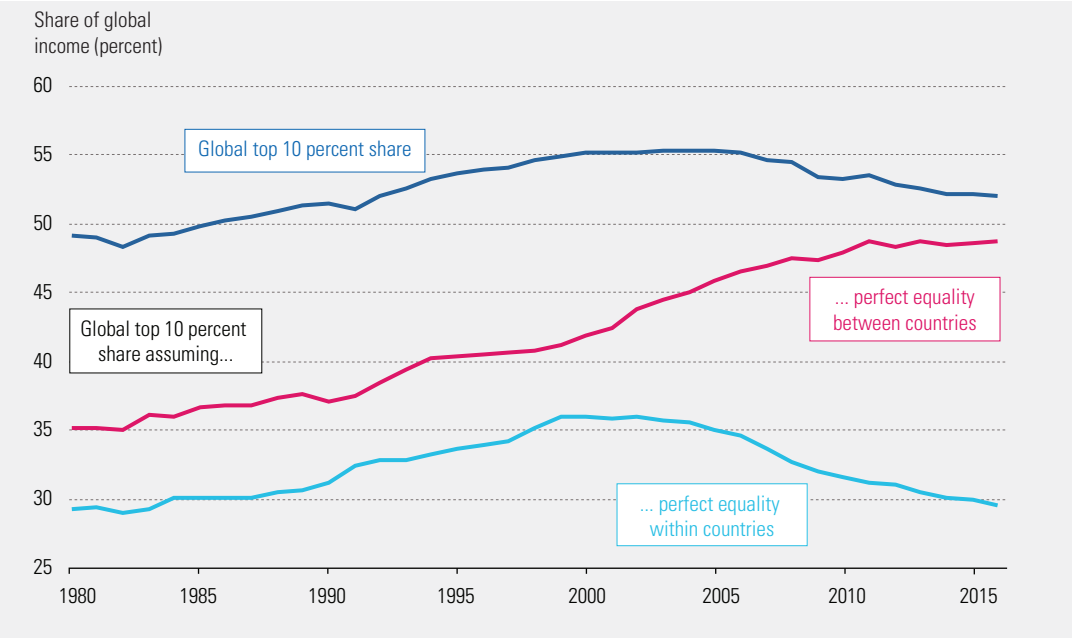
The share of global income held by the top 10 percent rose from less than 50 percent in 1980 to 55 percent in 2000 and slipped from the mid-2000s to 52 percent in 2016 (figure 3.4). Consider two counterfactual scenarios. The first is a world with no differences in average income across countries (all countries have converged to the same average income) but with within-country inequality matching the levels observed in reality since 1980. The second is a world with no within-country inequality (all individuals in a country have the same income) but with countries' average incomes differing exactly as observed in reality since 1980.[45]

In the first counterfactual the income share of the top 10 percent increases significantly over the period because of the rise of income inequality in most countries. In the second scenario the income share of the top 10 percent increases slightly, falls then recovers in the recent period to its 1980 level. Since the mid-2000s the reduction in between-country inequality has dominated but not enough to bring global inequality back to its early 1980s level.

Another way to look at the relative importance of within- and between-country

FIGURE 3.4

In 2010 the top 10 percent of income earners received 53 percent of global income, but if there had been perfect equality in average income between countries, the top 10 percent would have received 48 percent of global income



Source: Based on Alvaredo and others (2018), with data from the World Inequality Database (http://WID.world).

The decline in between-country inequality has not been enough to counter the rise of within-country inequality since 1980 or 1990

inequalities is to focus on the Theil index, which provides a measure of inequality that can be decomposed into a between-country and a within-country component. The two components sum to an overall measure of global inequality. The decomposition confirms and amplifies the results above: The decline in between-country inequality has not been enough to counter the rise of within-country inequality since 1980 or 1990. Global inequality according to the Theil Index rose from 0.92 in 1980 to 1.07 in 2016, peaking in 2007 before a slight decline and then a plateau since the early 2010s.[46]

Going beyond summary measures of inequality

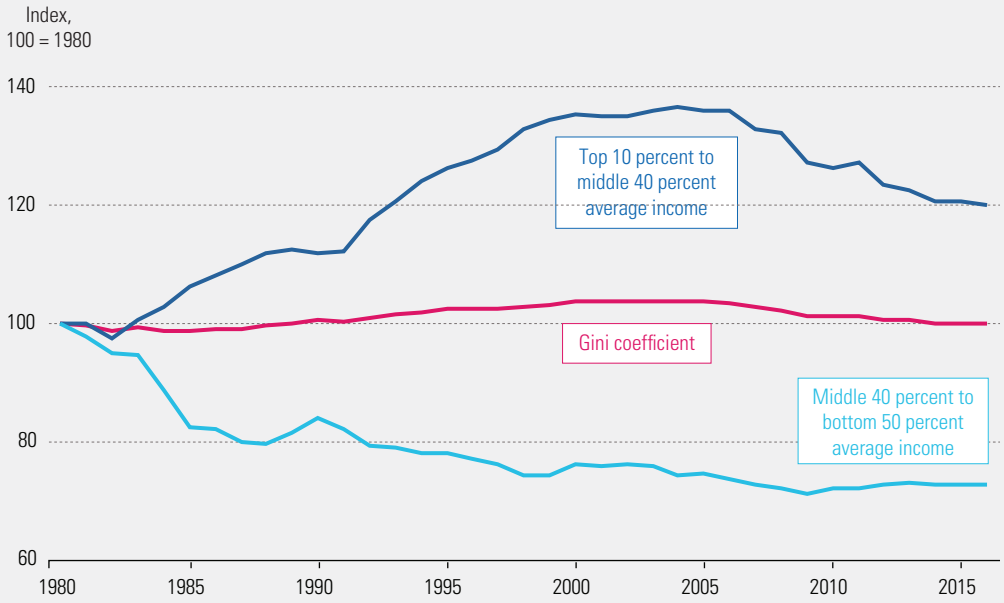
The dynamics of global income inequality over the past decades are the result of the dynamics of between-country and within-country inequalities. These are not well captured by an oft-used measure of inequality: the Gini coefficient. Since 1980 the Gini coefficient for global income has hovered around 0.65, with a peak of 0.68 in 2005–2006. This summary measure of inequality thus masks the catch-up of low-income groups with the middle of the global income (reduction in between-country inequality) as well as the relative decrease of the middle compared with the top (rising within-country inequality in rich countries). From 1980 to 2016 the income gap between the top 10 percent and the middle 40 percent increased by 20 percentage points (figure 3.5). But the gap between the middle 40 percent and the bottom 50 percent fell by more than 20 percentage points. In short: The Gini coefficient masks a lot of movement.

The changing geography of global income inequality

Understanding the dynamics of global inequality also entails looking at the changing geographic distribution (box 3.4). The geographic breakdown of each percentile of the global distribution of income has evolved. In 1990 Asians were mostly absent from top global income groups, and massively represented at the bottom of the global distribution (figure 3.6), while Americans and Canadians were the

FIGURE 3.5

The ratio of the average income of the top 10 percent to that of the middle 40 percent increased by 20 percentage points between 1980 and 2016, but the ratio of the average income of the middle 40 percent to that of the bottom 50 percent decreased by 27 percentage points



Source: Based on Alvaredo and others (2018), with data from the World Inequality Database (http://WID.world).

BOX 3.4

Where do you stand in the global distribution of income?

Who is part of the global top 1 percent? And how much does one need to make to belong to the global middle 40 percent? It is not always clear how much income one needs to belong to different income groups discussed in academic or public debates on inequality.

The World Inequality Database's online simulator allows anyone to position their income relative to that of others throughout the world. With $1,000 a month, for instance, an adult individual is part of the top 8 percent of earners in Côte d'Ivoire (see table). The same income would place an individual in the top 33 percent in China and in the bottom 22 percent in the United States. At the world level, that individual belongs to the top 33 percent. The global top 1 percent entry threshold is $11,990 per adult per month.

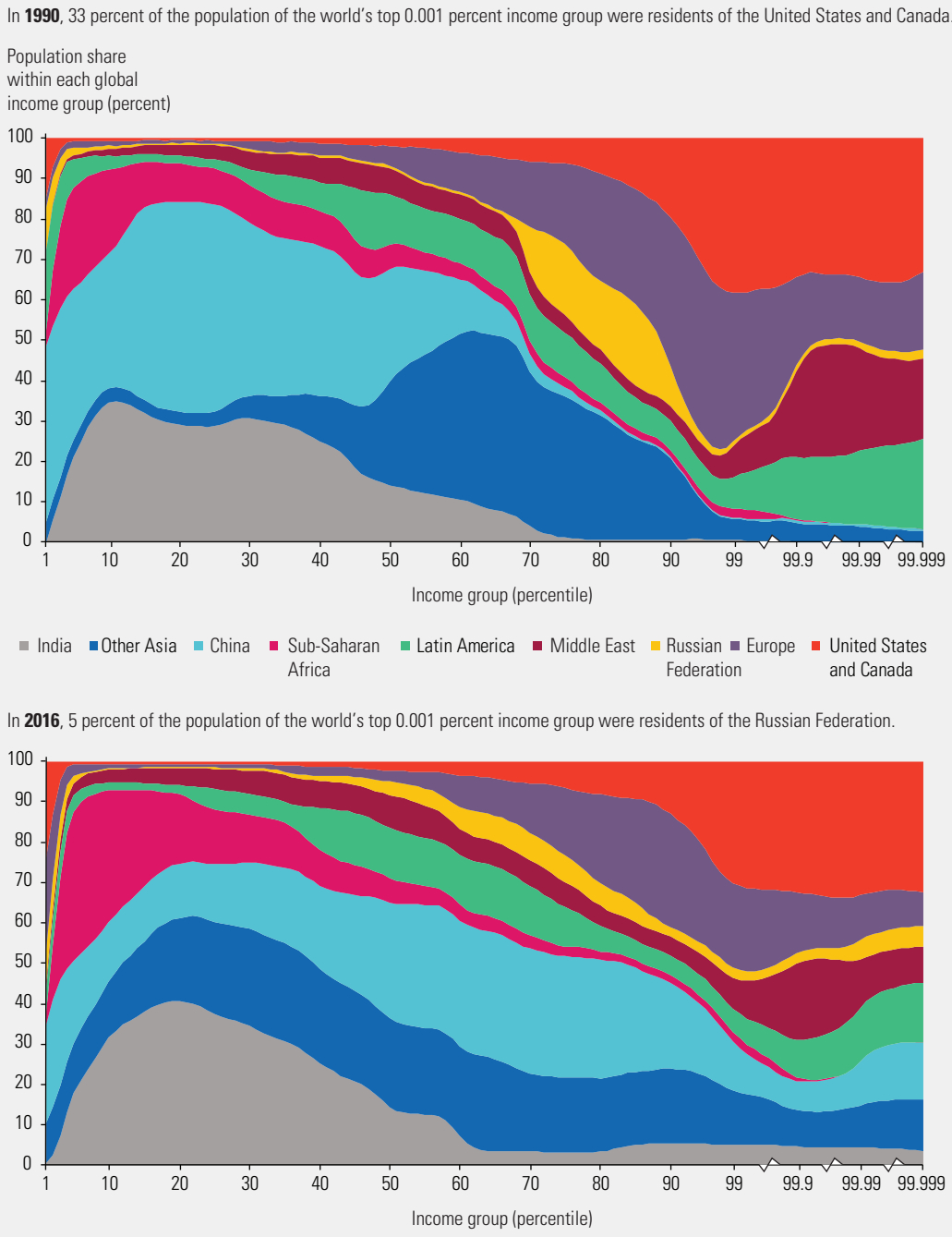
On different rungs in different countries

Monthly income per adult (PPP $)	Côte d'Ivoire	China	United States	World
$100	Bottom 20 percent	Bottom 7 percent	Bottom 5 percent	Bottom 8 percent
$1,000	Top 8 percent	Top 33 percent	Bottom 22 percent	Top 33 percent
$2,0000	Top 3 percent	Top 12 percent	Bottom 42 percent	Top 18 percent
$5,000	Top 1 percent	Top 4 percent	Top 24 percent	Top 5 percent
$12,000	Top 1 percent	Top 1 percent	Top 5 percent	Top 1 percent

Source: World Inequality Database website (http://WID.world/simulator).

FIGURE 3.6

The geographic breakdown of each percentile of the global distribution of income evolved from 1990 to 2016



Source: Based on Alvaredo and others (2018), with data from the World Inequality Database (http://WID.world).

largest contributors to global top income earners and almost absent at the very bottom of the distribution. Europe was well represented in the upper half of the global distribution but less so in the very top groups. Middle Eastern and Latin American elites were disproportionately among the very top global groups, as they each made up about 20 percent of the population of the top 0.001 percent earners.

The situation had changed considerably by 2016. Chinese earners are now present throughout the income distribution. Indians remain

concentrated at the bottom. Russian earners are also stretched throughout, from the poorest to the richest income groups, in contrast to 1990. Africans, present throughout the bottom half of the distribution, are now even more concentrated in the bottom quarter, due to Africa's slow growth relative to Asian countries. At the top of the distribution, both North America's and Europe's shares fell (leaving room for their Asian counterparts), Europe's share fell much more. The reason? Most large European countries followed a more equitable growth trajectory over the past decades than the United States and Asian giants.

How unequal is Africa?

Available global and African evidence shows that the average income of the top 1 percent of earners is typically 1.5–2 times higher than what is reported in surveys

Based on survey data for African countries,[47] the income share of the top 10 percent is typically around 30–35 percent (except in Southern African countries), compared with 34 percent in Europe, 45–55 percent in North and South America and 40–55 percent in Asia.[48] The comparison could thus suggest that most African countries have low inequality.[49]

But there are good reasons to think that survey-based data significantly underestimate inequality across Africa. First, the concepts to measure inequality and growth (at times consumption, at times income) are often compared indiscriminately, even though using consumption typically underestimates inequality by 25–50 percent compared with using income.[50] Second, individuals at the top of the distribution are largely under-represented in surveys, particularly in developing countries.[51] Available global and African evidence shows that the average income of the top 1 percent of earners is typically 1.5–2 times higher than what is reported in surveys.[52]

So, are African countries characterized by low or high inequality? The question, as simple as it may be, is difficult to answer due to the dissimilarity of data sources. Applying, to the extent possible, distributional national accounts methods to Africa yields estimates that are more in line with recent ones for developed and emerging countries. Such estimates, however, are still far from perfect and will be greatly improved as more administrative data are released, as has occurred with Côte d'Ivoire, Senegal, South Africa and Tunisia.

New estimates combining survey, fiscal and national accounts data suggest that inequality remains very high in most African countries. The income received by the top 10 percent ranges from 37 percent in Algeria to 65 percent in South Africa, while that received by the bottom 40 percent is at most 14 percent in Algeria and about 4 percent in South Africa.

Regional differences across Africa are significant.[53] Southern Africa is clearly the most unequal. The share of national income received by the top 10 percent is highest in South Africa (65 percent in 2014) and Namibia (64 percent in 2015), while the bottom 40 percent received 4 percent of national income in both countries.

On average, income inequality is lower in Central Africa but still very high. For instance, in 2011 the top 10 percent of income earners in Congo received 56 percent, while the bottom 40 percent received 7 percent. East African countries are a bit less unequal, especially at the bottom. In Kenya in 2015 the top 10 percent received 48 percent of national income, while the bottom 40 percent received 9 percent.

Income inequality tends to decrease towards the north and the west of the continent. In Sierra Leone in 2011 the top 10 percent received 42 percent of national income, while the bottom 40 percent received 12 percent, and its neighbours show similar income shares. The lowest inequality is in North Africa: In Algeria, the least unequal country in Africa for which estimates are available, the top 10 percent of earners received 37 percent of national income in 2011, while the bottom 40 percent received 14 percent.

Heterogeneous trajectories: Inequality trends from 1995 to 2015

There is no single African trend in inequality, not even clear regional trends. Income distributions evolved in a wide variety of ways across countries, which underlines the role of national institutions and policies in shaping inequality. Given the important differences in data quality across African countries, the lack of harmonization of data collection instruments and welfare concepts, and the irregularity of survey availability, comparing inequality trends is a perilous exercise, and the results must be interpreted with great caution. (In this section, countries

with an asterisk [*] have data available only from 1995 to 2005, and countries with two asterisks [**] have data available only after 2005.)

On average, it appears that inequality, as measured by the share of income going to the top 10 percent and to the bottom 40 percent, increased in Southern Africa but fell in East Africa in the late 1990s before stabilizing in the 2000s and stagnated in North, Central and West Africa, despite small fluctuations (figure 3.7).

In Southern Africa the dramatic rise of the income share of the top 10 percent occurred at the expense of both the middle and the bottom of the distribution, whose income shares fell. Indeed, Southern Africa's performance between 1995 and 2015 was highly negative (on average, the incomes of the bottom 40 percent grew 70 percentage points less than the average) and is the worst among African subregions (table 3.2). This trend was very much driven by South Africa (by far the most populous country in Southern Africa), which saw a strong increase in income inequality (table 3.3)—despite declining poverty rates.[54] Based on these estimates, it is possible to present evidence on the evolution of inequality, comparing the growth in income of the bottom 40 percent with that of the entire population (box 3.5). For Botswana, Lesotho, Eswatini* and Namibia** inequality fell: The incomes of the bottom 40 percent grew at different paces: from 10 percentage points to 88 percentage points more than the average.

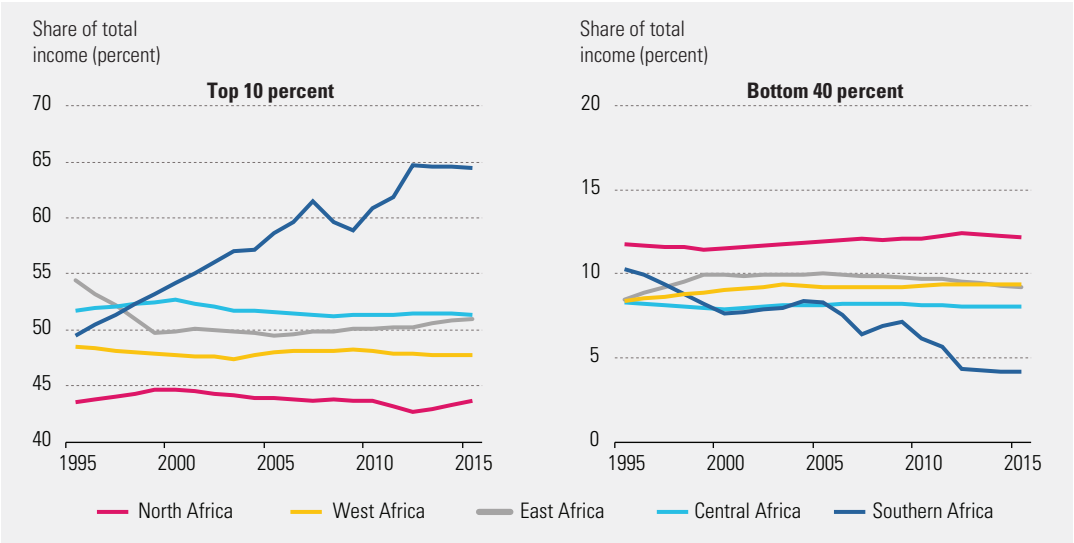
In East Africa the income share of the top 10 percent fell significantly from 1995 to 2000, and the incomes of the bottom 40 percent grew more than the average. Since the beginning of the 2000s, however, the distribution has remained rather stable: Income shares fell only slightly at the top and grew slightly at the bottom (see figure 3.7).

This general trend can be explained by the decline of inequality in two of the most populous countries, Ethiopia and Kenya. The overall decline was drastic in Ethiopia, where the incomes of the bottom 40 percent grew 48 percentage points more than the average. Inequality rose in most other countries in the subregion. The increase was modest in Madagascar and more significant in Djibouti**, Tanzania and Uganda, where the incomes of the bottom 40 percent grew 6–15 percentage points less than the average. In Mozambique** the incomes of the bottom 40 percent grew 40 percentage points less than the average, and in Zambia they grew 60 percentage points less.

Inequality, as measured by the share of income going to the top 10 percent and to the bottom 40 percent, increased in Southern Africa but fell in East Africa in the late 1990s before stabilizing in the 2000s and stagnated in North, Central and West Africa

FIGURE 3.7

Between 1995 and 2015 the income share of the top 10 percent in North Africa and West Africa remained relatively stable, while the share of the bottom 40 percent in Southern Africa declined



Note: Data are weighted by population. Estimates combine survey, fiscal and national accounts data.
Source: Chancel and others (2019), based on data from the World Inequality Database (http://WID.world).

TABLE 3.2

Difference between income growth of the bottom 40 percent and average income growth in Africa's five subregions, 1995–2015 (percentage points)

Subregion	1995–2015	1995–2005	2005–2015
East Africa	47.2	40.5	–4.9
Central Africa			11.4
North Africa	18.3	7.8	8.0
Southern Africa	–70.3	–19.2	–54.8
West Africa	25.0	18.8	0.6

Note: Estimates combine survey, fiscal and national accounts data. Estimates combine survey, fiscal and national accounts data and are derived from panregional distributions; they are not averages of national indicators. Green (red) cells indicate where the income growth rate of the bottom 40 percent was higher (lower) than the average.
Source: Chancel and others (2019), based on data from the World Inequality Database (http://WID.world).

TABLE 3.3

Difference between income growth of the bottom 40 percent and average income growth in selected African countries, 1995–2015 (percentage points)

Country	1995–2015	1995–2005	2005–2015
Algeria	32.5	19.6	9.6
Angola		–26.1	
Botswana	56.4	–9.8	71.8
Cameroon			–19.3
Côte d'Ivoire	–21.2	–22.1	8.2
Egypt	–7.1	–5.5	–0.6
Ethiopia	48.3	75.1	–46.8
Gabon			10.4 [a]
Ghana	–24.1	–13.7	–4.5
Kenya	12.6	–8.6	25.7
Madagascar	–0.0	10.4 [a]	–8.4
Mali		70.6	
Nigeria		19.2	
South Africa	–74.4	–22.7	–57.8
Zambia	–59.6	–24.7	–20.9

Note: Estimates combine survey, fiscal and national accounts data. Green (red) cells indicate where the income growth rate of the bottom 40 percent was higher (lower) than the average.
a. Average income fell.
Source: Chancel and others (2019), based on data from the World Inequality Database (http://WID.world).

In North Africa the incomes of the bottom 40 percent grew 18 percentage points more than the average from 1995 to 2015. The decline in inequality resulted from two opposite trends. Inequality fell significantly in Algeria, where the incomes of the bottom 40 percent grew 33 percentage points more than the average, and in Tunisia, where the incomes of the bottom 40 percent grew 54 percentage points more than the average. The decline of the income share of the top was driven much more by the very top of the distribution in Tunisia, while inequality stagnated in Morocco and increased modestly in Egypt.

In West Africa the incomes of the bottom 40 percent grew 25 percentage points more than the average. But this hides a wide diversity of trajectories. Inequality rose in Côte d'Ivoire, Ghana and Guinea-Bissau, with the incomes of the bottom 40 percent growing 20 percentage points less than the average, and even more so in Benin**, with the incomes of the bottom 40 percent growing 30 percentage points less than the average.

Inequality declined elsewhere in the subregion. In Senegal the improvement was mild (the incomes of the bottom 40 percent grew only 2 percentage points more than the average). In Mauritania the incomes of the bottom 40 percent grew 21 percentage points more than the average. In Nigeria* the incomes of the bottom 40 percent grew 19 percentage points more than the average. In Niger inequality fell substantially, as the incomes of the bottom 40 percent grew 35 percentage points more than the average.

Inequality fell in Gambia, Guinea and Mali*, where the incomes of the bottom 40 percent grew 60–80 percentage points more than the average. The largest inequality declines were in Burkina Faso, where the incomes of the bottom 40 percent grew 93 percentage points more than the average, and Sierra Leone, where they grew 117 percentage points more than the average.

Data for Central Africa are scarce and cover a short time span. No country showed a strong trend in inequality, up or down, especially at the top. For most countries the data cover only 2000 and 2010. In Cameroon**, Chad** and Congo** inequality increased, as the incomes of the bottom 40 percent grew 13–19 percentage points less than the average. Inequality stagnated in Sao Tome and Principe** and decreased markedly in Gabon**, where the average income fell: the incomes of the bottom 40 percent grew around 12 percentage points more than the average. The two countries with data for 1995 and 2005 are Angola* and

BOX 3.5

Income growth of the bottom 40 percent—higher than the national average?

Sustainable Development Goal target 10.1 reads, "By 2030 progressively achieve and sustain income growth of the bottom 40 percent of the population at a rate higher than the national average."[1]

Including that inequality target in the list of Sustainable Development Goals was not straightforward. Several countries initially opposed it, arguing that only poverty reduction mattered.[2] Its inclusion thus marks an important shift in how countries think about sustainable development.

What is the income inequality target about? It seeks to ensure that people in the bottom income groups see growth that is at least as high as the average. While the target is meant to be achieved by 2030, it is useful to look at the past to consider how countries have fared on the indicators relevant to the target. The United States, despite high overall economic growth, the bottom 40 percent of the population has seen pretax income per adult fall by 2 percent, from $13,700 in 1980 to $13,400 in 2017.[3] During the same period the average income in the United States grew 66 percent, from $41,900 to $61,400. If the bottom 40 percent's income had grown as fast as the average, it would be $22,600 today.

Ensuring that the bottom 40 percent sees growth that is at least as high as the average may not be enough to contain rising inequalities. Take another example: At the global level, average annual pretax income increased 95 percent (net of inflation) for the bottom 40 percent, from €1,300 in 1980 to €2,500 in 2017, but increased 40 percent overall, from €11,100 to €16,600. Thus, the global bottom 40 percent saw growth that was 45 percentage points higher than the global average.

At the other end of the distribution, the top 0.1 percent's average annual pretax income increased 117 percent, from €671,600 to €1,462,000. Despite its small size, the 0.1 percent saw a larger share of total growth than the bottom 40 percent of the population—about 12 percent versus about 8.5 percent. Indeed, it is mathematically impossible for all groups to see growth that is higher than the average. At the global level, those who lost were the middle 40 percent, whose average income rose just over 33 percent, from €11,900 in 1980 to €15,600 in 2016. So, their share in global income was reduced. This shows that ensuring that the bottom 40 percent grows at the same rate as the average may be insufficient for tackling inequality at all segments of the distribution.

Notes

1. www.un.org/sustainabledevelopment/inequality/. 2. For a discussion of the debates surrounding inclusion of the income inequality target, see Chancel, Hough and Voituriez (2018). 3. All figures are net of inflation. Since distributional national accounts data for 2014–2016 are not yet available, it was assumed that since 2014, the bottom 40 percent has seen growth that is at least as high as the average—a very optimistic assumption since that occurred only six times between 1980 and 2014, two of which were recessions.

Source: World Inequality Lab.

Central African Republic*. In Angola inequality increased at both ends of the distribution. In Central African Republic inequality fell, but so did average incomes.

Inequality in BRIC countries since the 2000s

This section presents the income growth of the bottom 40 percent and the top 1 percent compared with average income growth for the four BRIC countries—Brazil, the Russian Federation, India and China (table 3.4).

In China the incomes of the bottom 40 percent grew at an impressive 263 percent between 2000 and 2018, which contributed to the fast reduction of extreme poverty and to the decline of the global extreme poverty rate. But that growth was significantly below the average for China (361 percent) and just half the rate of the top 1 percent. Such different growth rates led to a rise in income inequality in China. From 2007 to 2018, however, the 135 percent growth rate of the bottom 40 percent and the 138 percent average in China were much closer, and the rise of inequality halted (this stabilization could partly reflect data limitations). The more recent period in China is also characterized by wages growing more than output, to the benefit of low-income groups.

In India the income growth of the bottom 40 percent—58 percent between 2000 and 2018—was significantly below the average. At the other end of the spectrum the top 1 percent saw their incomes grow significantly more than the average since 2000 and since 2007.

In Brazil the incomes of the bottom 40 percent grew 14 percentage points more than the average between 2000 and 2018. But the top 1 percent also saw higher growth than the average. Since all groups cannot grow more than the average, this means that middle-income groups (between the bottom 40 percent and

In China the incomes of the bottom 40 percent grew at an impressive 263 percent between 2000 and 2018, which contributed to the fast reduction of extreme poverty

TABLE 3.4

Inequality and growth in the BRIC countries

	2000–2018				2007–2018			
Country	Average income growth (percent)	Bottom 40 percent growth (percent)	Difference between income growth of the bottom 40 percent and average income growth (percentage points)	Top 1 percent growth (percent)	Average income growth (percent)	Bottom 40 percent growth (percent)	Difference between income growth of the bottom 40 percent and average income growth (percentage points)	Top 1 percent growth (percent)
Brazil	5	20	14	16	–3	3	6	–2
China	361	263	–97	518	138	135	–3	117
India	122	58	–64	213	68	41	–27	78
Russian Federation	72	121	49	68	6	35	29	–20

Note: Distribution of per adult pretax national income growth. See http://wid.world/methodology for country-level information on the series. Income growth between 2016 and 2018 is assumed to be distribution neutral (all groups benefit from average national income growth). Green (red) cells indicate where the income growth rate of the bottom 40 percent was higher (lower) than the average.
Source: Based on data from the World Inequality Database (http://WID.world).

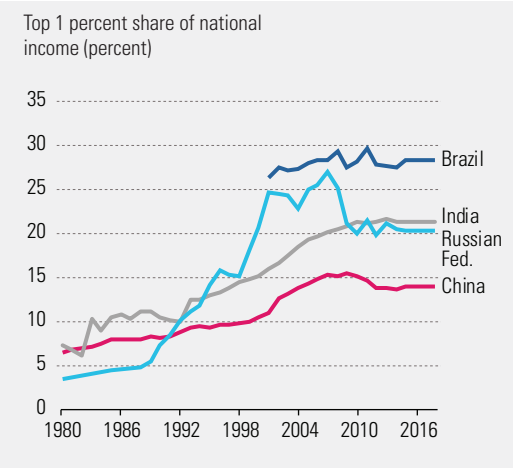
the top 1 percent) were squeezed with lower than average growth.

In the Russian Federation the incomes of the bottom 40 percent grew more than the average between 2000 and 2018, while the incomes of the top 1 percent grew at a rate close to the average. The top 1 percent actually saw their incomes fall between 2007 and 2018. Between 1980 and 2018 the top 0.01 percent saw four-digit income growth rates. Income and wealth inequality today remain extreme by global standards, and the recent decline of the top 1 percent has not gone nearly far enough to reverse this.[55]

A rapid review of growth and inequality trajectories in the BRIC countries shows that the evolution of the indicators underpinning Sustainable Development Goal target 10.1 must be interpreted with care. Complementing the bottom 40 percent target with other indicators (such as the income growth rate of the top 1 percent) more fully accounts for the dynamics of growth in a given country. Assessing dynamics over various timeframes is also enriching. Good performance over a short time may mask a huge increase in income and wealth inequality in the longer run. The income share of the top 1 percent has significantly increased in China, India and the Russian Federation since the early 1980s (figure 3.8). In Brazil the income share of the top 1 percent has been broadly stable since the early 2000s but at a high level.

FIGURE 3.8

The income share of the top 1 percent has significantly increased in China, India and the Russian Federation since the early 1980s



Note: Distribution of per adult pretax national income growth. See http://wid.world/methodology for country-level information on the series. Income growth between 2016 and 2018 is assumed to be distribution neutral.
Source: Based on data from the World Inequality Database (http://WID.world).

Inequality and redistribution in Europe and the United States

Income inequality in European countries and the United States has risen to varying degrees and at different speeds.[56] Inequality, both at the top and at the bottom of the distribution, varies widely across developed countries. These

heterogeneous dynamics are linked to different institutional trajectories, policy choices and patterns of inclusive growth.

By combining surveys, tax data and national accounts, it has become possible to produce estimates tracking inequality dynamics across individuals from the bottom to the top 0.001 percent in a way fully consistent with national accounts.[57] How have European countries and the United States performed in promoting inclusive growth in the past decades?

Since the beginning of the 1980s almost no country considered in the analysis has seen the incomes of the bottom 40 percent grow more than the average (table 3.5). Growth has been either distributionally neutral or associated with rising inequality. In Norway, Spain, France and Croatia the difference is close to zero: The bottom 40 percent saw their incomes grow at a rate similar to that of the average income. In Norway and France, however, the top 1 percent of incomes grew more than the average, meaning that the income share of the groups in between was squeezed. In all other countries, especially in Eastern Europe and the United States, poorer individuals have lagged far behind national averages between 1980 and 2007, and richer people have benefited from a disproportionate share of income growth, although the income growth of the bottom 40 percent has been higher than the national average for several countries since 2007, especially in Eastern Europe.

Income inequality has risen more in the United States than in any other developed country since 1980

Driving the rising inequalities in the United States since the 1980s has been a surge in top incomes combined with little or no pretax income growth among poorer individuals. The current income inequality in the United States is vastly different from the levels seen at the end of World War II. Indeed, changes in inequality since 1945 can be split into two phases (figure 3.9). From 1946 to 1980 inequality fell. During that period the average incomes of the bottom 50 percent more than doubled. By contrast, the 1980–2014 period coincided with lower and much more skewed growth, with the average income of the bottom half essentially stagnating (it grew less than 2 percent, while that of the bottom

Driving the rising inequalities in the United States since the 1980s has been a surge in top incomes combined with little or no pretax income growth among poorer individuals

TABLE 3.5

Post-tax average and bottom 40 percent growth in Europe and the United States, 1980–2017 and 2007–2017

	1980–2017				2007–2017			
Country	Average income growth (percent)	Income growth of the bottom 40 percent (percent)	Difference between income growth of the bottom 40 percent and average income growth (percentage points)	Income growth of the top 1 percent (percent)	Average income growth (percent)	Income growth of the bottom 40 percent (percent)	Difference between income growth of the bottom 40 percent and average income growth (percentage points)	Income growth of the top 1 percent (percent)
Eastern Europe								
Albania					17.8	20.0	2.2	5.4
Bosnia and Herzegovina	318.7	229.8	–89.0	475.5	16.7	15.4	–1.3	16.8
Bulgaria	102.2	39.6	–62.6	583.3	36.6	30.1	–6.6	51.9
Croatia	3.8	2.2	–1.6	77.5	0.8	5.0	4.2	–2.2
Czechia	37.3	17.6	–19.7	382.5	10.3	9.5	–0.9	21.0
Estonia	88.1	44.4	–43.6	202.7	7.4	8.3	0.9	–18.8
Hungary	47.1	2.3	–44.8	426.0	11.8	6.4	–5.3	2.9
Latvia	48.0	10.4	–37.7	212.2	12.5	15.2	2.8	19.8
Lithuania	66.9	15.1	–51.8	318.4	20.8	12.1	–8.7	31.5

(continued)

TABLE 3.5 (CONTINUED)

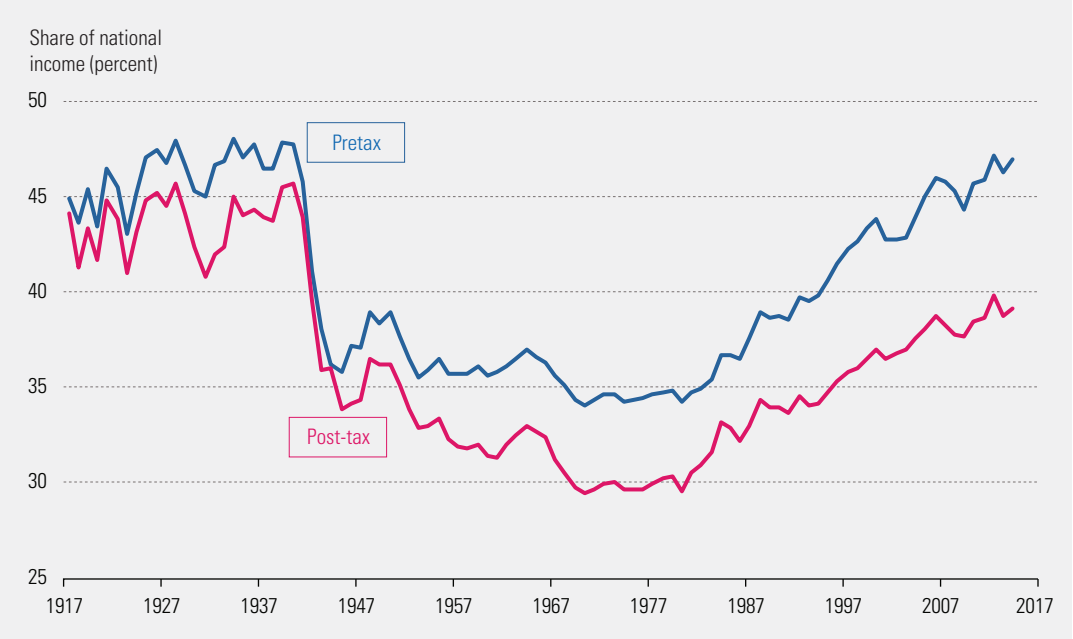
Post-tax average and bottom 40 percent growth in Europe and the United States, 1980–2017 and 2007–2017

	1980–2017				2007–2017			
Country	**Average income growth (percent)**	**Income growth of the bottom 40 percent (percent)**	**Difference between income growth of the bottom 40 percent and average income growth (percentage points)**	**Income growth of the top 1 percent (percent)**	**Average income growth (percent)**	**Income growth of the bottom 40 percent (percent)**	**Difference between income growth of the bottom 40 percent and average income growth (percentage points)**	**Income growth of the top 1 percent (percent)**
Moldova (Republic of)					36.5	54.6	18.1	23.7
Montenegro	–20.1	–33.4	–13.4	16.7	16.2	17.2	1.0	22.3
North Macedonia	–0.2	–19.3	–19.1	16.0	22.3	39.1	16.8	10.5
Poland	94.8	33.6	–61.2	551.2	30.8	28.0	–2.8	18.0
Romania	69.9	21.0	–48.9	242.0	30.6	43.0	12.4	–3.2
Serbia	–8.1	–27.1	–19.0	44.4	10.5	9.0	–1.5	40.6
Slovakia	69.1	57.7	–11.4	198.0	19.1	19.7	0.6	7.3
Slovenia	12.4	–7.3	–19.7	127.7	–1.1	–5.6	–4.5	35.3
Southern Europe								
Cyprus					–15.5	–19.1	–3.6	–6.8
Greece					–31.3	–43.8	–12.5	5.9
Italy	16.5	–3.5	–20.0	69.5	–10.6	–16.3	–5.7	–16.6
Malta					28.8	13.4	–15.3	183.2
Portugal	60.1	34.1	–26.0	54.4	–0.3	4.3	4.6	–14.7
Spain	61.1	68.5	7.4	60.0	3.1	1.1	–2.0	31.0
Western Europe								
Austria	53.2	45.6	–7.7	118.2	–0.1	–2.2	–2.1	20.8
Belgium	51.3	43.1	–8.2	79.1	1.6	–0.6	–2.2	–2.5
France	42.3	42.9	0.6	71.0	0.6	1.0	0.5	–5.5
Germany	40.9	21.2	–19.7	97.9	9.8	3.7	–6.0	10.7
Ireland	182.0	141.3	–40.7	323.3	2.9	0.6	–2.2	4.3
Luxembourg	93.4	63.4	–30.0	163.5	–32.6	–35.9	–3.3	–33.0
Netherlands	36.1	26.8	–9.3	90.6	–0.6	–4.2	–3.7	–17.6
Switzerland	26.2	21.0	–5.2	58.4	0.7	4.7	4.0	1.8
United Kingdom	77.9	75.7	–2.2	136.8	1.3	10.7	9.4	–23.0
Northern Europe								
Denmark	64.7	43.1	–21.6	263.2	2.4	–8.6	–11.0	60.3
Finland	68.0	58.7	–9.4	179.7	–6.7	–9.5	–2.8	–7.7
Iceland					6.9	15.4	8.6	–41.4
Norway	84.9	91.9	7.1	158.4	–2.1	–0.2	1.9	–9.6
Sweden	95.5	70.2	–25.2	172.6	10.5	4.8	–5.7	–0.9
United States	63.2	10.8	–52.4	203.4	3.1	–0.1	–3.2	7.6

Note: Green cells indicate countries that achieved Sustainable Development Goal target 10.1 over the period considered and red cells indicate countries that did not.
Source: Blanchet, Chancel and Gethin (2019), based on data from the World Inequality Database (http://WID.world).

FIGURE 3.9

The pretax income share of the top 10 percent in the United States rose from around 35 percent in 1980 to close to 47 percent in 2014



Source: Piketty, Saez and Zucman 2018.

Rising inequalities in the United States coincide with a gradual decrease in the progressiveness of the US tax system over the past few decades

40 percent fell 5 percent), and the income of the top 1 percent more than tripled. Accordingly, the share of pretax national income received by the top 10 percent grew from 34 percent to more than 45 percent, and that received by the top 1 percent grew from 10 percent to 20 percent.

Accounting for the redistributive effects of taxes and transfers does not change the dynamics. Between 1980 and 2014 the share of post-tax national income received by the top 10 percent grew from 30 percent to about 40 percent. During the same period the post-tax income of the bottom 50 percent grew a meagre 20 percent, driven entirely by Medicare and Medicaid. Only through in-kind health transfers and collective expenditures did the incomes of the bottom half of the distribution rise.

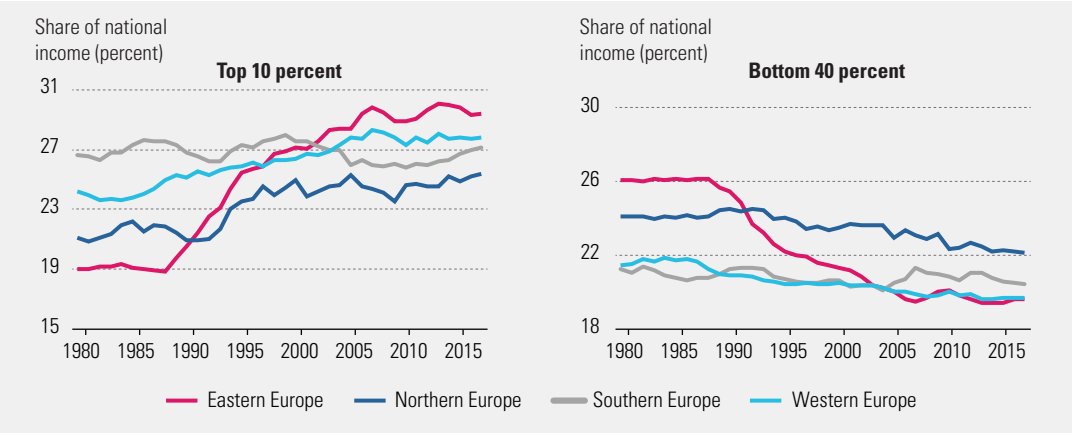
Rising inequalities in the United States coincide with a gradual decrease in the progressiveness of the US tax system over the past few decades, a trend present in many other countries (see chapter 7). The country's share of total taxes in national income, including federal, state and local taxes, increased from 8 percent in 1913 to 30 percent in the late 1960s, where it has remained since. Effective tax rates paid by individuals (total taxes paid as a share of total income) have become more compressed. In the 1950s the top 1 percent of income earners paid 40–45 percent of their pretax income in taxes, while the bottom 50 percent of earners paid 15–20 percent. Today the gap is much smaller. Top earners paid about 30–35 percent, while the poorest half paid around 25 percent.

Inequality has increased in a majority of European countries

Although inequalities remain lower in Europe than in the United States, European countries have also seen increases in the concentration of income at the top. In 1980 income disparities were generally higher in Western Europe than in Scandinavia and Eastern Europe (figure 3.10). The gap increased between 1980 and 1990 as income inequality rose in Germany, Portugal and the United Kingdom. In 1990–2000, by contrast, top income inequality rapidly increased in Finland, Norway and Sweden and in Eastern European countries. As a result, income inequality is higher today in nearly all European countries than at the beginning of the 1980s.

FIGURE 3.10

Between 1980 and 2017 the share of post-tax national income received by the top 10 percent rose from 21 percent to 25 percent in Northern Europe, while the share received by the bottom 40 percent fell from 24 percent to 22 percent



Source: Blanchet, Chancel and Gethin (2019), based on data from the World Inequality Database (http://WID.world).

European countries have also seen increases in the concentration of income at the top. The incomes of the top 0.1 percent of earners more than doubled during the period, and the incomes of the top 0.001 percent nearly tripled

In 2017 the top 10 percent of income earners received more than 30 percent of national income in most Western European countries and 25–35 percent in East European countries.[58]

The income share of the top 10 percent in Southern Europe was slightly higher than in other regions in the 1980s but increased less (see figure 3.10). Income gaps widened in Italy and Portugal, for instance, but remained stable in Spain and fluctuated in Greece. In Northern Europe and Western Europe, by contrast, income inequality increased more linearly. Eastern Europe is the area where income inequality has risen the most, due to increases at the top of the distribution in the 1990s and the early 2000s.[59] Today post-tax income inequality remains, on average, slightly lower in Northern Europe than in other regions of the continent.

Top income earners have thus been the primary beneficiaries of income growth in Europe since the 1980s. And between 1980 and 2017 the at risk of poverty rate remained stable or rose in most countries.[60]

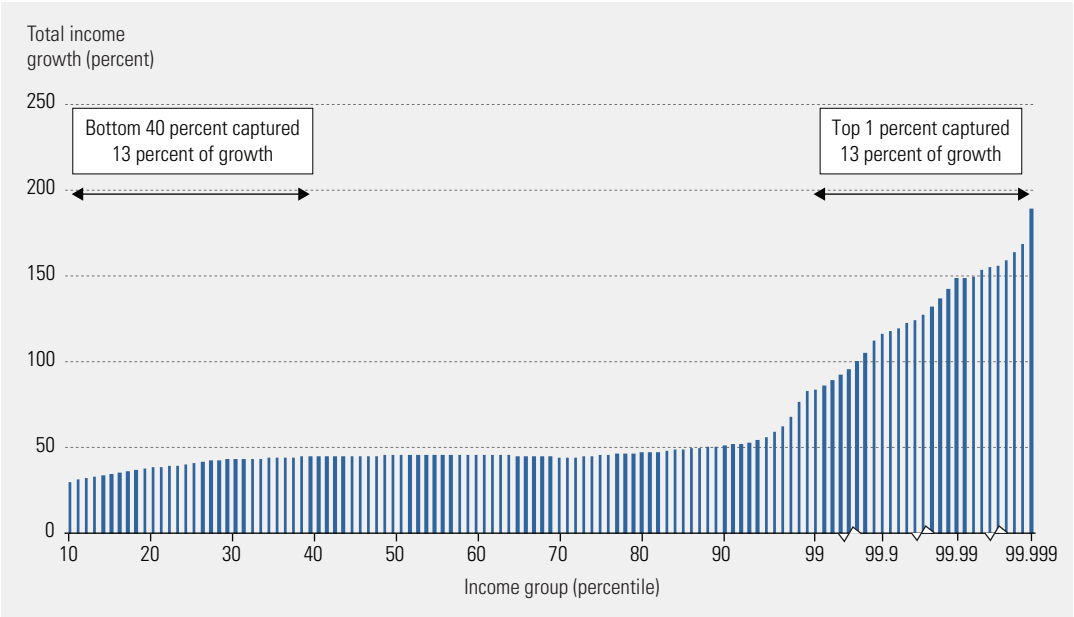
Inequality has risen in Europe as a whole

Taking the European countries as a whole, the top 10 percent pretax income earners in Europe received 29 percent of total regional income in 1980, while the bottom 50 percent received 24 percent. In 2017 the income share of the top 10 percent had risen to 34 percent, while the poorest half of the population received only a fifth. In the past 37 years the incomes of the poorest 40 percent of Europeans increases 30–40 percent (figure 3.11). The European middle class benefited only slightly more from growth than the poorer groups, as the incomes of those between percentiles 40 and 90 increased 40–50 percent. For the more advantaged sections of society, however, total growth rates are markedly higher. The incomes of the top 0.1 percent of earners more than doubled during the period, and the incomes of the top 0.001 percent nearly tripled.

While income inequality has increased significantly in Europe, poverty has more or less stagnated. Some 20 percent of Europeans lived on less than 60 percent of the European median income in 1980, compared with 22 percent in 2017. In recent years moderate convergence across countries, due to higher growth in Eastern Europe, has slightly reduced the percentage of people at risk of becoming poor in Europe as a whole, but the trend has been fully offset by rising percentages in other European countries, particularly in Southern Europe. Convergence would be insufficient to address the percentage of people at risk of poverty in Europe: If all countries fully converged to the same average national income, the European-wide percentage would remain as high as 17 percent.

FIGURE 3.11

Between 1980 and 2017 the post-tax incomes of the poorest 80 percent of the European population grew close to 40 percent, while those of the top 0.001 percent grew more than 180 percent



Note: After the 90th percentile the scale on the horizontal axis changes. The composition of income groups changes from 1980 to 2017, so the estimates do not represent the changes in income of the same individuals over time.
Source: Blanchet, Chancel and Gethin (2019), based on data from the World Inequality Database (http://WID.world).

The US–Europe comparison points to predistribution and redistribution policies to address inequalities

Since 1980 the United States and Europe have experienced diverging inequality trajectories. In 2017 the share of national income received by the top 1 percent in the United States was more than twice as large as that received by the poorest 40 percent. In Europe, by contrast, the share received by the bottom 40 percent exceeded that received by the top 1 percent (figure 3.12). This was not always the case: In 1980 the share of the bottom 40 percent in the two regions was similar, about 13 percent (figure 3.13).

The divergence in trajectories cannot be accounted for by either trade or technology, which are often invoked to explain the evolution in inequality in developed countries, given that all countries under analysis have been similarly exposed to both. Instead, the difference in inequality dynamics appears to be more the outcome of policy choices and institutional arrangements.

The findings reported here allow for a better understanding of the determinants of the differences between Europe and the United States. These differences are due mainly to a rise in pretax inequality (income measured before direct taxes and transfers, see box 3.3), which has been much more marked in the United States. In 1980 the average income of the top 10 percent was 10 times higher than that of the bottom 40 percent in the United States. In 2017 this multiple jumped above 26. In Europe the same indicator rose from 10 to 12 over the same period.

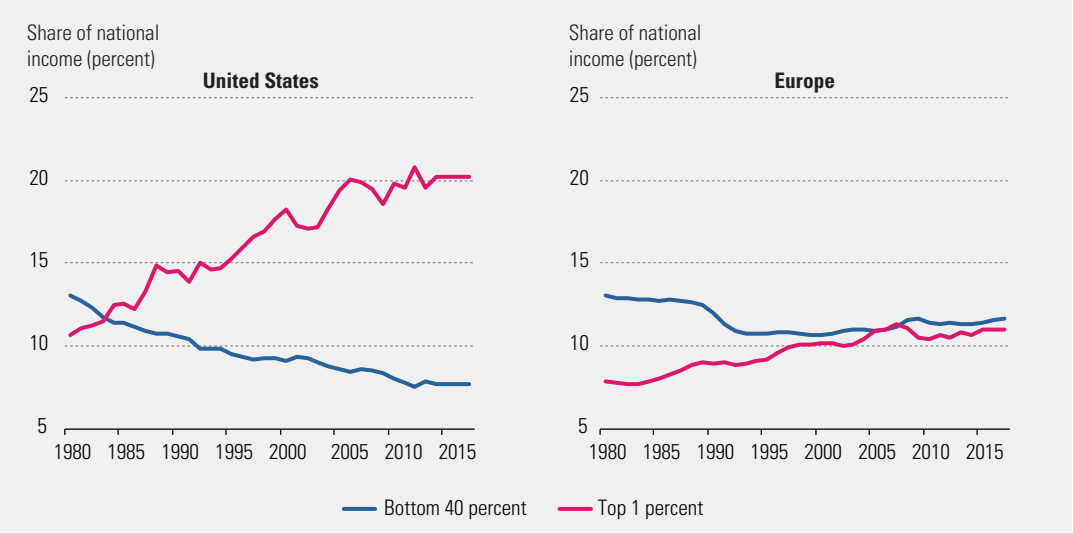
For post-tax inequality the ratio rose from 7 to 14 in the United States between 1980 and 2017 and from 8 to 9 in Europe (figure 3.14). So, the national systems of taxation (which include taxes on income and wealth) and the systems of social transfers (such as disability benefits or housing support) have therefore not enabled the rise in inequalities to be contained either in the United States or in Europe.

The combined operation of all the mechanisms acting on pretax incomes enabled Europe to contain the rise of the ratio of the top 10 percent to the bottom 40 percent. Social spending—including mainly public spending on education, health and retirement pensions—plays an important role. In particular, quality and affordable

The combined operation of all the mechanisms acting on pretax incomes enabled Europe to contain the rise of the ratio of the top 10 percent to the bottom 40 percent

FIGURE 3.12

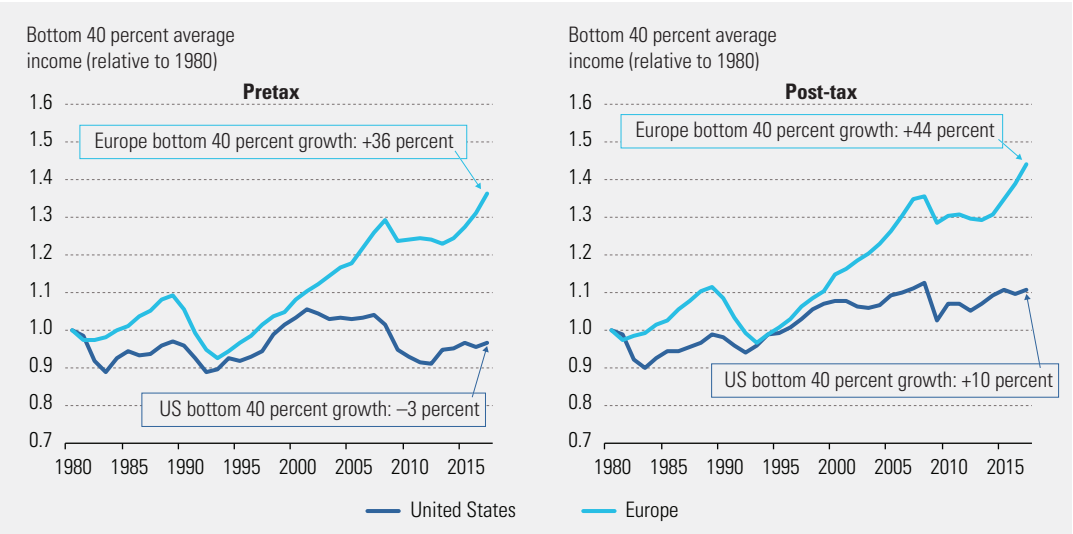
Between 1980 and 2017 the pretax income share of the bottom 40 percent in the United States fell from about 13 percent to 8 percent, while the share of the top 1 percent rose from about 11 percent to 20 percent



Source: Blanchet, Chancel and Gethin (2019), based on data from the World Inequality Database (http://WID.world).

FIGURE 3.13

Between 1980 and 2017 the average pretax income of the bottom 40 percent grew 36 percent in Europe, while it declined 3 percent in the United States



Source: Blanchet, Chancel and Gethin (2019), based on data from the World Inequality Database (http://WID.world).

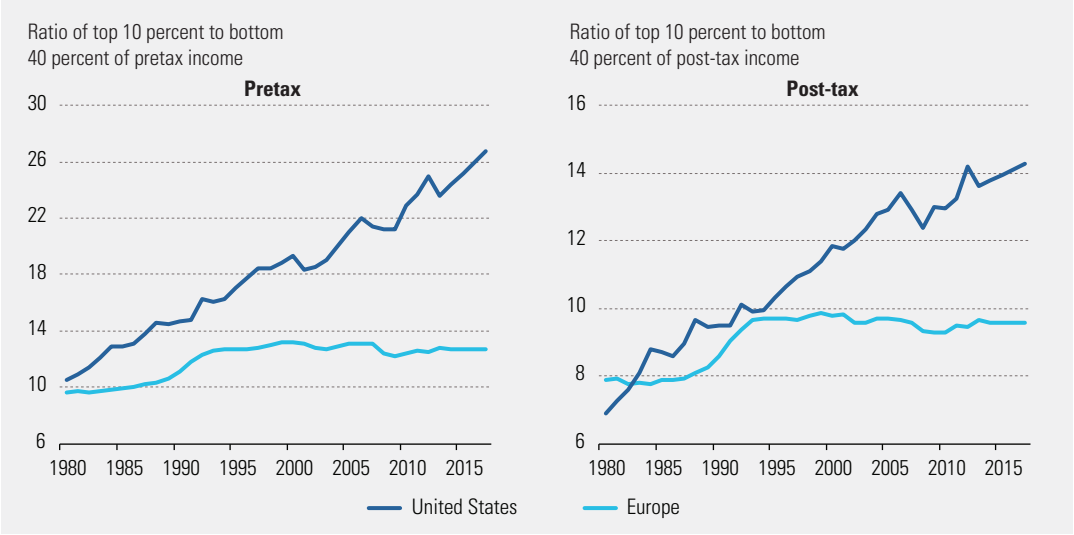
education and health systems are key to ensure that individuals from low-income backgrounds can access economic opportunities.

Social spending remains markedly higher in Europe than in the United States and the rest of the world. It amounts to 25–28 percent of GDP in most countries of continental Europe, compared with 19 percent in the United States.[61] Furthermore, access to health and education is usually more egalitarian in Europe than in the United States, particularly through free or low-cost health care and vocational training in Europe, which contributes to a less unequal distribution of pretax incomes.

Other important dynamics help account for higher income growth at the bottom of the

FIGURE 3.14

The average pretax income of the top 10 percent in the United States was about 11 times higher than that of the bottom 40 percent in 1980 and 27 times higher in 2017, while in Europe the ratio rose from 10 to 12



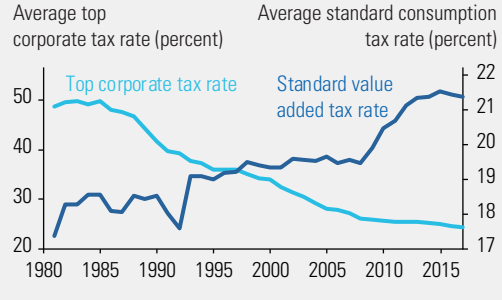
Source: Blanchet, Chancel and Gethin (2019), based on data from the World Inequality Database (http://WID.world).

distribution in Europe. For example, between 1980 and 2017 the minimum wage fell from 42 percent of average earnings to 24 percent in the United States. In many European countries movement has been in the opposite direction, with the minimum wage maintained at a high level (as in France, where it is about 50 percent of the average wage) or introduced (as in the United Kingdom in the 1990s and more recently in Germany).[62]

Still, there has been a reduction in tax progressiveness in Europe in recent decades, with the top corporate tax rate having fallen from almost 50 percent at the beginning of the 1980s to 25 percent today—this is part of a global trend common to developed and developing countries (see chapter 7). The top marginal income tax rate has also fallen in most European countries. And the value added tax, which disproportionately hits those with low incomes, has risen on average by more than 3 percentage points since the beginning of the 1980s. While Europe as a whole has been able to have more moderate increases in inequality than the United States, these developments may eventually limit the capacity of governments to get the winners in European growth to contribute to financing public services, which have been so key to sustain incomes at the middle and bottom of the distribution (figure 3.15).

FIGURE 3.15

Between 1981 and 2017 the average top corporate tax rate in the European Union fell from about 50 percent to 25 percent, while the average value added tax rate rose from about 18 percent to more than 21 percent



Source: Eurostat (standard VAT rate) and Organisation for Economic Co-operation and Development (top corporate tax rate).

Global wealth inequality: Capital is back

To properly track the dynamics of economic inequality, focusing on income alone is not enough.[63] It is also necessary to track the dynamics of wealth concentration. Although wealth data remain particularly scarce (even more than income data), recent research has unveiled findings on the evolution and composition of

Still, there has been a reduction in tax progressiveness in Europe in recent decades, with the top corporate tax rate having fallen from almost 50 percent at the beginning of the 1980s to 25 percent today

countries' national wealth. Analysing the composition of an economy's national wealth, assets that are both privately and publicly owned, is a prelude to understanding the dynamics of wealth inequality among individuals.

The renewed effort in studying wealth inequality is crucial because it is linked to the increase in income inequality at the top of the distribution observed since 1980, since capital income tends to be concentrated among wealthier people. The prominence of wealth in driving the income distribution is linked to its relative importance in many economies, with national wealth as an aggregate having grown significantly more than income in many countries.[64]

The globalization of wealth management since the 1980s raises new challenges, with a growing amount of world wealth held in offshore financial centres

Because most countries do not tax wealth directly, producing reliable estimates of wealth inequality requires combining different data sources, such as billionaire rankings and income tax and inheritance tax data.[65] The globalization of wealth management since the 1980s raises new challenges, with a growing amount of world wealth held in offshore financial centres. Indeed, offshore assets are disproportionately owned by the wealthiest, so accounting for these offshore assets has large implications for measuring wealth at the very top of the distribution.[66] More generally, measuring the inequality of income and wealth from a global perspective, and not simply at the country level, is becoming critical.

Understanding the evolution of the level and structure of national capital (or national wealth)[67] and its relationship to national income is key to addressing several economic and public policy issues. Wealth is a "stock" concept: It is the sum of all assets accumulated in the past (particularly housing, business and financial assets) net of debt. Private wealth is always more concentrated than income, while public wealth, owned by a government, greatly affects the government's capacity to implement redistributive policies. This is why looking at the evolution of national wealth-to-income ratios and at the partition of wealth between the private and the public sectors can help in understanding the evolution of economic inequality. Keep in mind, though, that the definitions of public and private property vary across countries.[68]

Reliable macroeconomic data on wealth are scarce across the globe. Only in 2010 did Germany start to publish official national balance sheets with information on the total stock of wealth and its evolution. In many emerging and developing countries there is no macroeconomic wealth information. Lack of wealth data is an issue in itself, since precise information on wealth dynamics can prove critical to preventing financial crises or to fine-tuning tax policies. Lack of data also makes it impossible to properly track the dynamics of wealth at the micro level—among individuals. So, macroeconomic discussion of wealth is limited to developed economies and a few emerging economies with wealth data.

Ratios of private wealth to national income have risen sharply in all countries since 1970, with substantial regional variations

Country trajectories in Western Europe have been roughly similar: Net private wealth rose from 250–400 percent of national income in 1970 to 450–750 percent in 2016 (figure 3.16). The highest increases were in Italy and the United Kingdom, where the ratios more than doubled. The private wealth–income ratio also increased greatly in Canada (from 250 percent to more than 550 percent) and a bit less (but still substantially) in Australia. It rose by half in the United States (from less than 350 percent to around 500 percent) and almost doubled in Japan (from 300 percent to almost 600 percent).

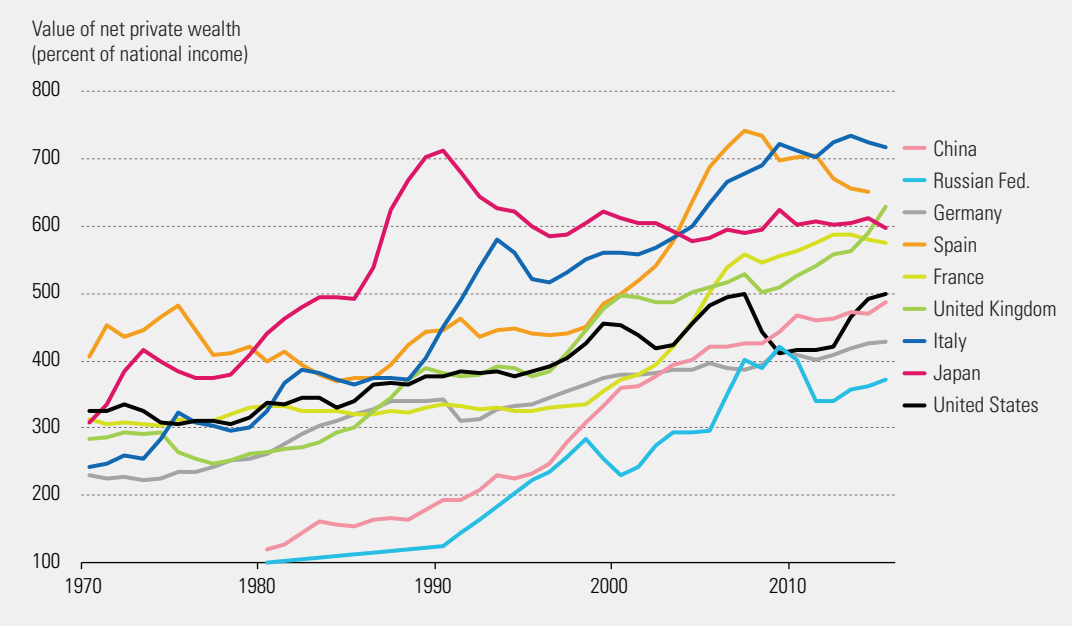
China and the Russian Federation had the largest increases. In China private wealth rose from 110 percent of national income in 1978 (when the opening-up policy started) to 490 percent of national income in 2015. In the Russian Federation the ratio tripled between 1990 and 2015 (from 120 percent to 370 percent).

Note that the 2008 financial crisis did not significantly disturb this trend: Though wealth–income ratios dipped following the crash, they recovered, at various speeds and to various extents.

But public wealth to national income ratios underwent a strong and steady decline almost everywhere. Public wealth became negative in the United Kingdom and the United States and now amounts to only 10–20 percent of national income in France, Germany and Japan. By contrast, in China the value of public wealth

FIGURE 3.16

Net private wealth in Western European countries rose from 250–400 percent of national income in 1970 to 450–750 percent in 2016



Source: Alvaredo and others (2018), based on data from the World Inequality Database (http://WID.world).

Public wealth to national income ratios underwent a strong and steady decline almost everywhere

remained fairly constant relative to national income (250 percent in 1978 and 230 percent in 2015), and in the Russian Federation it fell dramatically from more than 230 percent of national income in 1990 to around 90 percent in 2015.

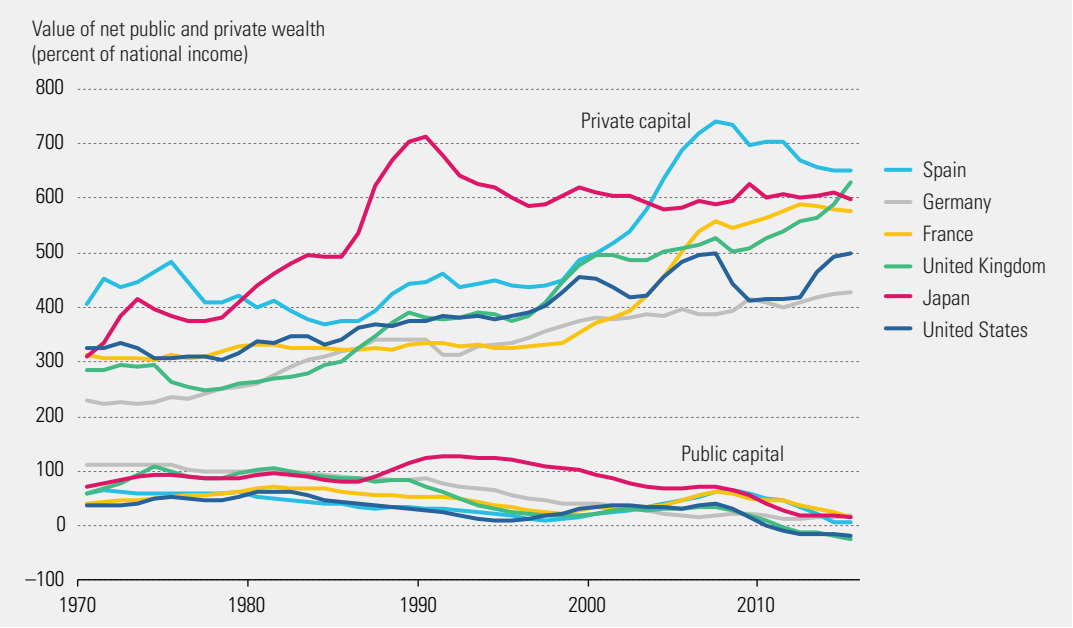
These two trends have radically modified the structure of national wealth in most countries. In the late 1970s the value of public wealth was about 50–100 percent of national income in developed countries; it is now negative in the United Kingdom and the United States and only marginally positive in France, Germany and Japan. This domination of private wealth in national wealth is a marked change from the 1970s (figure 3.17).

Zero or negative public wealth is exceptional by historical standards. Governments tend to adopt various strategies to recover positive public wealth levels, such as inflation, debt cancellation or progressive wealth taxes—as after World War II in Europe (France and Germany). To understand what a zero or negative net public wealth situation implies, consider the following: A government with negative public wealth willing to repay its debts would have to sell all its financial assets (such as stocks) and nonfinancial assets (such as roads) but would still be indebted. Taxpayers would thus have to continue to pay taxes to reimburse owners of the debt, and citizens would also have to pay a rent to the new owners of the stock of capital that was formerly public (roads, energy or water systems, or health or education infrastructure). Such a situation arguably leaves government with little room to invest in the future (in, say, education or environmental protection) and thus tackle current and future income and wealth inequality.

A combination of factors accounts for these trends. The reduction in the share of public wealth accounts for a part of the rise of private wealth. The decline in net public wealth is also due largely to the rise of public debt. The ratio of public assets to national income has remained fairly stable because a significant chunk of public assets was privatized (particularly shares in public or semipublic companies) and the market value of the remaining assets increased. But the long-run decline in the share of public wealth in total wealth, in no way inevitable, is the result of public policy choices (privatizing public assets, expanding public debt or running fiscal deficits).

FIGURE 3.17

Countries are getting richer, but governments are becoming poor



Source: Alvaredo and others (2018), based on data from the World Inequality Database (http://WID.world).

High wealth–income ratios imply that wealth inequality is going to play a growing role in the overall structure of economic inequality

Overall, the evolution of national wealth (public and private) to national income ratios is determined by the interplay between national savings, economic growth (quantity factor) and relative asset prices (price factor). The higher the savings rate, the larger the accumulation of assets. And the higher the economic growth rate, the lower the accumulation of assets relative to national income. Relative asset prices depend on institutional and policy factors (rent control, for instance) and on the patterns of saving and investment strategies. In developed countries quantity effects contributed to about 60 percent of wealth accumulation between 1970 and 2010 and price effects to about 40 percent, with cross-country variations.

The differences in privatization strategies and in price and volume factors also explain the widely divergent patterns of national wealth accumulation in the Russian Federation and China. Indeed, Russia's national wealth increased weakly, from 400 percent of national income in 1990 to 450 percent in 2015, while China's doubled from 350 percent of national income in 1978 to 700 percent in 2015.

The Russian Federation opted to transfer wealth from the public to the private sector as quickly as possible. So the increase in private wealth was the exclusive driver for the rapid rise of national wealth, at the expense of public wealth. By contrast, China's privatization of public assets was much more gradual, enabling public wealth to remain constant while private wealth was increasing. In addition, savings rates were markedly higher in China. And Chinese savings financed mostly domestic capital investment (leading to more domestic capital accumulation), whereas about half of Russian savings financed foreign investments. Relative asset prices also increased more in China.

In the long run the low ratios of the mid-20th century may have been due to very special circumstances, perhaps unlikely to recur.[69] So savings and growth rates, the main long-run determinants of these ratios, will matter greatly in the near future. And given their current levels, national wealth to national income ratios may be returning to those in the 19th century's Gilded Age. High wealth–income ratios imply that wealth inequality is going to play a growing role in the overall structure of economic inequality. Because wealth tends to be very concentrated, this raises new issues about capital taxation and regulation. These issues emerge in a context where the ability of governments to regulate and redistribute income may be limited by the decline of public wealth.

Global wealth inequality between individuals

The dynamics of wealth inequality between individuals are linked to the evolution of income inequality and the evolution of public and private capital inequality. In the long run wealth inequality between individuals also depends on the inequality of savings rates across income and wealth groups, the inequality of labour incomes and rates of returns to wealth—and on the progressiveness of income and wealth taxes.

How have these factors affected the process of wealth concentration in the past, and what can they tell about potential future dynamics? Recent research has shown that relatively small changes in savings behaviours, returns to wealth or tax progressiveness can have rather large impacts on wealth inequality.[70] This instability reinforces the need for better data quality to properly study and understand the dynamics of income and wealth.

Given the low availability of data on wealth inequality among individuals, estimates of the global distribution of wealth come from only a handful of countries: France, Spain, the United Kingdom and the United States and to less extent China. Less certain estimates are also available for the Russian Federation and countries in the Middle East.

Wealth is substantially more concentrated than income: In 2017 the global top 10 percent (the richest 10 percent in the United States, Europe and China) owned more than 70 percent of the total wealth, and the top 1 percent owned 33 percent, while the bottom 50 percent owned less than 2 percent.[71] These estimates are a lower bound, since inequality would probably be higher if Africa, Latin America and the rest of Asia were included.

Wealth inequality has been increasing since 1980, unaffected by the 2008 crisis. The evolution of the global distribution of wealth depends on the disparity of average wealth between countries and within countries. Since 1980 the rise of average private wealth has been faster in large emerging economies, such as China,[72] than in developed countries, because of faster economic growth and massive wealth transfers from the public to the private sector. This has greatly increased the wealth of the bottom 75 percent of the global distribution.

This rise was more than offset at the top by the rise in within-country wealth inequality everywhere, so wealth increased much faster at the top of the global distribution: While the average wealth growth was 2.8 percent a year per adult over 1987–2017, it was 3.5 percent for the top 1 percent, 4.5 percent for the top 0.1 percent and 5.7 percent for the top 0.01 percent.

The factors affecting wealth inequality (income inequality, inequality of savings rates and asset rates of return) are affected by public policies. For example, progressive taxation influences income and savings inequality, while financial regulation and innovation can have an impact on asset rates of return. Privatization can also play a role when it benefits mostly a specific part of the distribution, as in many countries since the 1980s and particularly in emerging countries. So there is nothing inevitable about the rise of wealth inequality within countries.

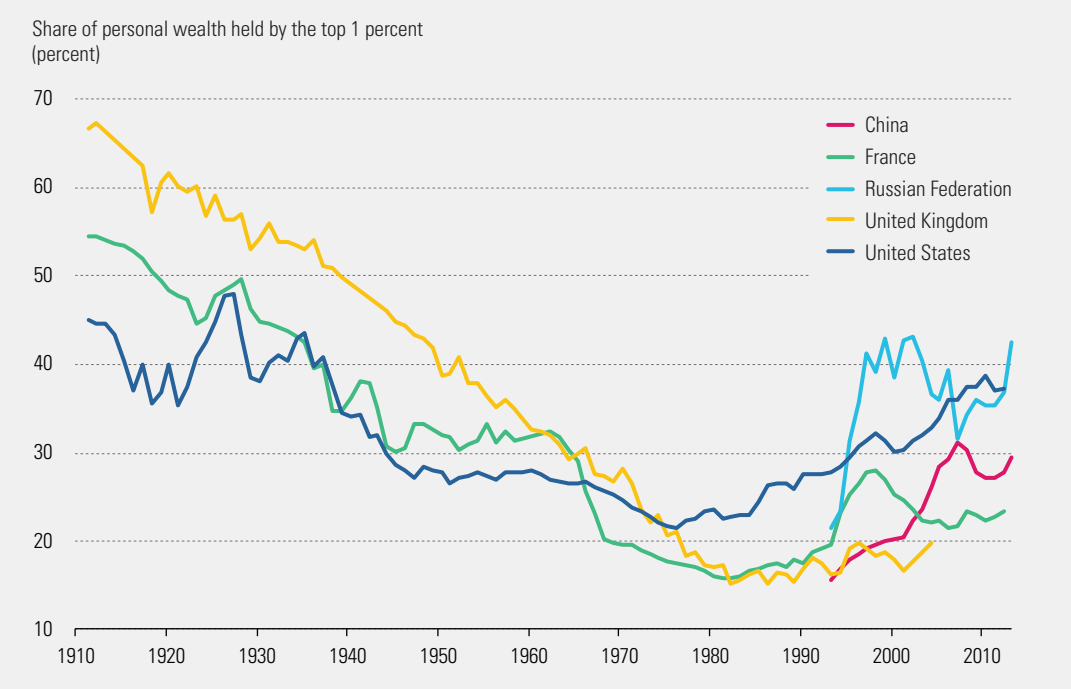
In the Russian Federation and China the concentration of wealth increased since the 1990s. The share of the top 1 percent doubled (from 22 percent in 1995 to 43 percent in 2015 in the Russian Federation and from 15 percent to 30 percent in China, although with some volatility; figure 3.18). The divergences between the two countries come from the differences between their privatization strategies: The fast pace of privatizing public assets in the Russian Federation favoured the wealthiest even more than in China. In the Russia Federation housing had a small dampening effect on the rise of inequality. In China housing wealth was privatized through a very unequal process, whereas the approach was more gradual and equitable in the Russia Federation.

The United States has had a less abrupt but no less significant rise of wealth inequality since the mid-1980s, after a considerable decline in the 1930s and 1940s, then due particularly to the policies of the New Deal (see figure 3.18). The share of wealth owned by the top 1 percent grew from a historic low of 22 percent in 1978 to almost 39 percent in the 2010s. The key driver of this increase was the upsurge of very top incomes, enabled by financial deregulation and lower top tax rates. Inequality of savings rates and of asset return rates amplified the phenomenon in a snowballing trend. Meanwhile,

Wealth is substantially more concentrated than income: In 2017 the global top 10 percent (the richest 10 percent in the United States, Europe and China) owned more than 70 percent of the total wealth, and the top 1 percent owned 33 percent, while the bottom 50 percent owned less than 2 percent

FIGURE 3.18

Trends in wealth inequality



Source: Alvaredo and others (2018), based on data from the World Inequality Database (http://WID.world).

Wealth inequality has been increasing since 1980, unaffected by the 2008 crisis

the income of the middle and the bottom of the distribution stagnated, and household debt (mortgages, student loans and credit card debt, among others) sharply increased. This led to a substantial fall of the wealth share of the middle 40 percent—from a historic high of 37 percent in 1986 to 28 percent in 2014.

In France and the United Kingdom wealth inequality also increased after a historical decline, but at a much slower pace than in the United States. The top 1 percent share rose from 16 percent in both countries in 1985 to 20 percent in the United Kingdom in 2012 and 23 percent in France in 2015. This was due to greater earnings disparities, amplified by a fall in tax progressiveness, the privatization of formerly state-run industries and, most important, the growing inequality of asset return rates, as the returns on financial assets, disproportionately owned by the wealthy, increased.

Small changes in savings rate differentials across wealth groups, or in progressive taxation patterns, can have a very large impact on wealth inequality, though it may take several decades for the impacts to play out. This raises many issues for the future of wealth inequality: If the current trends in savings, income and return rate inequality persist, within-country wealth inequality could be returning to 19th century Gilded Age levels in the coming decades. On a global scale, if current trends continue, by 2050 the global top 0.1 percent could end up owning as much of the world's wealth as the middle 40 percent of the world's population (figure 3.19).

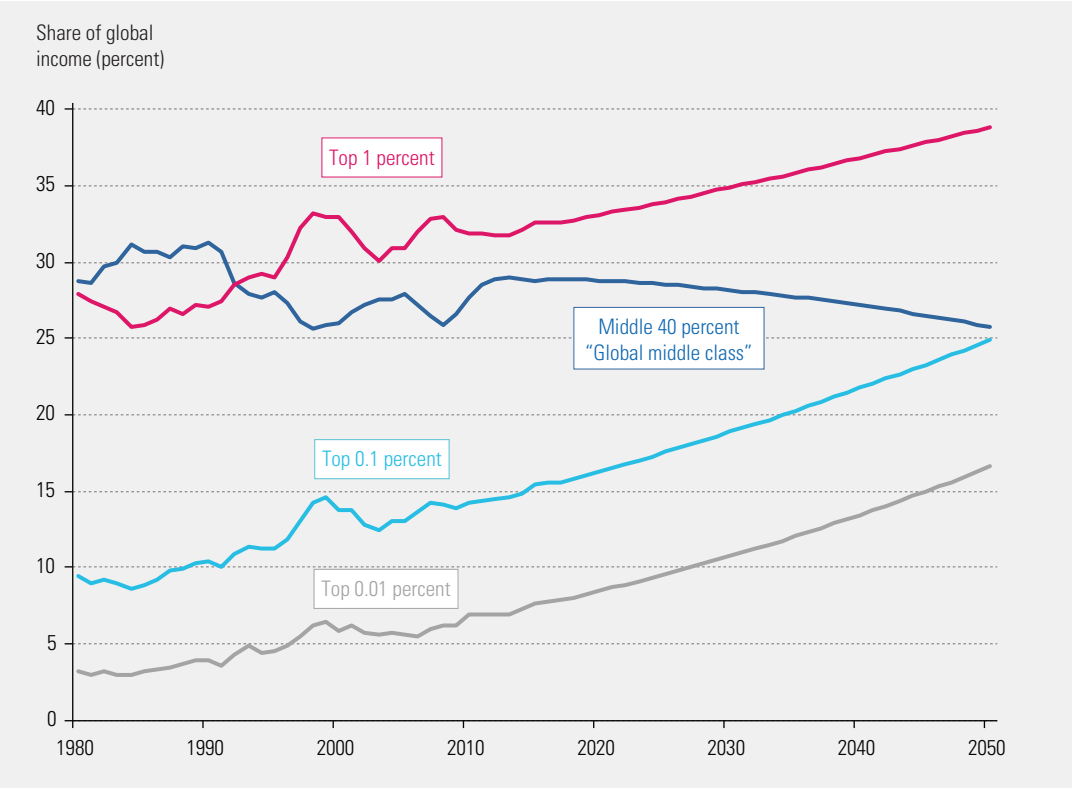
Afterword: Data transparency as a global imperative

This chapter has discussed recent advances in methodology and data collection to fill a public debate data gap. Such information is necessary for peaceful and deliberative debates over income inequality and growth. Worryingly, in the few years of the digital age the quality of publicly available economic data on these issues has been deteriorating in many countries, particularly for fiscal data on capital income, wealth and inheritance.

To provide historically and internationally comparable estimates of income and wealth

FIGURE 3.19

If current trends continue, by 2050 the global top 0.1 percent could end up owning as much of the world's wealth as the middle 40 percent of the world's population



Source: Alvaredo and others (2018), based on data from the World Inequality Database (http://WID.world).

inequality, new efforts require the use of the best available data sources from household surveys, administrative tax data, national accounts or financial leaks.

To be sure, today's knowledge of global income and wealth inequality remains limited and unsatisfactory. Much more data collection lies ahead to expand the geographical coverage of inequality data—and to provide more systematic representations of pretax and post-tax income and wealth inequality. Despite these data limitations, the rise of income and wealth inequality observed across the world over the past decades is not destiny. It arises from economic and institutional policy choices. As part III shows, different pathways can be followed in the coming decades—if there is political will. For the policies of tomorrow to reflect a sound debate on national and global economic inequalities clearly requires the continuing publication of transparent and timely data on inequalities in income and wealth.

Today's knowledge of global income and wealth inequality remains limited and unsatisfactory. Much more data collection lies ahead to expand the geographical coverage of inequality data—and to provide more systematic representations of pretax and post-tax income and wealth inequality

Spotlight 3.1

Looking within countries and within households

Understanding inequality beyond averages implies looking at what is happening subnationally: within a nation, within a group or even within households. It is particularly important to have a better grasp of who and where those furthest behind and at the very bottom of the income distribution are. One way of looking within countries is to identify the hotspots, the subnational districts, states or provinces set not to have a GDP per capita of $4,000 or more in 2005 purchasing power parity terms in 2030.[1] There are 840 such poverty hotspots globally, among more than 3,600 districts, states and provinces. Moreover, 102 countries have at least one region that qualifies. In other words, people are being left behind in a large, diverse group of countries.

But there is considerable variation within countries. Over half of low-income countries have at least one region that is not a poverty hotspot; 36 of 46 lower-middle-income countries have at least one region that is. Even among upper middle-income countries some 30 percent of regions are hotspots.[2]

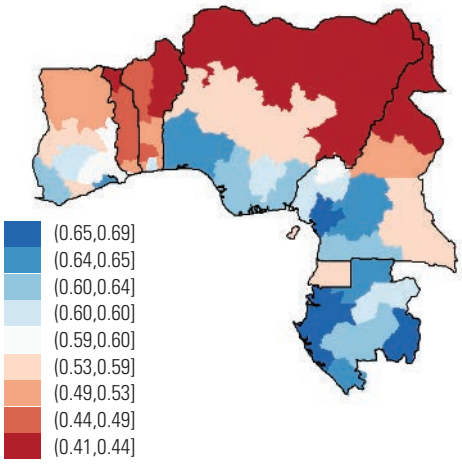
Another way of identifying diversity within countries is to consider the Human Development Index (HDI) at a subnational level.[3] By this measure, there are "clusters" of hotspots that cross national borders (see figure S3.1.1 for an example with a group of countries in the Gulf of Guinea). Clusters of low subnational HDI values exist in Latin America, including parts of Central America. In Central–South Asia subnational areas stretch from Tajikistan and Kyrgyzstan to most of Afghanistan, and in Southeast Asia, sections of Cambodia and Viet Nam. Not all in a hotspot are necessarily poor, of course. Within any area the next step implies identifying households most in need of social assistance. Most countries apply some sort of test to decide who is eligible for assistance, tests that generally are flawed. A critical challenge for the tests is their high exclusion errors (not including individuals or households who are eligible but do not receive a benefit) and their high inclusion errors (of individuals or households who are not eligible but do receive a benefit). The inclusion and exclusion errors for a set of African economies are striking (table S3.1.1). For instance, Ghana has an estimated inclusion error of 35 percent (35 percent of the identified poor households are nonpoor) and an exclusion error of 63 percent (63 percent of the poor are not identified as poor using the proxy means test).

Finally, it is important to go even deeper to look within households. As noted, many countries try to identify poor and vulnerable households. There are good reasons for using households as a general proxy. One reason is that data on income and consumption are often better collected—and understood—at the household level. A second is that the average well-being of a household is correlated with individual well-being among those within it. And so while household identification inevitably comes with inclusion and exclusion errors, it has been the standard for decades.

The outliers to this pattern are significant and often comprise people with disabilities, orphans and widows, migrants and mobile populations, and the homeless. The numbers of such cases are considerable. In 30 Sub-Saharan countries roughly three-quarters of underweight women and undernourished children are not in the poorest 20 percent of households, and around half are not in the poorest 40 percent

FIGURE S3.1.1

Contiguous human development patterns, cutting across national borders: The Gulf of Guinea



Source: Permanyer and Smits 2019.

TABLE S3.1.1

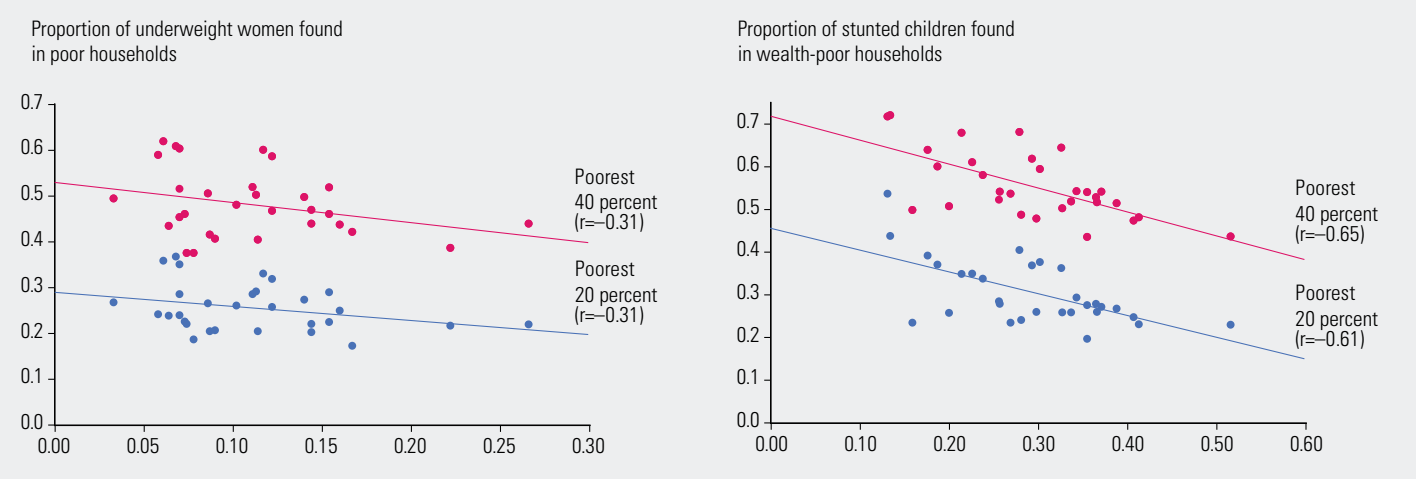
Targeting errors of inclusion and exclusion: Proxy means tests

	Inclusion error rate	Exclusion error rate	Inclusion error rate	Exclusion error rate	Targeting error	Targeting error
	Fixed poverty line				Fixed poverty rate	
Country	$z = F^{-1}(0.2)$		$z = F^{-1}(0.4)$		H = 0.2	H = 0.4
Burkina Faso	0.401	0.751	0.304	0.375	0.522	0.329
Ethiopia	0.515	0.945	0.396	0.362	0.621	0.413
Ghana	0.354	0.628	0.257	0.350	0.428	0.288
Malawi	0.431	0.880	0.333	0.451	0.353	0.373
Mali	1.000	1.000	0.348	0.485	0.553	0.375
Niger	0.539	0.875	0.384	0.340	0.584	0.362
Nigeria	0.332	0.348	0.247	0.243	0.392	0.244
Tanzania, United Republic of	0.396	0.822	0.323	0.291	0.513	0.314
Uganda	0.357	0.663	0.350	0.294	0.455	0.335
Mean	0.481	0.807	0.309	0.359	0.505	0.319

Note: $F^{-1}(x)$ indicates the poverty line consistent with fixing the poverty rate at x. $H = x$ means headcount poverty rate of x.
Source: Brown, Ravallion and van de Walle 2018.

FIGURE S3.1.2

Adult female malnutrition and child stunting can be high in nonpoor households



Source: Brown, Ravallion and van de Walle 2017.

(figure S3.1.2). Countries with higher rates of undernutrition tend to have a higher share of undernourished individuals in nonpoor households.[4]

Notes

1 This threshold of $4,000 represents twice the ceiling for a low-income country, as defined by the World Bank in 2015. It corresponds roughly to a daily income where the probability of falling below the national poverty line is less than 10 percent (Lopez-Calva and Ortiz-Juarez 2014).

2 Cohen, Desai and Kharas 2019.

3 Permanyer and Smits (2019).

4 New individual consumption data reveal that within-household inequality accounts for nearly 16 percent of total inequality in Senegal. One of the consequences of such unequal repartition of resources within households is the potential existence of "invisible poor" in households classified as nonpoor. As many as 12.6 percent of poor individuals live in nonpoor households. The evidence from Senegal suggest that the more complex the household structure and the bigger the household size, the more inequality is likely to be underestimated when computed using standard consumption surveys (Lambert and de Vreyer 2017).

Spotlight 3.2

Choosing an inequality index

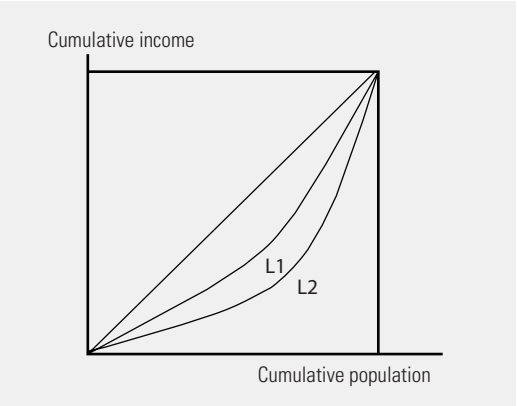
James Foster, Professor of Economics and International Affairs at the George Washington University, and Nora Lustig, Samuel Z. Stone Professor of Latin American Economics and Director of the Commitment to Equity Institute at Tulane University

A useful way to describe the distribution of income is the Lorenz curve, constructed as follows.[1] First, the population is ranked according to income (or consumption, wealth or another measure of resources) from the lowest to the highest. Then the cumulative shares of individuals in the population are plotted against their respective cumulative share in total income. The curve drawn is called the Lorenz curve. The horizontal axis of the Lorenz curve shows the cumulative percentages of the population arranged in increasing order of income. The vertical axis shows the percentage of total income received by a fraction of the population. For example, the (80 percent, 60 percent) point on the Lorenz curve means that the poorest 80 percent of the population receives 60 percent of total income while the richest 20 percent receives 40 percent of total income.[2]

Figure S3.2.1 shows two Lorenz curves: L_1 and L_2. If everybody has the same income, the Lorenz curve will coincide with the 45-degree line. The greater the level of inequality, the farther the Lorenz curve will be from the 45-degree line. In the figure, L_2 lies below and to the right of L_1, so an inequality index would be expected to indicate greater inequality in the L_2 case. Another way to see this is that the poorest x percent of the population will always have an equal or greater share of income under L_1 than under L_2, regardless of what x is. This is called the Lorenz dominance criterion or Lorenz criterion for short.

FIGURE S3.1.1

Lorenz curve



Source: Authors' creation.

What constitutes a "good" inequality index? One approach is to require the measure to be consistent with the Lorenz criterion: that is, to be Lorenz consistent. For a measure to be Lorenz consistent the following two conditions must hold: First, inequality rises (declines) when the Lorenz curve lies everywhere below (above) the original Lorenz curve as with L_2 compared with L_1 (L_1 compared to L_2) in the figure. Second, inequality is the same when Lorenz curves are identical. For a measure to be Weakly Lorenz Consistent, condition 1 becomes the following: 1'. inequality rises (declines) or stays the same when the Lorenz curve lies everywhere below (above) the original Lorenz curve.

A second approach is to require the inequality index to fulfil the following four principles:

1 Symmetry (or anonymity). If two people switch incomes, the index level should not change.
2 Population invariance (or replication invariance). If the population is replicated or "cloned" one or more times, the index level should not change.
3 Scale invariance (or mean independence). If all incomes are scaled up or down by a common factor (for example, doubled), the index level should not change.
4 Transfer (or the Pigou-Dalton Transfer Principle). If income is transferred from one person to another who is richer, the index level should increase. In other words, in the face of a regressive transfer, the index level must rise.

It can be shown that indices satisfying these four principles are Lorenz Consistent and vice versa.

These indices include:

- **Summary indices** based on relatively complex formulas designed to capture inequality along the entire distribution. The most commonly used are (in alphabetical order): the Atkinson, Gini and Theil measures (and the generalized entropy measures, more generally).

While inequality measures that satisfy the transfer principle are in common use, there are also simpler indices that do not satisfy 1–4 but are popular. These include:

- **Partial indices** based on simple formulas that focus on inequality across certain parts of the distribution. These include the Kuznets ratios expressed as the income share of top x percent over the income share of bottom y percent. There are, of course, many possible Kuznets ratios. The one proposed by the Nobel Laureate Simon Kuznets was 20/40.[3] Partial indices also include the top income shares, expressed as the income share of the top x percent. Common examples include the income share of the top 1 percent or of the top 10 percent.[4] The top income shares are, in fact, limiting cases of Kuznets ratios obtained by setting the "bottom" income share to cover the entire population: that is, by setting y percent = 100 percent.[5]

Such partial Indices satisfy the following principle:

4' Weak transfer principle: If income is transferred from one person to another who is richer (or equally rich), the index level should increase or remain unchanged.

In other words, in the face of a regressive transfer, the inequality index can never decline, but it may remain unchanged. It can be shown that indices satisfying 1–3 and 4' principles are weakly Lorenz consistent and vice versa.

In sum, the summary indices of Atkinson, Gini and Theil (and the whole family of Generalized Entropy Indices) satisfy principles 1–3 and 4 and thus are Lorenz consistent (and vice versa). This guarantees that in the face of a regressive (progressive) transfer anywhere along the distribution, inequality measured by any of these indices will rise (decline). In contrast, the Kuznets ratios and top income shares focus on limited ranges of incomes and thus violate the transfer principle (and thus violate Lorenz consistency). The latter means that transfers entirely within or entirely outside the relevant ranges have no effect on measured inequality. For example, the 10/40 ratio is insensitive to regressive transfers that stay within the poorest 40 percent, within the richest 10 percent or within the remaining 50 percent in the middle, while the income share of the top 1 percent is insensitive to transfers within the top 1 percent and within the bottom 99 percent. Despite disagreeing with the transfer principle, and thus the Lorenz criterion, these partial indices are useful for conveying easily understood information about the extent of inequality. Importantly, they satisfy the weak transfer principle and thus guarantee that in the face of a regressive transfer anywhere along the distribution, inequality measured by any of these indices will never decline but, notably, it can stay the same.

In contrast, other common inequality indices do not even fulfil the weak transfer principle (transfer principle 4'). Examples include the quantile ratios (such as the income of percentile 90 to the income of the 10th percentile also known as the p90/p10 ratio) and the variance of logarithms. For example, a transfer from the 5th percentile to the 10th would reduce the p90/p10 ratio despite the fact that the transfer is clearly regressive because it redistributes income from the very poor to the less poor. Regressive transfers at the upper end of the distribution can lower the variance of logarithms and lead to extreme conflicts with the Lorenz criterion.[6]

Finally, the mean to median ratio (mean divided by the median) is a measure of skewness that can also be interpreted as a partial index of inequality. Virtually every inequality measure is a ratio of two "income standards" that summarize the size of the income distributions from two perspectives: one that emphasizes higher incomes and a second that emphasizes lower incomes.[7] So long as only distributions that are skewed to the right are considered, the mean exceeds the median, and the mean to median ratio takes on this form. This index satisfies the first three principles but can violate the weak transfer principle when the regressive transfer

raises the median income. Like the other partial indices, it is weaker in terms of the properties it satisfies but has the advantage of simplicity and is often used in political economy.[8]

How to apply the above in practice? When making pairwise comparisons, first graph the Lorenz curves. If the Lorenz curves do not cross, an unambiguous Lorenz comparison can be made. One can conclude from this that any reasonable (that is, Lorenz consistent) measure would agree that inequality has unambiguously increased or declined, according to what the Lorenz curves indicates. However, it is also possible that the Lorenz curves cross, in which case reasonable inequality measures can disagree. What can be done when Lorenz curves cross? One approach is to narrow the set of reasonable inequality measures using an additional criterion. For instance, transfer-sensitive measures are Lorenz consistent measures that emphasize distributional changes at the lower end over those at the upper end. The Atkinson class and the two Theil measures (including the mean log deviation) are transfer-sensitive measures. By contrast, the coefficient of variation (standard deviation divided by the mean) is neutral with respect to where transfers occur, while many other generalized entropy measures emphasize distributional changes at the upper end and thus are not in the set of transfer-sensitive measures.

When do all transfer-sensitive measures agree? As a subset of Lorenz-consistent measures, they agree when Lorenz curves do not cross as well as in many cases when they do cross. For example, suppose that Lorenz curves cross once and that the first Lorenz curve is higher at lower incomes than the second. There is a simple test: The first has less inequality than the second, according to all transfer-sensitive measures exactly when the coefficient of variation for the first is no higher than that for the second.[9] An even simpler approach is to select a (finite) set of particularly relevant inequality measures for making inequality comparisons. If all agree on a given comparison, the result is robust. If not, the conclusion is ambiguous for that set of measures, with inequality ranked one way for some measures and reversed for others.

Table S3.2.1 shows the statistics most frequently published in commonly used international databases.[9]

TABLE S3.2.1

Statistics most frequently published in 10 commonly used international databases

Statistic	Frequency
Gini	9
Quantile ratio 90/10	4
Theil	3
Top 10 percent	3

Source: Authors' creation.

Thus, the most frequently reported inequality measures include two that are Lorenz consistent (the Gini and Theil measures), one that is weakly Lorenz consistent (the top 10 percent) and one that is neither (the 90/10 quantile ratio). In addition to inequality measures, international datasets report other statistics. Among those, the most frequent is the distribution of income by decile.[10]

Notes

1 Named after Max Otto Lorenz, a US economist who developed the idea of the Lorenz curve in 1905.

2 Often, especially with historical data, we only have grouped-data or information on equal-sized population groups such as quintiles or deciles (5 or 10 groups, respectively). The resulting Lorenz curve is an approximation of the actual Lorenz curve where inequality within each group has been suppressed.

3 Some international databases report the 20/20 (sometimes called S80/S20) and 10/40 ratios.

4 The top 1 percent has been the focus of the recent literature on top incomes. See, for example, Atkinson, Piketty and Saez (2011).

5 By definition, 100 percent of the population receives 100 percent of the income so the denominator of the Kuznets ratio becomes 100/100 = 1, and thus the 1/100 Kuznets ratio equals 1 percent.

6 Foster and Ok 1999.

7 Foster and others (2013, p. 15). For example, one Atkinson measure compares the higher arithmetic mean to the lower geometric means; the 1 percent income share effectively compares the higher 1 percent mean to the lower arithmetic mean.

8 The mean to median ratio is the inequality measure used by Meltzer and Richards (1981) in their model to predict the size of government. The greater the ratio, the higher the taxes and redistribution.

9 For details, see Shorrocks and Foster (1987). See also Zheng (2018), who presents additional criteria for making comparisons when Lorenz curves cross.

10 The complete set of measures reported in international databases and their properties can be found in supplemental material for this spotlight available at http://hdr.undp.org/en/2019-report.

Spotlight 3.3

Measuring fiscal redistribution: concepts and definitions

A number of databases publish indicators of the extent of income redistribution due to taxes and transfers. For example, they publish prefiscal and postfiscal Gini coefficients and other indicators of inequality and poverty. In alphabetical order, the multicountry and multiregional databases most frequently used are the Commitment to Equity Institute's (CEQ) Data Center on Fiscal Redistribution (Tulane University), the Organisation for Economic Co-operation and Development's (OECD) Income Distribution Database, the LIS Cross-National Data Center in Luxembourg and the World Inequality Database (Paris School of Economics). In addition, there are two regional databases: EUROMOD (Institute for Social and Economic Research, University of Essex), a tax-benefit microsimulation model for the European Union, and the OECD–Eurostat Expert Group on Disparities in a National Accounts Framework (EGDNA).[1]

One feature these databases have in common is that they rely on fiscal incidence analysis, the method used to allocate taxes and public spending to households so that incomes before taxes and transfers can be compared with incomes after them. Standard fiscal incidence analysis just looks at what is paid and what is received without assessing the behavioural responses that taxes and public spending may trigger for individuals or households. This is often referred to as the "accounting approach."[2]

The building block of fiscal incidence analysis is the construction of income concepts. That is, starting from a prefiscal income concept, each new income concept is constructed by subtracting taxes and adding the relevant components of public spending to the previous income concept. While this approach is broadly the same across all five databases mentioned, the definition of the specific income concepts, the income concepts included in the analysis and the methods to allocate taxes and public spending differ. This spotlight focuses on comparing the definition of income concepts—that is, on the types of incomes, taxes and public spending included in the construction of the prefiscal and postfiscal income concepts. There are important differences, and some can have significant implications for the scale of redistribution observed.

The following table compares the definitions of income used by the six databases mentioned above.

There are five important differences:

- While all six databases start out with similar definitions of factor income, the additional components included in prefiscal income differs. This is important because the prefiscal income is what each database uses to rank individuals prior to adding transfers and subtracting taxes and will thus affect the ensuing redistribution results (see point on the treatment of pensions below). For example, EUROMOD does not include the value of consumption of own production as part of prefiscal income, while the rest of the databases do. EUROMOD, the Income Distribution and LIS do not include the (imputed) value of owner-occupied housing, while the other three do. There is also a fundamental difference in the treatment of contributory pensions (see the next paragraph). Finally, the World Inequality Database also includes undistributed profits in its definition of prefiscal income.
- Second, EGDNA, EUROMOD, the Income Distribution Database and the LIS treat old-age pensions from social security as pure transfers, while the World Inequality Database treats them (together with unemployment benefits) as pure deferred income. The CEQ Data Center on Fiscal Redistribution presents results for both scenarios. This assumption can make a significant difference in countries with a high proportion of retirees whose main or sole income stems from old-age pensions. For example, in the European Union the redistributive effect with contributory pensions as pure transfers is 19.0 Gini points while it is 7.7 Gini points when old-age pensions are treated as pure deferred income.[3] In the United States the values are 11.2 for pure transfers and 7.2 for pure deferred income.[4]

- Third, EUROMOD, the Income Distribution Database and the LIS present information on fiscal redistribution for direct taxes and direct transfers while the CEQ Data Center on Fiscal Redistribution also includes the impact of indirect taxes and subsidies and transfers in kind, and the World Inequality Database includes all government revenues and spending. EGDNA does not include indirect taxes and subsidies but includes transfers in kind (education, health and housing).
- Fourth, in the published information on preconstructed variables, the CEQ Data Center on Fiscal Redistribution reports indicators based on income per capita, EGDNA, EUROMOD, the Income Distribution Database and LIS report them based on equivalized income[5] and the World Inequality Database reports them based on income per adult.[6]
- Fifth, all but EGDNA and the World Inequality Database report incomes as they appear in the microdata, while EGDNA and the World Inequality Database adjusts all variables to match administrative totals in tax records and national accounts.

Source: Lustig forthcoming.

Notes

The author is very grateful to Carlotta Balestra (EGDNA), Maynor Cabrera (CEQ), Lucas Chancel (World Inequality Database, Paris School of Economics), Michael Forster and Maxime Ladaique (OECD Income Distribution Database), Teresa Munzi (Luxembourg Income Study), Daria Popova (EUROMOD, University of Essex) and Jorrit Zwijnenburg (EGDNA) for their inputs to the table on the comparison of income concepts.

1 Details on the methodologies applied by each database can be found in the following: CEQ Data Center on Fiscal Redistribution: Lustig 2018a, chapters 1, 6 and 8; EGDNA: Zwijnenburg, Bournot and Giovannelli 2017; EUROMOD: Sutherland and Figari 2013; OECD Income Distribution Database: OECD 2017b; LIS: forthcoming DART methodology document; World Inequality Database: Alvaredo and others 2016.

2 For an in-depth discussion of the fiscal incidence methodology, see, for example, Lustig (2018a).

3 The data for EU 28 are from EUROMOD statistics on distribution and decomposition of disposable income, accessed at www.iser.essex.ac.uk/euromod/statistics/ using EUROMOD version G3.0. The difference is probably an overestimation because in many cases one cannot distinguish between contributory and social pensions.

4 See chapter 10 in Lustig (2018a).

5 Equivalized income is equal to household income divided by square root of household members excluding domestic servants.

6 An adult is defined by the World Inequality Database as an individual older than 20 years of age.

TABLE S3.3.1

Comparison of income concepts in databases with fiscal redistribution indicators

Income concept	CEQ		EGDNA	EUROMOD	IDD	LIS	WID.World
Prefiscal	Market income plus pensions	Market income	Primary income	Market income	Market income	Market income	Pretax income
	Factor income	Factor income	Factor income	Factor income	Factor income	Factor income	Factor income
							PLUS Undistributed profits
	PLUS Old-age pensions from social security schemes						PLUS Old-age pensions and unemployment benefits from social security schemes
	PLUS Transfers received from nonprofit institutions and other households, payments from employment-related pension schemes, imputed value of owner-occupied housing services and consumption of own production	PLUS Transfers received from nonprofit institutions and other households, imputed value of owner-occupied housing services and consumption of own production	PLUS Imputed value of owner-occupied housing services and consumption of own production	PLUS Transfers received from nonprofit institutions and other households	PLUS Transfers received from nonprofit institutions and other households and consumption of own production	PLUS Transfers received from nonprofit institutions and other households and consumption of own production	PLUS Transfers received from nonprofit institutions and other households, payments from employment-related pension schemes, imputed value of owner-occupied housing services and consumption of own production
	MINUS Contributions to old-age pensions in social security schemes						MINUS Contributions to old-age pensions and unemployment in social security schemes

(continued)

TABLE S3.3.1 (CONTINUED)

Comparison of income concepts in databases with fiscal redistribution indicators

Income concept	CEQ		EGDNA	EUROMOD	IDD	LIS	WID.World
Postfiscal: disposable	Disposable income	Disposable income	Disposable income	Disposable income	Disposable income	Disposable income	Post-tax disposable income
	Market income	Market income	Primary income	Market income	Market income	Market income	Market income
	PLUS Other cash benefits (excluding old-age pensions) from social security and social assistance benefits	PLUS Old-age pensions and other cash benefits received from social security systems and social assistance benefits	PLUS Old-age pensions and other cash benefits received from social security systems, social assistance benefits and transfers received from (paid to) nonprofit institutions and other households	PLUS Old-age pensions and other cash benefits received from social security systems and social assistance benefits	PLUS Old-age pensions and other cash benefits received from social security systems and social assistance benefits	PLUS Old-age pensions and other cash benefits received from social security systems and social assistance benefits	PLUS Other cash benefits (excluding old-age pensions and unemployment benefits) from public social insurance and social assistance benefits
	MINUS Contributions to other (excluding old-age pensions) social security schemes	MINUS Contributions to old-age pensions, unemployment and other benefits in social security schemes	MINUS Contributions to old-age pensions, unemployment and other benefits in social security schemes	MINUS Contributions to old-age pensions, unemployment and other benefits in social security schemes	MINUS Contributions to old-age pensions, unemployment and other benefits in social security schemes	MINUS Contributions to old-age pensions, unemployment and other benefits in social security schemes	MINUS Contributions to other (excluding old-age pensions and unemployment) in social security schemes schemes
	MINUS Direct personal income and property taxes	MINUS Direct personal income taxes	MINUS Direct personal income taxes	MINUS Direct personal income taxes	MINUS Direct personal income taxes	MINUS Direct personal income taxes	MINUS Direct personal income and property taxes
Postfiscal: consumable	Consumable income	Consumable income	na	na	na	na	na
	Disposable income	Disposable income					
	PLUS Indirect consumption subsidies	PLUS Indirect consumption subsidies					
	MINUS Indirect consumption taxes (value added, excise, sales and the like)	MINUS Indirect consumption taxes (value added, excise, sales and the like)					

(continued)

TABLE S3.3.1 (CONTINUED)

Comparison of income concepts in databases with fiscal redistribution indicators

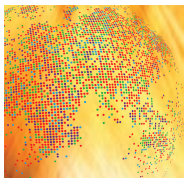
Income concept	CEQ		EGDNA	EUROMOD	IDD	LIS	WID.World
Postfiscal: including transfers in kind	Final income	Final income	Adjusted disposable income	na	na	na	Post-tax national income
	Consumable income	Consumable income	Disposable income				Post-tax disposable income
	PLUS Public spending on education and public spending on health	PLUS Public spending on education, health and housing	PLUS Public spending on education, health and housing				PLUS Indirect consumption subsidies
							MINUS Indirect consumption taxes (value added, excise, sales and the like) and other taxes.
							PLUS Public spending on education, health, defense, infrastructure and other public spending
Memo items							
Contributory pensions	Deferred income	Government transfer	Government transfer	Government transfer	Government transfer	Government transfer	Deferred income
Welfare indicator[a]	Income	Income	Income	Income	Income	Income	Income
Total values	As implied by microdata	As implied by microdata	Match national accounts	As implied by microdata	As implied by microdata	As implied by microdata	Match national accounts
Unit	Per capita	Per capita	Equivalized[b]	Equivalized[b]	Equivalized[b]	Equivalized[b]	Per adult[c]

na is not applicable. CEQ is the Commitment to Equity Institute Data Center on Fiscal Redistribution. EGDNA is the Organisation for Economic Co-operation and Development (OECD)–Eurostat Expert Group on Disparities in a National Accounts Framework. IDD is the OECD Income Distribution Database. LIS is the LIS Cross-National Data Center. WID.world is the World Inequality Database.
a. When household surveys include only consumption expenditures (no information on income), CEQ Data Center on Fiscal Redistribution assumes that consumption expenditures equal disposable income and constructs the other income concepts as specified above, while the World Inequality Database transforms consumption distributions into income distributions using stylized savings profiles in countries where income data are not available.
b. Equivalized income equals household income divided by the square root of household members (excluding domestic help).
c. An individual is classified as an adult if he or she is older than age 20.
Source: CEQ Data Center on Fiscal Redistribution: Lustig 2018a, chapter 6 (http://commitmentoequity.org/publications-ceq-handbook); OECD–Eurostat Expert Group on Disparities in a National Accounts Framework: www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=STD/DOC(2016)10&docLanguage=En; EUROMOD: www.euromod.ac.uk/publications/euromod-modelling-conventions; https://www.euromod.ac.uk/using-euromod/statistics; LIS: forthcoming DART methodological document; OECD Income Distribution Database: www.oecd.org/els/soc/IDD-ToR.pdf; World Inequality Database: https://wid.world/document/dinaguidelines-v1/.

Chapter **4**

Gender inequalities beyond averages: Between social norms and power imbalances

4.



Gender inequalities beyond averages: Between social norms and power imbalances

Gender disparities remain among the most persistent forms of inequality across all countries.[1] Given that these disadvantages affect half the world's people, gender inequality is arguably one of the greatest barriers to human development. All too often, women and girls are discriminated against in health, in education, at home and in the labour market—with negative repercussions for their freedoms.

Progress in reducing gender inequality over the 20th century was remarkable in basic achievements in health and education and participation in markets and politics (figure 4.1).[2] Much of this progress was celebrated with the Beijing Platform for Action during the 1995 Fourth World Conference on Women.[3] But as the event's 25th anniversary approaches in 2020, many challenges to equality remain, particularly for enhanced capabilities that alter power relations and enhance agency.

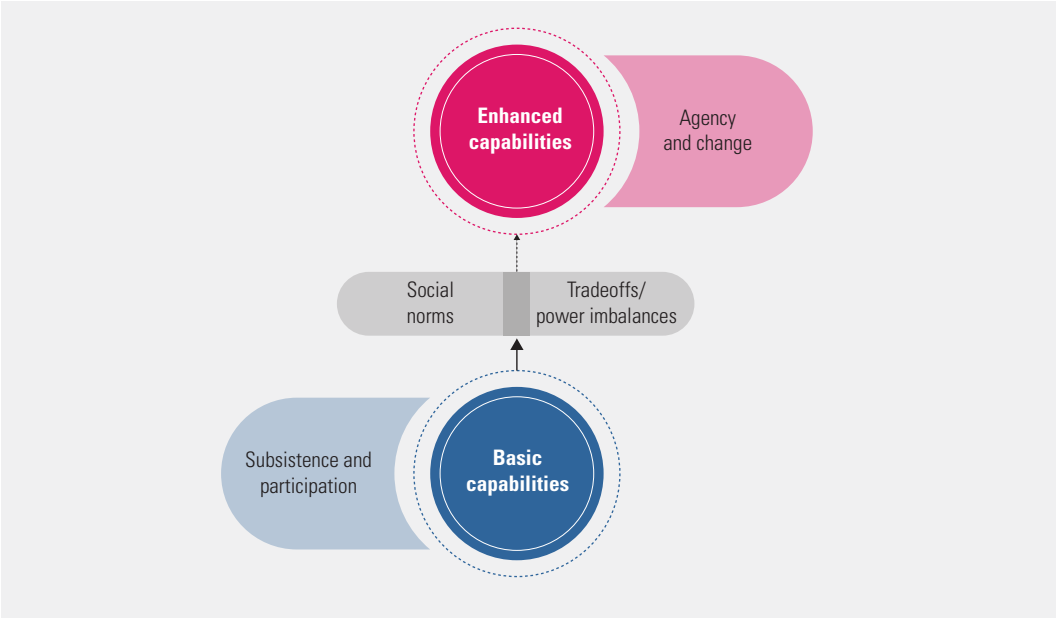
The world is not on track to achieve gender equality by 2030. Based on current trends, it would take 202 years to close the gender gap in economic opportunity.[4] The Human Development Report's Gender Inequality Index—a measure of women's empowerment in health, education and economic status—shows that overall progress in gender inequality has been slowing in recent years.[5]

Consider two developments. First, gender gaps are deeper than originally thought. *Time* magazine's 2017 Person of the Year was "the silence breakers," women who denounced abuse. Accomplished women were unprotected against persistent sexual abuse. The silence breakers were also given voice by the #MeToo movement, which uncovered abuse and vulnerability for women, well beyond what is covered in official statistics. In Latin America,

The world is not on track to achieve gender equality by 2030

FIGURE 4.1

Remarkable progress in basic capabilities, much less in enhanced capabilities



Source: Human Development Report Office.

too, the #NiUnaMenos movement has shed light on femicides and violence against women from Argentina to Mexico.[6]

Second, there are troubling signs of difficulties and reversals on the path towards gender equality—for female heads of state and government and for women's participation in the labour market, even where there is a buoyant economy and gender parity in access to education.[7] And there are signs of a backlash. In several countries the gender equality agenda is being portrayed as part of "gender ideology."[8]

In other words, precisely when awareness is increasing more needs to be done to achieve gender equality, the path becomes steeper. This chapter explores why progress is slowing, identifying today's active barriers that pose challenges for future prospects for equality, which include personal and public beliefs as well as practices that generate biases against gender equality. It stresses that gender inequality reflects intrinsic imbalances in power—something well known to women's movements and feminist experts—and documents two trends:

- Gender inequalities are intense, widespread and behind the unequal distribution of human development progress across levels of socioeconomic development.
- Gender inequality tends to be more intense in areas of greater individual empowerment and social power. This implies that progress is easier for more basic capabilities and harder for more enhanced capabilities (chapter 1).

The first trend indicates the urgency in addressing gender inequality to promote basic human rights and development. The second raises a red flag about future progress. Progress at the basics is necessary for gender equality, but it is not enough.

Social norms and gender-specific tradeoffs are key barriers to gender equality. Social and cultural norms often foster behaviours that perpetuate inequalities, while power concentrations create imbalances and lead to capture by powerful groups such as dominant, patriarchal elites. Both affect all forms of gender inequality, from violence against women to the glass ceiling in business and politics. In addition, gender-specific tradeoffs burden the complex choices women encounter in work, family and social life—resulting in cumulative structural barriers to equality. The tradeoffs are influenced strongly by social norms and by a structure of mutually reinforcing gender gaps. These norms and gaps are not directly observable, so they are often overlooked and not systematically studied.

Gender inequality in the 21st century

Gender inequality is intrinsically linked to human development, and it exhibits the same dynamics of convergence in basic capabilities and divergence in enhanced capabilities. Overall, it is still the case—as Martha Nussbaum has pointed out—that "women in much of the world lack support for fundamental functions of a human life."[9] This is evident in the Gender Inequality Index and its components—reflecting gaps in reproductive health, empowerment and the labour market. No place in the world has gender equality. In Sub-Saharan Africa 1 in every 180 women giving birth dies (more than 20 times the rate in developed countries), and adult women are less educated, have less access to labour markets than men in most regions and lack access to political power (table 4.1).

Gender inequality as a human development shortfall

Gender inequality is correlated with a loss in human development due to inequality

Gender inequality is correlated with a loss in human development due to inequality (figure 4.2). No country has reached low inequality in human development without restricting the loss coming from gender inequality. Investing in women's equality and lifting both their living standards and their empowerment are central to the human development agenda. "Human development, if not engendered, is endangered," concluded the pioneer 1995 Human Development Report, based on similar evidence.[10]

Today looks different from 1995. The 1995 Human Development Report noted sizeable gender disparities, larger than today's, but documented substantial progress over the preceding two decades, particularly in education and health, where the prospect of equality was visible. The conclusion: "These impressions are cause for hope, not pessimism, for the future."[11]

TABLE 4.1

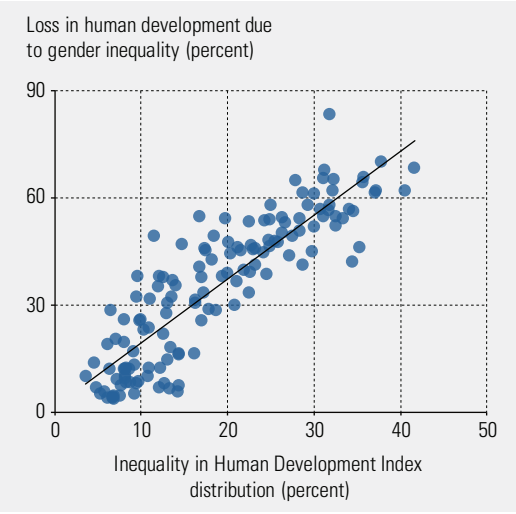
Gender Inequality Index: Regional dashboard

Region	Gender Inequality Index	Maternal mortality ratio (deaths per 100,000 live births)	Adolescent birth rate (births per 1,000 women ages 15–19)	Share of seats in parliament (% held by women)	Population with at least some secondary education (% ages 25 and older)		Labour force participation rate (% ages 15 and older)	
					Female	Male	Female	Male
	2018	2015	2015–2020	2018	2010–2018	2010–2018	2018	2018
Arab States	0.531	148.2	46.6	18.3	45.9	54.9	20.4	73.8
East Asia and the Pacific	0.310	61.7	22.0	20.3	68.8	76.2	59.7	77.0
Europe and Central Asia	0.276	24.8	27.8	21.2	78.1	85.8	45.2	70.1
Latin America and the Caribbean	0.383	67.6	63.2	31.0	59.7	59.3	51.8	77.2
South Asia	0.510	175.7	26.1	17.1	39.9	60.8	25.9	78.8
Sub-Saharan Africa	0.573	550.2	104.7	23.5	28.8	39.8	63.5	72.9

Source: Human Development Report Office (see *Statistical table 5*)

FIGURE 4.2

Gender inequality is correlated with a loss in human development due to inequality



Note: Countries mapped by their Gender Inequality Index performance relative to their performance on the Inequality-adjusted Human Development Index. The higher the loss due to gender inequality, the greater the inequality in human development.
Source: Human Development Report Office.

Today, the prospects are different. The past two decades have seen remarkable progress in education, almost reaching parity in average primary enrolment, and in health, reducing the global maternal mortality ratio by 45 percent since 2000.[12] But gains in other dimensions of women's empowerment have not been as intense, and progress towards gender equality is slowing (figure 4.3). The space for gains based on current strategies may be eroding, and unless the active barriers posed by biased beliefs and practices that sustain persistent gender inequalities are addressed, progress towards equality will be far harder in the foreseeable future.

Gender inequality and empowerment: Catching up in the basics, widening gaps in enhanced capabilities

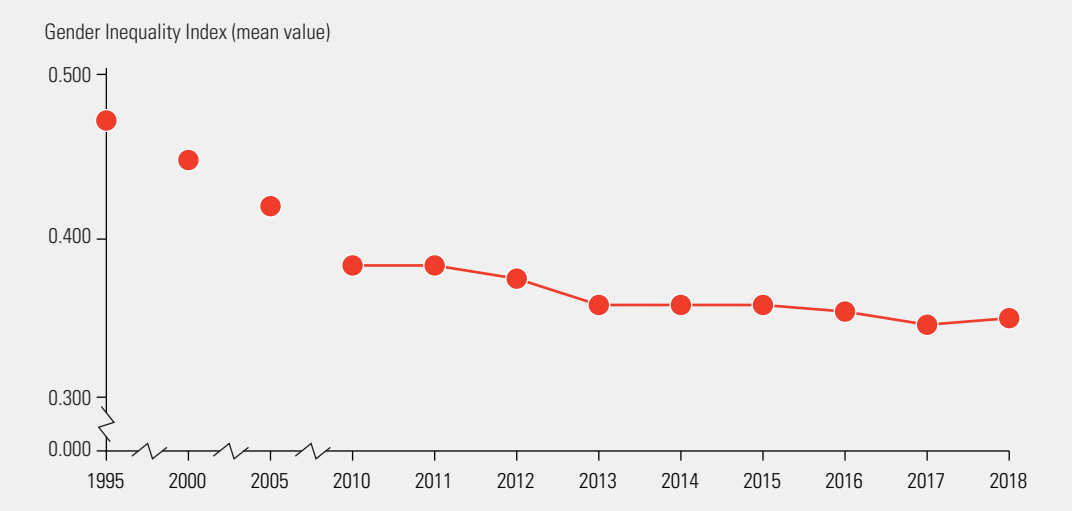
Accumulating capabilities requires achievements of different natures. As chapter 1 discussed, progress in human development is linked to expanding substantive freedoms, capabilities and functionings from basic to more enhanced. Progress towards equality tends to be faster for basic capabilities and harder for enhanced capabilities. Gender equality–related capabilities follow a similar pattern.

On the positive side women are catching up in basic areas of development. Legal barriers to gender equality have been removed in most countries: Women can vote and be elected, they have access to education, and they can participate in the economy without formal restrictions. But progress has been uneven as women pull away from basic areas into enhanced ones, where gaps tend to be wider.

On the positive side women are catching up in basic areas of development. But progress has been uneven as women pull away from basic areas into enhanced ones, where gaps tend to be wider

FIGURE 4.3

Progress towards gender equality is slowing



Source: Human Development Report Office (see *Statistical table 5*).

Women make greater and faster progress where their individual empowerment or social power is lower (basic capabilities). But they face a glass ceiling where they have greater responsibility, political leadership and social payoffs in markets, social life and politics (enhanced capabilities)

These patterns can be interpreted as reflecting the distribution of individual empowerment and social power: Women make greater and faster progress where their individual empowerment or social power is lower (basic capabilities). But they face a glass ceiling where they have greater responsibility, political leadership and social payoffs in markets, social life and politics (enhanced capabilities) (figure 4.4). This view of gradients in empowerment is closely linked to the seminal literature on basic and strategic needs coming from gender planning (box 4.1).

Take access to political participation (see figure 4.4, left panel). Women and men vote in elections at similar rates. So there is parity in entry-level political participation, where power is very diffused. But when more concentrated political power is at stake, women appear severely under-represented. The higher the power and responsibility, the wider the gender gap—and for heads of state and government it is almost 90 percent.

Similar gradients occur even for women who reach higher power. Only 24 percent of national parliamentarians were women in 2019,[13] and their portfolios were unevenly distributed. Women most commonly held portfolios in environment, natural resources and energy, followed by social sectors, such as social affairs, education and family. Fewer women had portfolios in affairs such as transport, economics or finance. Certain disciplines are typically associated with feminine or masculine characteristics, as also happens in education and the labour market.

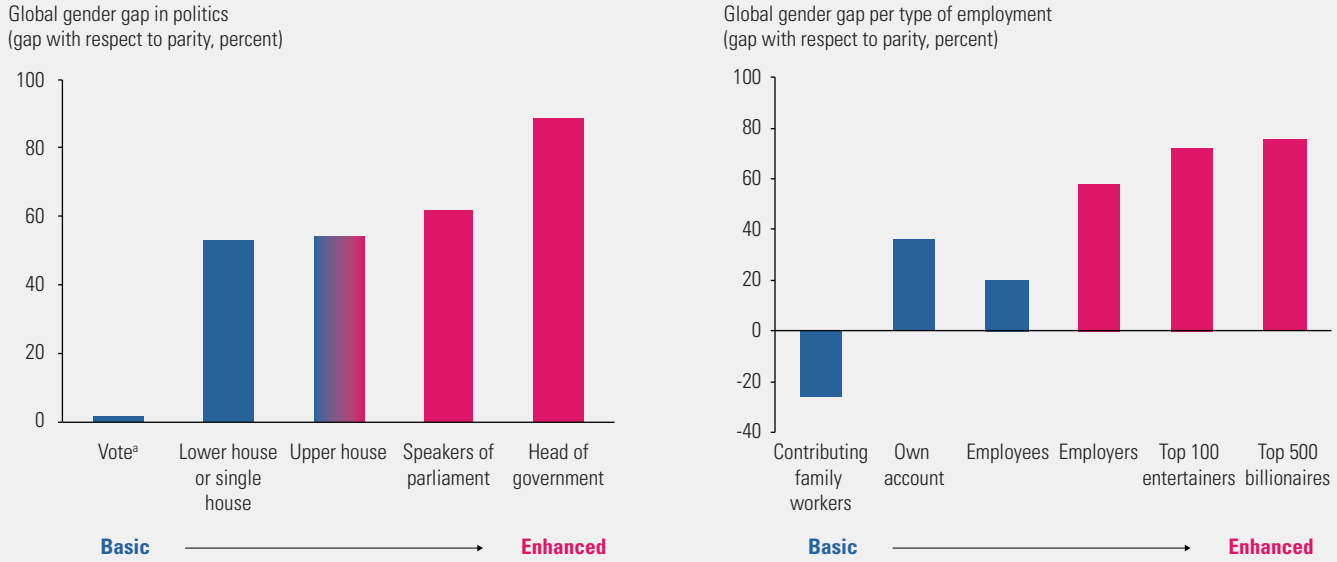
Economic participation also shows a gradient (see figure 4.4, right panel). When empowerment is basic and precarious, women are over-represented, as for contributing family workers (typically not receiving monetary payment). Then, as economic power increases from employee to employer, and from employer to top entertainer and billionaire, the gender gap widens.

Empowerment gradients appear even for a uniform set of companies, as with the gender leadership gap in S&P 500 companies. Although women's overall employment by these companies might be close to parity, women are under-represented in more senior positions.

In developing countries most women who receive pay for work are in the informal sector. Countries with high female informal work rates include Uganda, Paraguay, Mexico and Colombia (figure 4.5), where more than 50 percent of women are protected by minimal regulations; have few or no benefits; lack voice, social security and decent work conditions; and are vulnerable to low salaries and possible job loss.

FIGURE 4.4

The greater the empowerment, the wider the gender gap



a. Assumes an equal proportion of men and women in the voting population.
Source: Human Development Report Office calculations based on data from the World Values Survey, the Inter-Parliamentary Union, ILO (2019b) and *Forbes* (2019).

BOX 4.1

Practical and strategic gender interests and needs

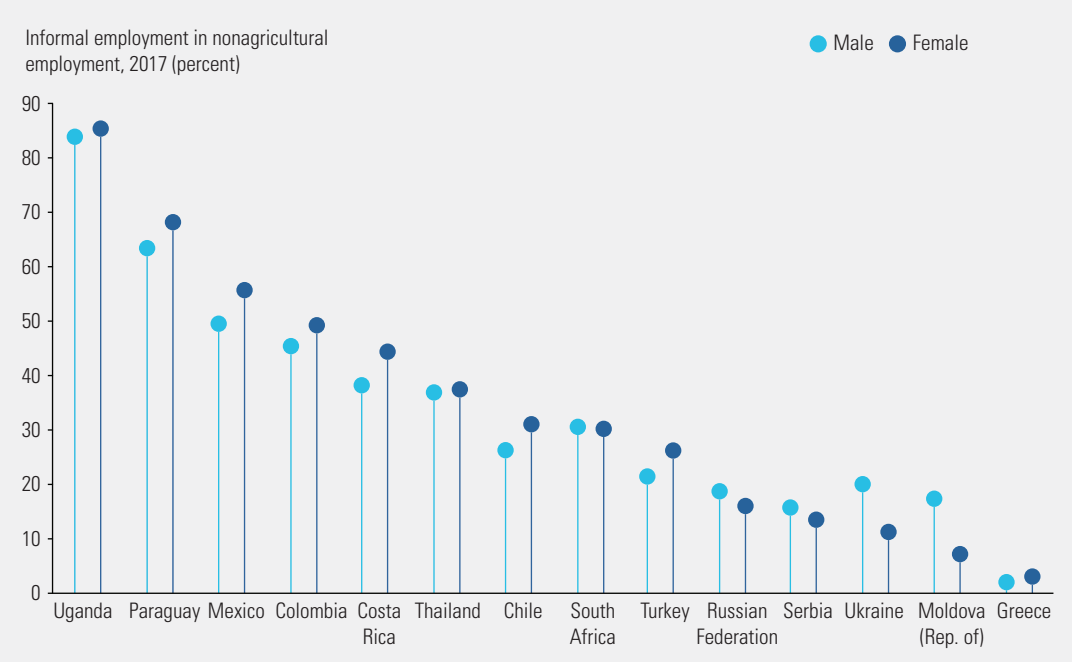
The notion of practical and strategic gender interests and needs (pioneered by Caroline Moser),[1] which informs much of the gender policy analysis framework, is connected to the conception of basic and enhanced capabilities and achievements in this Report. As articulated in gender social policy analyses,[2] practical gender needs refer to the needs of women and men to make everyday life easier, such as access to water, better transportation, child care facilities and so on. Addressing these will not directly challenge gender power relations but may remove important obstacles to women's economic empowerment. Strategic gender needs refer to needs for society to shift in gender roles and relations, such as a law condemning gender-based violence, equal access to credit, equal inheritance and others. Addressing these should alter gender power relations. Sometimes practical and strategic needs coincide—for example, the practical need for child care coincides with the strategic need to get a job outside the home.[3] The difference is comparable to that between basic and enhanced capabilities discussed in this Report. Transformative changes that can bring about normative and structural shifts are the strongest predictors of practical and strategic interventions expanding women's agency and empowerment for gender equality.

Notes
1. Molyneux 1985; Moser 1989. 2. Moser 1989. 3. SIDA 2015.

Today, women are the most qualified in history, and newer generations of women have reached parity in enrolment in primary education.[14] But it now seems that this is not enough for achieving parity in adulthood. The transition from the education system to the world of paid work is marked by a gender equality discontinuity, associated with women's reproductive roles (see *Dashboard 2* in the statistical annex), revealing one of the moving targets discussed in chapter 1. Some represent a natural part of the process of development—the constant need to push new boundaries to achieve more. Others represent the response of deeply rooted social norms to preserve the underlying structure of power.

FIGURE 4.5

The percentage of informal employment in nonagricultural employment in developing countries is generally higher for women than for men



Source: ILO 2019b.

Are social norms and power imbalances shifting?

Gender inequality has long been associated with persistent discriminatory social norms prescribing social roles and power relations between men and women in society

Gender inequality has long been associated with persistent discriminatory social norms prescribing social roles and power relations between men and women in society.[15] Social norms held by individuals and their reference groups are values, beliefs, attitudes and practices that assert preferred power dynamics for interactions between individuals and institutions.[16] As broader constructs, norms are operationalized through beliefs, attitudes and practices.[17]

People's expectations of individuals' roles in households, communities, workplaces and societies can determine a group's functioning. Women often face strong conventional societal expectations to be caregivers and homemakers; men similarly are expected to be breadwinners.[18] Embedded in these social norms are longstanding patterns of exclusion from household and community decisionmaking that limit women's opportunities and choices. So, despite convergence on some outcome indicators—such as access to education at all levels and access to health care—women and girls in many countries still cannot reach their full potential.[19]

Beliefs about what others do and what others think a person in some reference group should do, maintained by social approval and disapproval, often guide actions in social settings.[20] So it is useful to measure the beliefs and attitudes that create biases and prejudices towards women's empowerment in society.

Social norms cover several aspects of an individual's identity—gender, age, ethnicity, religion, ability and so on—that are heterogeneous and multidimensional. Discriminatory social norms and stereotypes reinforce gendered identities and determine power relations that constrain women's and men's behaviour in ways that lead to inequality. Norms influence expectations for masculine and feminine behaviour considered socially acceptable or looked down on. So, they directly affect individuals' choices, freedoms and capabilities.

Social norms also reflect regularities among groups of individuals. Rules of behaviour are set according to standards of behaviour or ideals attached to a group's sense of identity.[21] Individuals have multiple social identities and

behave according to identity-related ideals, and they also expect others sharing a common identity to behave according to these ideals. Norms of behaviour related to these ideals affect people's perception of themselves and others, thus engendering a sense of belonging to particular identity groups. The beliefs people hold about appropriate behaviour often determine the range of choices and preferences that they exercise—in that context norms can determine autonomy and freedom, and beliefs about social censure and reproach create barriers for individuals who transgress. For gender roles these beliefs can be particularly important in determining the freedoms and power relations with other identities—compounded when overlapping and intersecting with those of age, race and class hierarchies (box 4.2).

How prevalent are biases from social norms? How are they evolving? How do they affect gender equality? These are difficult questions,

BOX 4.2

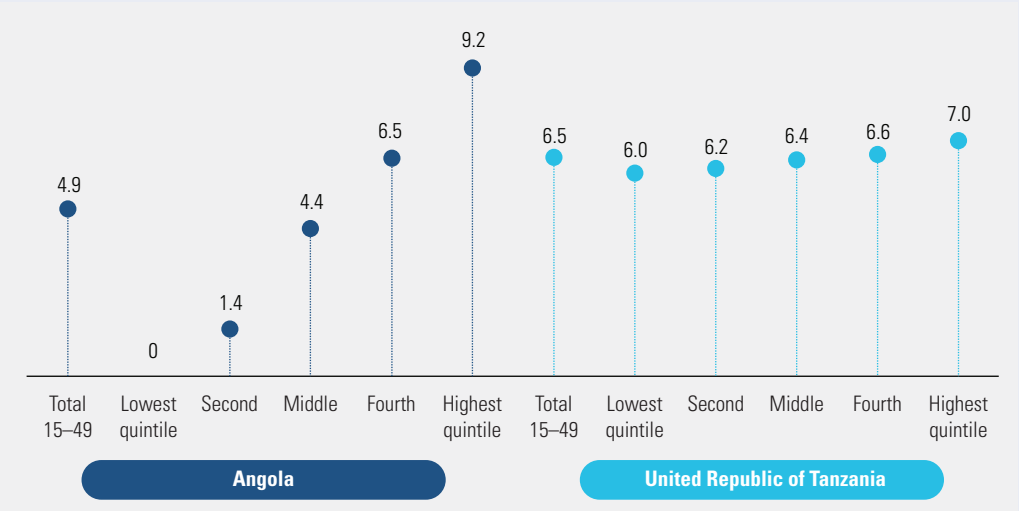
Overlapping and intersecting identities

When gender identities overlap with other identities, they combine and intersect to generate distinct prejudices and discriminatory practices that violate individuals' equal rights in society. Intersectionality is the complex, cumulative way the effects of different forms of discrimination combine, overlap or intersect—and are amplified when put together.[1] A sociological term, intersectionality refers to the interconnected nature of social categories such as race, class, gender, age, ethnicity, ability and residence status, regarded as creating overlapping and interdependent systems of discrimination or disadvantage. It emerges from the literature on civil legal rights. It recognizes that policies can exclude people who face overlapping discrimination unique to them.

Overlapping identities must be considered in research and policy analysis because different social norms and stereotypes of exclusion can be associated with different identities. For instance, regarding median years of education completed in Angola and United Republic of Tanzania, an important gap distinguishes women in the highest wealth quintile from those in the second or lowest quintile (see figure). If the differences are not explicitly considered, public programmes may leave women in the lowest quintiles behind.

Moreover, individuals' different social identities can profoundly influence their beliefs and experiences about gender. People who identify with multiple minority groups, such as racial minority women, can easily be excluded and overlooked by policies. But the invisibility produced by interacting identities can also protect vulnerable individuals by making them less prototypical targets of common forms of bias and exclusion.[2]

How gaps in median years of education distinguish rich from poor in Angola and United Republic of Tanzania, 2015



Note: Lowest quintile refers to the poorest 20 percent; highest quintile refers to the wealthiest 20 percent.
Source: Demographic and Health Surveys.

Overlapping identities must be considered in research and policy analysis because different social norms and stereotypes of exclusion can be associated with different identities

Notes
1. IWDA 2018. 2. Biernat and Sesko 2013; Miller 2016; Purdie-Vaughns and Eibach 2008.

mainly because social norms and attitudes are hard to observe, interpret and measure. But using data from the World Values Survey wave 5 (2005–2009) and wave 6 (2010–2014), a social norms index can be constructed to capture how social beliefs can obstruct gender equality along multiple dimensions (figure 4.6 and box 4.3).

Widespread biases and backlash

The multidimensional gender social norms count index and high-intensity index (see box 4.3) show widespread biases in gender social norms. According to the count index, only 14 percent of women and 10 percent of men worldwide have no gender social norm bias (figure 4.7). Women are skewed towards less bias against gender equality and women's empowerment. Men are concentrated in the middle of the distribution, with 52 percent having two to four gender social norms biases. The high-intensity index shows that more than half the world's people have a high-intensity bias against gender equality and women's empowerment.

Both indices provide evidence of a stagnation or a backlash from 2005–2009 to 2010–2014. The share of both women and men worldwide with no gender social norms bias fell (figure 4.8).

Progress in the share of men with no gender social norms bias was largest in Chile, Australia, the United States and the Netherlands (figure 4.9). At the other extreme, indicating a backlash, the share of men with no bias fell in Sweden, Germany, India and Mexico.

The share of women with no gender social norms bias increased the most in the Netherlands, Chile and Australia. But most countries in the sample showed a backlash, led by Sweden, India, South Africa and Romania (see figure 4.9).

Gender inequality and social norms

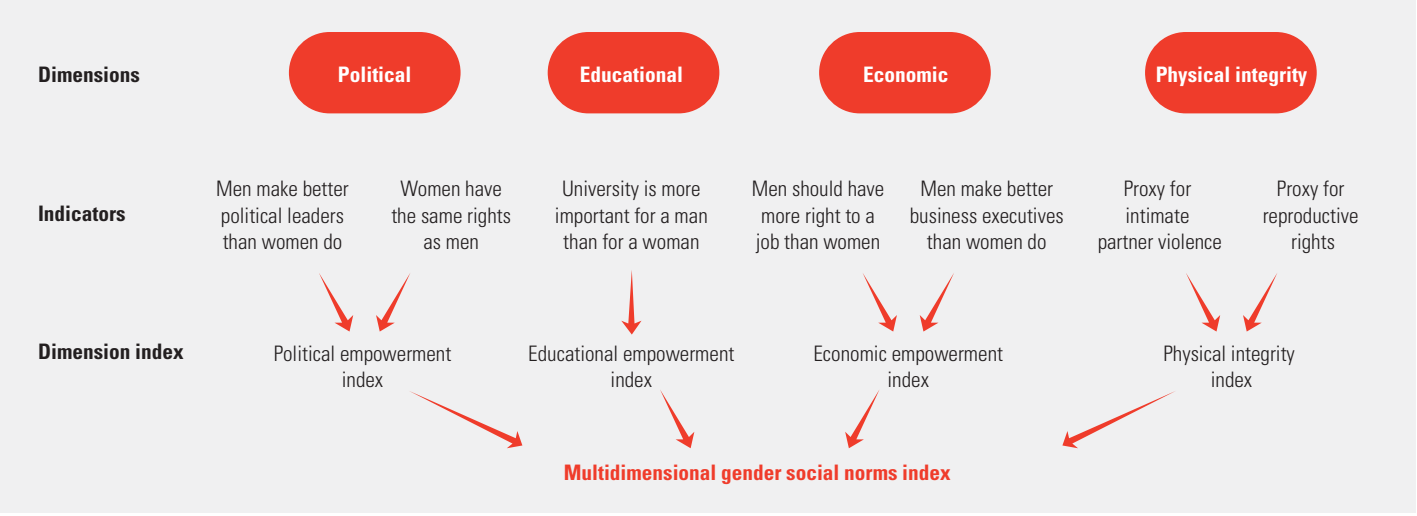
The multidimensional gender social norms indices appear linked to gender inequality, as might be expected. In countries with higher biases (measured through the multidimensional gender social norms indices), overall inequality (measured by the Gender Inequality Index) is higher (figure 4.10). Similarly, the indices are positively related to the Gender Inequality Index in time spent on unpaid domestic chores and care work.

Biases in social norms also show a gradient. The political and economic dimensions of the multidimensional gender social norms index indicate biases for basic women's achievement and against more enhanced women's achievement (figure 4.11). Overall, the biases appear more intense for more enhanced forms of women's participation. The proportion of people favouring men over women for high-level political and economic leadership positions is

The multidimensional gender social norms indices appear linked to gender inequality. In countries with higher biases, overall inequality is higher

FIGURE 4.6

How social beliefs can obstruct gender and women's empowerment



Source: Mukhopadhyay, Rivera and Tapia 2019.

BOX 4.3

The multidimensional gender social norms index—measuring biases, prejudices and beliefs

Research prepared for this Report proposed the multidimensional gender social norms index to capture how social beliefs can obstruct gender equality along multiple dimensions. The index comprises four dimensions—political, educational, economic and physical integrity—and is constructed based on responses to seven questions from the World Values Survey, which are used to create seven indicators (see figure 4.5 in the main text). The answer choices vary by indicator. For indicators for which the answer choices are strongly agree, agree, disagree and strongly disagree, the index defines individuals with a bias as those who answer strongly agree and agree. For the political indicator on women's rights, for which the answer is given on a numerical scale from 1 to 10, the index defines individuals with a bias as those who choose a rating of 7 or lower. For the physical integrity indicators, for which the answer also ranges from 1 to 10, the index defines individuals with a bias using a proxy variable for intimate partner violence and one for reproductive rights.

Aggregation

For each indicator a variable takes the value of 1 when an individual has a bias and 0 when the individual does not. Two methods of aggregation are then used in reporting results on the index.

The first consists of a simple count (equivalent to the union approach), where the indicators are simply summed and therefore have the same weight. This result has a minimum of 0 and a maximum of 7:

The calculation is a simple addition of dichotomic variables, but it complicates the disaggregation and analysis by dimension and indicator.

To address this, the second method follows the Alkire–Foster methodology,[1] which counts the different gender social norm biases that an individual faces at the same time (following the intersection approach). These dimensions are analysed to determine who has a bias on each indicator. This result counts only people with high-intensity bias.

The methods are applied to two sets of countries. The first set consists of countries with data for either wave 5 (2005–2009) or wave 6 (2010–2014) of the World Values Survey and uses the latest data available. This set includes 77 countries and territories accounting for 81 percent of the world population. The second set consists of only countries with data for both wave 5 and wave 6. This set includes 32 countries and territories accounting for 59 percent of the world population.

Definition of bias for the indicators of the multidimensional gender social norms index

Dimension	Indicator	Choices	Bias definition
Political	Men make better political leaders than women do	Strongly agree, agree, disagree, strongly disagree	Strongly agree and agree
	Women have the same rights as men	1, not essential, to 10, essential	Intermediate form: 1–7
Educational	University is more important for a man than for a woman	Strongly agree, agree, disagree, strongly disagree	Strongly agree and agree
Economic	Men should have more right to a job than women	Agree, neither, disagree	Strongly agree and agree
	Men make better business executives than women do	Strongly agree, agree, disagree, strongly disagree	Agree
Physical integrity	Proxy for intimate partner violence	1, never, to 10, always	Strongest form: 2–10
	Proxy for reproductive rights	1, never, to 10, always	Weakest form: 1

Source: Mukhopadhyay, Rivera and Tapia 2019.

Note
1. Alkire and Foster 2011.
Source: Mukhopadhyay, Rivera and Tapia 2019.

higher than the proportion of people favouring men over women in access to basic political rights or paid employment.

Several theories linked to social norms could account for these differences. One suggests an inability to discern between confidence and competence. If people misinterpret confidence as a sign of competence, they can mistakenly believe that men are better leaders than women when men are simply more confident. In other words, for leadership the only advantage that men have over women is that manifestations of overconfidence, often masked as charisma or charm, are commonly mistaken for leadership potential and are much more frequent among men than women.[22]

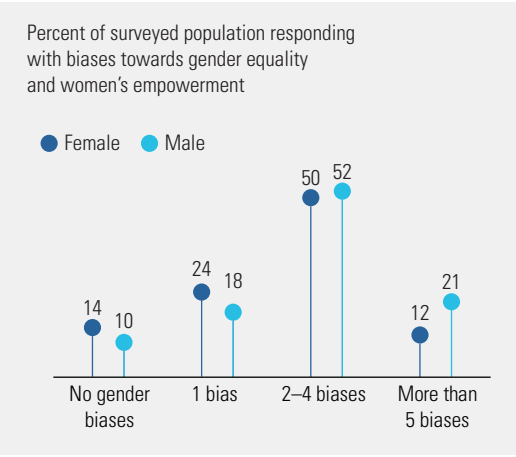
Gradients in biases are likely to affect elections and economic and family decisions, making gender equality more difficult to reach when higher levels of empowerment are at stake.

What causes change—and what determines the nature of change?

How can practices and behaviours either change or sustain traditional gender roles? Norms can change as economies develop, by changes in communications technology, by

FIGURE 4.7

Only 14 percent of women and 10 percent of men worldwide have no gender social norms biases



Note: Balanced panel of 77 countries and territories with data from wave 6 (2010–2014) of the World Values Survey, accounting for 81 percent of the world population.
Source: Mukhopadhyay, Rivera and Tapia (2019), based on data from the World Values Survey.

Norms can change as economies develop, by changes in communications technology, by new laws, policies or programmes, by social and political activism and by exposure to new ideas and practices through formal and informal channels (education, role models and media)

new laws, policies or programmes, by social and political activism and by exposure to new ideas and practices through formal and informal channels (education, role models and media).[23]

Policymakers often focus on the tangible—on laws, policies, spending commitments, public statements and so forth. This is driven partly by the desire to measure impact (and thus prove effectiveness), by frustration with the vagueness of "talking shops" arguing about rights and norms and by sheer impatience with the slow pace of change. Yet neglecting the invisible power of norms would miss a deeper understanding of social change.[24]

Consider the subtle differences between descriptive and injunctive norms.[25] Descriptive norms are beliefs about what is considered a normal practice in a social group or an area. Injunctive norms state what people in a community should do. This distinction is important for practice, as it can lead to an understanding of why some aspects of gender norms and relations shift faster than others.[26]

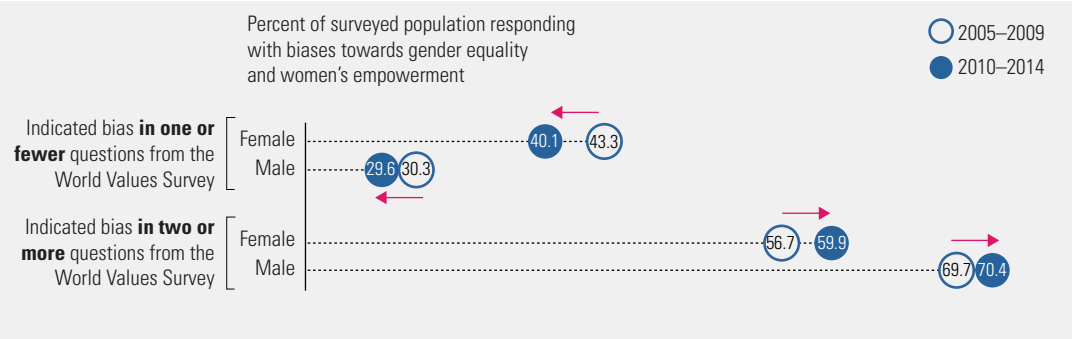
The family sets norms, and experiences from childhood create an unconscious gender bias.[27] Parents' attitudes towards gender influence children through mid-adolescence, and children at school perceive gender roles.[28] Parenting practices and behaviours are thus among the predictors of an individual's gendered behaviours and expectations. For instance, children tend to mimic (in attitudes and actions) how their parents share paid and unpaid work.[29]

Parenting experiences may, however, influence and change adults' social norms and established gender roles. In the "mighty girl effect," fathers raise their awareness of gender disadvantages when they are rearing daughters.[30] Parenting a school-age girl makes it easier for men to put themselves in their daughter's shoes, empathize with girls facing traditional gender norms and embrace nontraditional ones that would not place their daughters at a disadvantage to men in the labour market.[31]

Adolescence is another key stage for gender socialization, particularly for boys.[32] Young

FIGURE 4.8

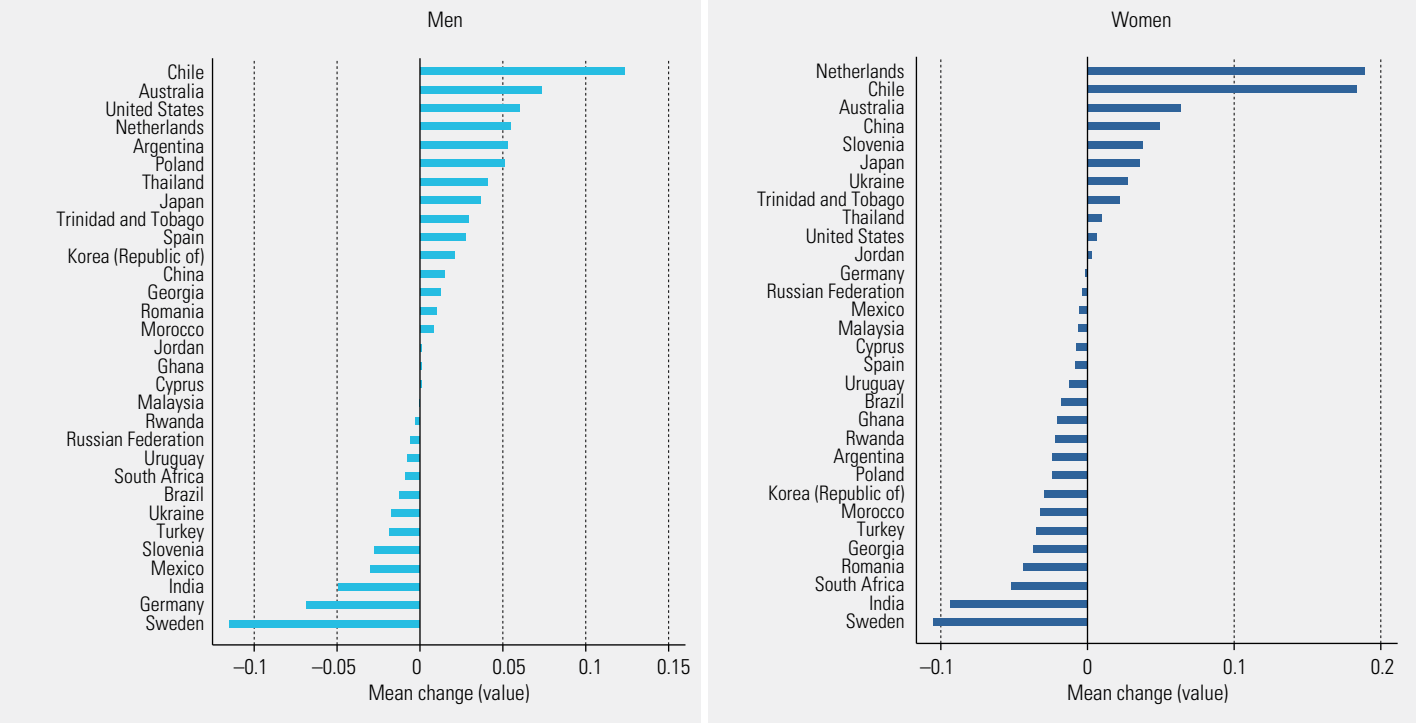
The share of both women and men worldwide with no gender social norms bias fell between 2005–2009 and 2010–2014



Note: Balanced panel of 32 countries and territories with data from both wave 5 (2005–2009) and wave 6 (2010–2014) of the World Values Survey, accounting for 59 percent of the world population.
Source: Mukhopadhyay, Rivera and Tapia (2019), based on data from the World Values Survey.

FIGURE 4.9

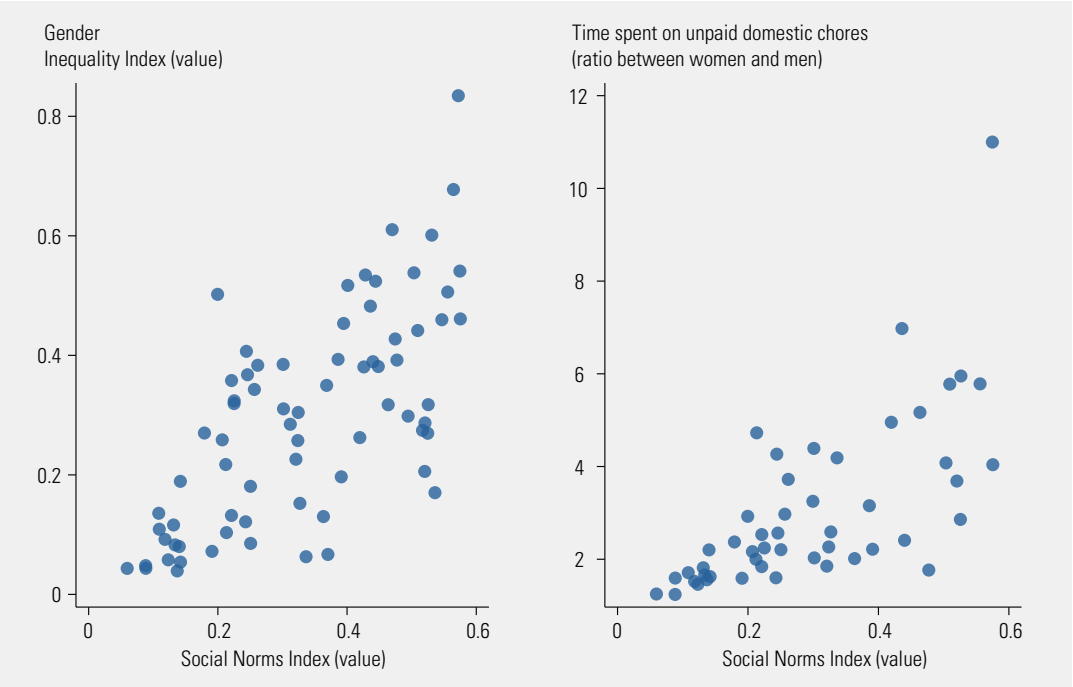
Progress in the share of men with no gender social norm bias from 2005–2009 to 2010–2014 was largest in Chile, Australia, the United States and the Netherlands, while most countries showed a backlash in the share of women with no gender social norms bias



Note: Balanced panel of 32 countries and territories with data from both wave 5 (2005–2009) and wave 6 (2010–2014) of the World Values Survey, accounting for 59 percent of the world population.
Source: Mukhopadhyay, Rivera and Tapia (2019), based on data from the World Values Survey.

FIGURE 4.10

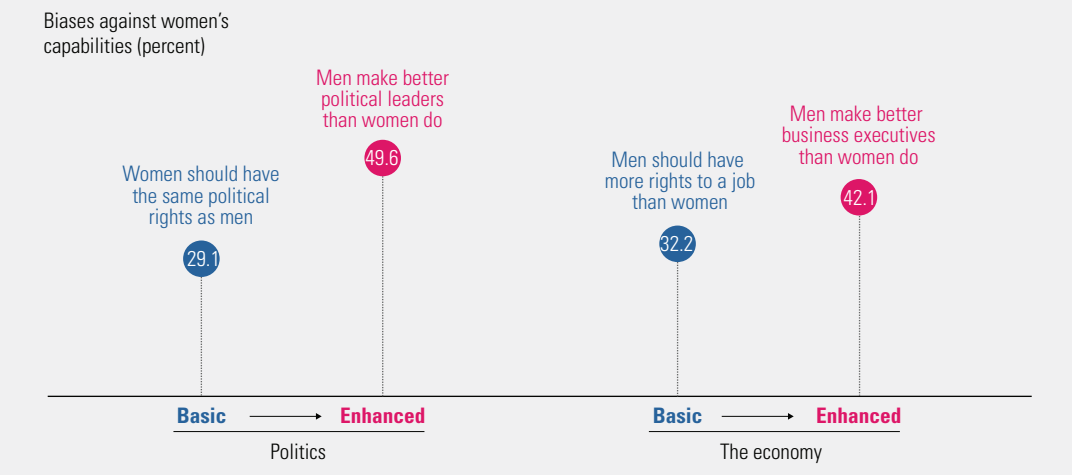
Countries with higher social norms biases tend to have higher gender inequality



Source: Mukhopadhyay, Rivera and Tapia (2019), based on data from the World Values Survey and *Dashboard 2* in the statistical annex.

FIGURE 4.11

Biases in social norms show a gradient



Note: Balanced panel of 77 countries and territories with data from wave 6 (2011–2014) of the World Values Survey, accounting for 81 percent of the world population.
Source: Mukhopadhyay, Rivera and Tapia (2019), based on data from the World Values Survey.

adolescents in different cultural settings commonly endorse norms that perpetuate gender inequalities, and parents and peers are central in shaping such attitudes. Some of the endorsed masculinity norms relate to physical toughness (showing higher tolerance for pain, engaging in fights, competing in sports), autonomy (being financially independent, protecting and providing for families), emotional stoicism (not "acting like girls" or showing vulnerabilities, dealing with problems on their own) and heterosexual prowess (having sex with many girls, exercising control over girls in relationships) (box 4.4).[33]

Social convention refers to how compliance with gender social norms is internalized in individual values reinforced by rewards or sanctions. Rewards use social or psychological approvals, while sanctions can range from exclusion from the community to violence or legal action. Stigma can limit what is considered normal or acceptable and be used to enforce stereotypes and social norms about appropriate behaviours. A social norm will be stickiest when individuals have the most to gain from complying with it and the most to lose from challenging it.[34] Social norms have enough power to keep women from claiming their legal rights due to pressure to conform to societal expectations.[35]

Social norms can also prevail when individuals lack the information or knowledge to act or think differently.[36] Because of intertwined social dynamics,[37] challenging discriminatory norms that impede gender equality and women's empowerment requires acting on more than one factor at a time.

Powerlessness manifests itself as an inability to participate in or influence decisions that profoundly affect one's own life, while more powerful actors make decisions despite neither understanding the situation of the vulnerable nor having their interests at heart

Restricted choices and power imbalances over the lifecycle

Gender inequality within households and communities is characterized by inequality across multiple dimensions, with a vicious cycle of powerlessness, stigmatization, discrimination, exclusion and material deprivation all reinforcing each other. Powerlessness manifests itself in many ways, but at its core is an inability to participate in or influence decisions that profoundly affect one's own life, while more powerful actors make decisions despite neither understanding the situation of the vulnerable nor having their interests at heart. Human development is about expanding substantive freedoms and choices. This section presents evidence of restricted or even tragic choices women face.[38]

Examples of restricted choices can be identified in a lifecycle approach. Some represent blatant limits to basic freedoms and human rights; others represent subtle manifestations of gender biases. The disparities of childhood and adolescence are amplified when women reach

BOX 4.4

The man box

Engaging men and boys is a critical piece of advancing the gender equality agenda. Gender equality implies changing and transforming the way individuals express and experience power in their lives, relationships and communities. Reaching equality, women and men will have the same agency to make choices and participate in society. While women and girls bear the brunt of gender inequalities, men and boys are also affected by traditional conceptions of gender.

Gender is a social construct of attributes or roles associated with being male or female. What it means to be a man or a woman is learned and internalized based on experiences and messages over the course of a lifetime, normalized through social structures, culture and interactions. Though men usually have more agency than the women in their lives, men's decisions and behaviours are also profoundly shaped by rigid social and cultural expectations related to masculinity.

Masculinity is the pattern of social behaviours or practices associated with ideals about how men should behave.[1] Some characteristics of masculinity relate to dominance, toughness and risk-taking, recently referred to as toxic masculinity or the man box, in that traditional behaviours of the gender roles restrict men to act in a certain way that preserves existing power structures. In 2019 Promundo along with Unilever estimated the economic impacts of the man box in Mexico, the United Kingdom and the United States, considering bullying, violence, depression, suicide, binge drinking and traffic accidents as costs of restricting men to masculine behaviours.[2] Two of the most damaging consequences for men are related to their mental health: Men are less likely to seek mental health services than women are, and men are more likely to die by suicide than women are. Besides the ethical and social gains of gender equality, men as individuals can benefit from expressing freely, from having more options in their own experiences and behaviours and from having better and healthier relationships with women and girls.

So challenging rigid gender norms and power dynamics in households and communities and involving men and boys in making these changes are important. Engaging men in preventing gender-based violence, supporting women´s economic empowerment, pursuing change for reproductive health and acting as fathers or caregivers are examples of how men can challenge their notions of masculinity and of their own selves.

Notes
1. Ricardo and MenEngage 2014. 2. Heilman and others 2019.

Challenging rigid gender norms and power dynamics in households and communities and involving men and boys in making these changes are important

adulthood, as exemplified in the differences in labour force participation and the representation of women in decisionmaking positions in business and in politics (see figure 4.4). For unpaid care work, women bear a bigger burden, providing more than three times as much as men.[39] And older women's challenges accumulate through the life course: They are less likely than men to have access to pensions, even though they are expected to live three years longer. Along the way, social norms and path dependence—how outcomes today affect outcomes tomorrow—interact to form a highly complex system of structural gender gaps.

Birth, early childhood and school age

In some cultures traditional social norms can affect girls even before they are born, since some countries deeply prefer bearing sons over daughters. While in the 1990s only some countries had the technology available to determine a baby's gender and only 6 countries had an imbalanced sex ratio at birth, today 21 countries have a skewed ratio. The preference for a son can lead to sex-selective abortions and to a large number of "missing" women, particularly in some South Asian countries.[40] Discrimination continues through how households share resources. Girls and women sometimes eat last and least in the household.[41] The gender politics of food—nurtured by assumptions, norms and practices about women needing fewer calories—can push women into perpetual malnutrition and protein deficiency.

Education opportunities, including access and quality, are affected by both household and community social norms. Gender differences manifest first in girls' families over education as a human right and later over respect for women's agency to decide to study and to choose her preferred field. Social norms can define the level of education a girl can attain or her choice of study. The restriction, control and monitoring of a girl's or woman's behaviour and decisionmaking about her education

or job, or her access to financial resources or their distribution, constitute economic violence against her (see spotlight 4.1 at the end of the chapter). And even when girls are educated as well as boys, other effects of inequality—driven especially by gendered social norms—reduce the likelihood that women will later attain positions of power and participate in decisionmaking.

Worldwide, one in eight age-eligible girls does not attend primary or secondary school. Only 62 of 145 countries have gender parity in primary and secondary education.[42] Despite the progress in enrolment ratios for some countries, large differences persist in learning outcomes and education quality.

Even among children attending school, determinants of occupational choices appear very early. Girls are less likely to study subjects such as science, technology, engineering and mathematics, while boys are a minority of those studying health and education.[43]

Adolescence and early adulthood

Social norms and traditional behaviour generally pose a threat to women's health

Adolescence is when girls' and boys' futures start to diverge; while boys' worlds expand, girls' worlds contract.[44] Every year 12 million girls are victims of forced marriage.[45] Girls forced to get married as a child are victims of a human rights violation and are condemned to live a life with heavily restricted choices and low human development.

Child marriage not only alienates girls from their families and social networks but also increases their risk of becoming victims of domestic violence.[46] It exacerbates overall gender inequality in education and employment by greatly reducing a girl's chances of completing formal schooling and developing skills for employment outside the home.[47] It also leads to early and multiple pregnancies, increasing health risks for both the married girls and their children, since the risks of newborn death and infant mortality and morbidity are higher in children born to women under age 20.[48]

The health effects of early marriage are among the many health risks that are higher for women and girls than for men and boys. One of the most globally widespread cross-cutting forms of horizontal inequality, early marriage presents disproportionate risks to women's and girls' health, reflecting both biological differences and social norms (see box 4.3). And early marriage limits girls' choices.

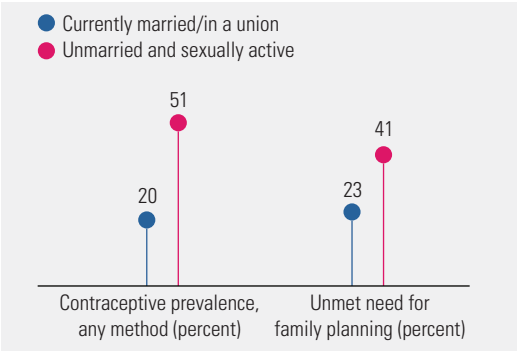
The adolescent birth rate among women ages 15–19 is 104.7 per 1,000 in Sub-Saharan Africa and 63.2 in Latin America and the Caribbean. When a teenage girl becomes pregnant, her health is endangered, her education and job prospects can abruptly end and her vulnerability to poverty and exclusion multiplies.[49] Adolescent pregnancy, often a result of a girl's lack of opportunities and freedom, can reflect a failure among those around her to protect her rights.

Contraception is important in maintaining good sexual and reproductive health.[50] Contraceptive use is higher among unmarried and sexually active adolescents, but so is the unmet need for family planning, especially in Asia and the Pacific and Sub-Saharan Africa (figure 4.12). There is still a stigma in many countries around unmarried women needing family planning services. And in some countries regulations prevent access to these services. Moreover, many women cannot afford to pay for health care.

Social norms and traditional behaviour generally pose a threat to women's reproductive health. Women are more vulnerable to a loss of agency to have a satisfying and safe sex life, the capability to reproduce and the freedom to decide if, when and how often to do so.[51] When men use their power to decide on women's behalf, that limits women's access to resources

FIGURE 4.12

Contraceptive use is higher among unmarried and sexually active adolescent girls, but so is the unmet need for family planning, 2002–2014



Source: UNFPA 2016.

and dictates women's behaviour. More broadly, if women are seen as objects rather than agents in households and communities, this form of horizontal inequality can lead to violence and harassment (see spotlight 4.1 at the end of the chapter), affecting women's mental health.[52]

Adulthood and older age

Globally, women do more unpaid work than men do.[53] However, the global gender income gap is 44 percent (see *Statistical table 4*). Gender differences in paid and unpaid work and the gradients in empowerment combine multiple elements that restrict women's choices. The gaps illustrate the multidimensional effects of gender inequality on occupation choices, income and women's financial independence and resilience to external shocks.

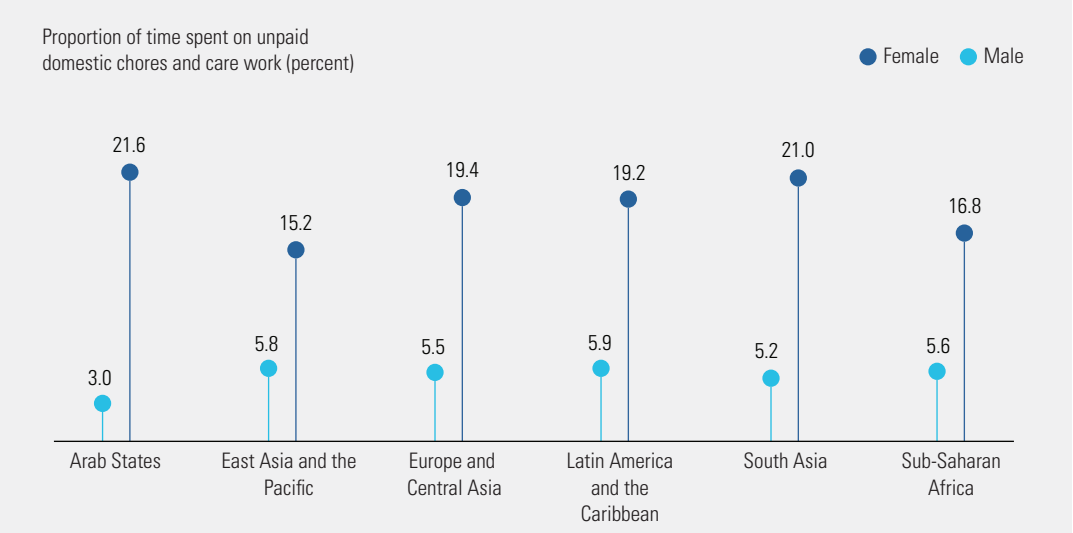
A key constraint on women's decisionmaking is their disadvantages in the amount of unpaid work they do, bearing disproportionate responsibility for housework, caring for family members and performing voluntary community work.[54] On average, women spend about 2.5 times as much time on unpaid care and domestic work as men do.[55] This affects women's labour force participation, lowers economywide productivity and limits their opportunities to spend time in other ways.[56] This sort of gender inequality is linked to levels of income: Higher income regions have a narrower gap in unpaid care work. The regions with the widest gaps are the Arab States, South Asia, Sub-Saharan Africa and Latin America and the Caribbean—the same regions that have the widest gaps for women´s labour force participation (figure 4.13). The struggle to reconcile care work responsibilities with paid work can lead women to occupational downgrading, where they choose employment below their skill level and accept poorer working conditions.[57]

Some constraints faced by women are invisible when gaps are seen in isolation. Statistics typically record achievements (the functionings) but not the full set of choices (the capabilities). This partial view tends to hide the multidimensional biases in choices women face. Take, for instance, a qualified woman who has children and must decide between taking a job and staying home. Workplace inequalities (including pay gaps[58] and the risk of harassment), social norms (pressure to fulfil the role of mother) and imbalances at home (a greater load of domestic unpaid work), among other factors, may deter her from participating in paid work. The woman's choice may bring feelings of guilt or regret. A large proportion of female homemakers feel that by staying home they are giving up a career or economic independence. A large proportion of mothers employed in paid occupations face the stress of

Gender differences in paid and unpaid work and the gradients in empowerment combine multiple elements that restrict women's choices

FIGURE 4.13

The gap in unpaid care work persists in developing economies



Note: Aggregation rule has been relaxed; estimates not published in dashboard.
Source: Human Development Report Office.

feeling that their choice implies suffering for their children (figure 4.14).

Moreover, home-based inequalities exacerbate market-based gender inequality through the motherhood pay gap—a term that can refer to the difference in pay between mothers and childless women, or to that between mothers and fathers, rather than between all working men and women. The motherhood pay gap is usually bigger in developing countries, and in all countries it increases with the number of children a woman has. The combination of low earnings and dependants makes women over-represented among poor people during their reproductive age: Women are 22 percent more likely than men to live in a poor household between the ages of 25 and 34.[59]

Women's financial independence can be dependent on socioeconomic factors such as profession, earnings and income stability or to legal discrimination and gender norms

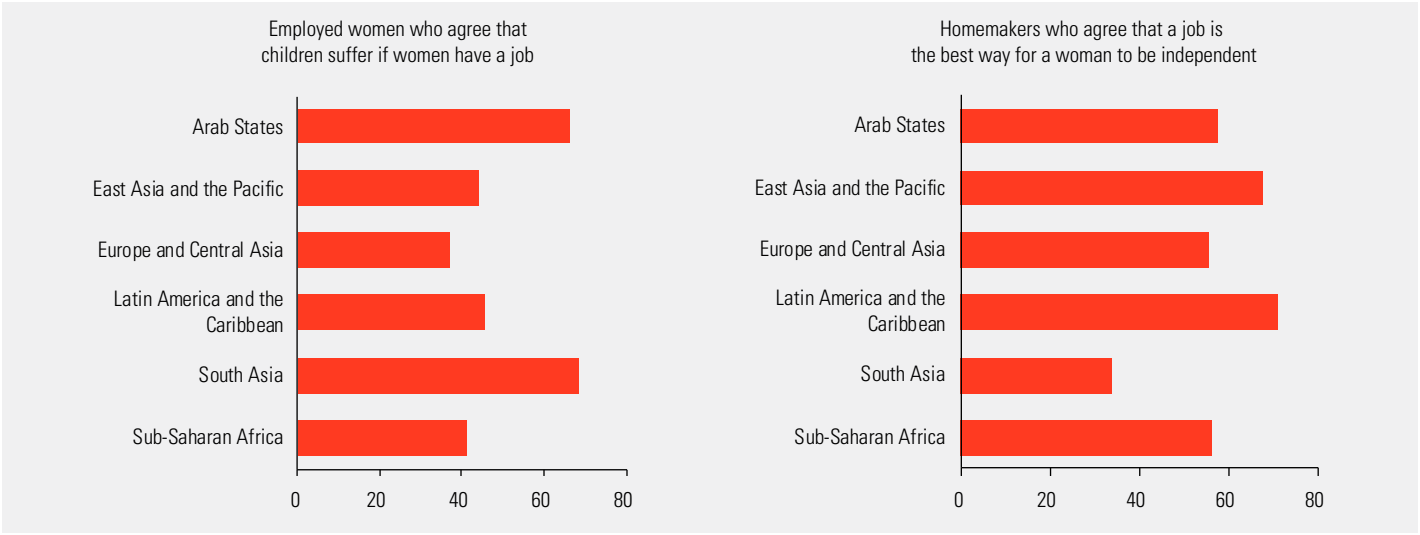
According to the World Bank's 2017 Global Findex, of the 1.7 billion unbanked adults in the world, 56 percent are women, while in developing countries women are 9 percentage points more likely to be unbanked than men.[60] The Arab States and Sub-Saharan Africa have the lowest percentage of women with an account at a financial institution or with a mobile money-service provider, but the percentage is below 80 percent in all developing country regions (figure 4.15). Women's financial independence can be dependent on socioeconomic factors such as profession, earnings and income stability[61] or to legal discrimination and gender norms.[62] Women face restricted resources in areas besides finance, with climate change, in particular, exacerbating existing inequalities in women's livelihoods and reducing their resilience (box 4.5).

As noted, girls and women of reproductive age (15–49 years old) are more likely than boys and men of the same age to live in poor households (figure 4.16). This challenges the "headship definitions" approach to household composition for examining poverty profiles, in which households with a male earner, a non-income earner spouse and children are more likely to have poor women. Children and other dependants can be an important vulnerability factor for women in their reproductive health. For both genders, pooling resources and having more adults working for pay in a household can protect them from falling into poverty, as can education, especially for women.[63]

For most people lifetime working conditions have a great impact on economic conditions and autonomy in older age. For women—over-represented among older people—earlier gender gaps in health, wages, productivity, labour participation, formal versus informal work, remunerated versus nonremunerated work, continuity in the labour market and the ability to own property and save are likely to

FIGURE 4.14

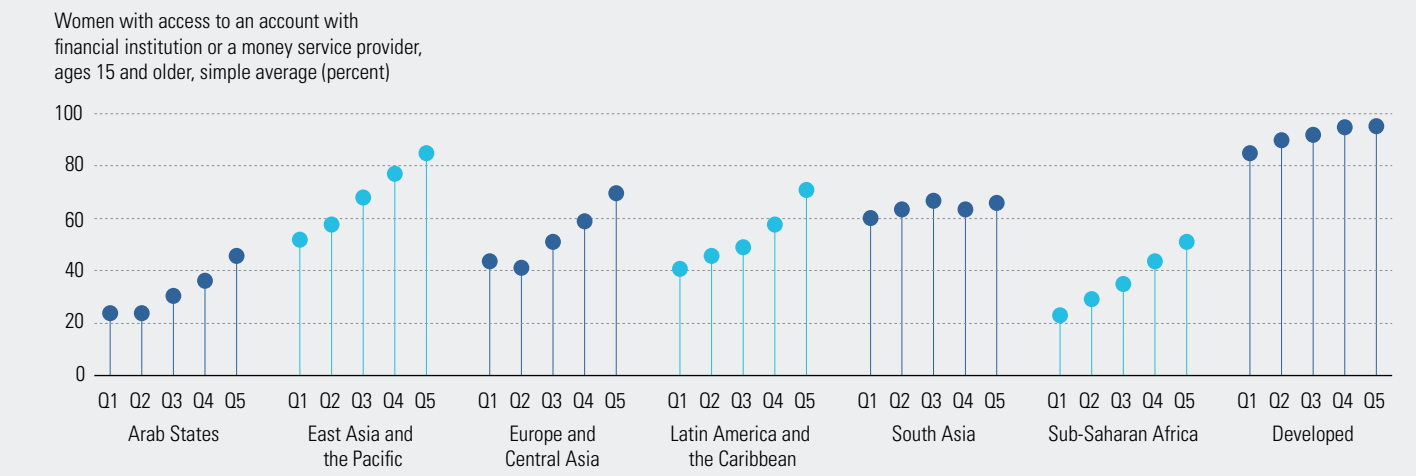
A large proportion of employed women believe that choosing work implies suffering for their children, while a large proportion of female homemakers feel that by staying home they are giving up a career or economic independence, 2010–2014



Source: Human Development Report Office calculations based on data from wave 6 (2010–2014) of the World Values Survey.

FIGURE 4.15

The percentage of women with an account at a financial institution or with a mobile money-service provider is below 80 percent in all developing country regions in 2018



Source: Human Development Report Office based on data from the Global Findex database.

BOX 4.5

Climate change and gender inequality

Women tend to be responsible for procuring and providing food in households and are the primary workers engaged in subsistence agriculture. They make up an average of 43 percent of the agricultural workforce in developing countries.[1]

Even so, they experience inequitable access to land and agricultural inputs,[2] which can affect their productivity in the sector, generating a gap in comparison with men's productivity. In Ethiopia, Malawi, Rwanda, Tanzania and Uganda the gender gap in agricultural productivity ranges from 11 percent to 28 percent.[3] The difference is due to access to credit, ownership of land, use of fertilizers and seeds, and availability of labour. As in many other dimensions, gendered norms and traditions at the household level are behind the inequitable allocations of production factors, thus limiting women's agency, decisionmaking power and participation in the labour market. Furthermore, the gender agricultural gap hinders poverty reduction, inequality reduction and the mitigation of climate change effects and environmental degradation.

Greater female participation in natural resource management, productive agricultural activities and natural disaster responses can enhance the effectiveness and sustainability of policies and projects. Closing the gender gap in agricultural productivity would increase crop production by 7–19 percent in Ethiopia, Malawi, Rwanda, Tanzania and Uganda.[4]

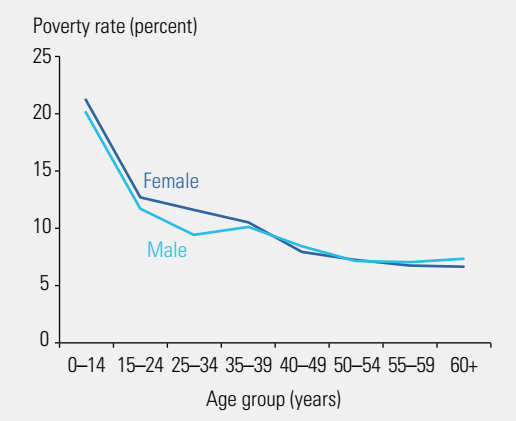
Climate change can affect women's income, education, access to resources, access to technologies and access to information.[5] It is entangled with economic and social consequences for women. Women in developing countries are highly vulnerable when they depend heavily on local natural resources for their livelihood. Yet women are powerful agents of change. As key players in core productive sectors, they are well placed to identify and adopt appropriate strategies to address climate change at the household and community levels.

Greater female participation in natural resource management, productive agricultural activities and natural disaster responses can enhance the effectiveness and sustainability of policies and projects

Notes
1. FAO 2011. 2. UN Women, UNDP and UNEP 2018. 3. UN Women, UNDP and UNEP 2018. 4. UN Women, UNDP and UNEP 2018. 5. Brody, Demetriades and Esplen 2008.

FIGURE 4.16

Girls and women of reproductive age are more likely to live in poor households than boys and men



Source: Munoz Boudet and others 2018.

become later gender gaps in well-being.[64] The gap widens when pension systems are based on contributory schemes, and even more when they take the form of individual accounts.[65] In most developed countries women have equal access to pensions. But in most developing countries with data, there is a women's pension gap (see *Dashboard 2* in the statistical annex).

Empowering girls and women towards gender equality: A template to reduce horizontal inequalities

Expanding opportunities for women and girls; promoting their economic, social and political participation; and improving their access to social protection, employment and natural resources make economies more productive. Such investments reduce poverty and inequality and make societies more peaceful and resilient.[66] All that is well known. Social norms are shifting towards changed gendered roles in society. But while some conventional gender norms evolve in the private and public domains, their effects are also facing a backlash from the conventional power relations between men and women in today's social hierarchies.

The backlash against changing gender roles in households, workplaces and politics affects entire societies influenced by shifting power relations. The resistance to changes in gender expectations may lead to a perceived clash—a conflict, for example, of women's rights with traditional values—or reveal subconscious biases. Still, even norms can be shifted towards gender equality.

The shift can be supported with a proactive stance, generating new regulations and policy interventions that mainstream gender equality and women's empowerment. This has been happening but has not been enough to create long-term changes in stereotypes and traditional gender roles. Entrenched inequalities persist due to discriminatory social norms and harmful behaviours and practices that undermine implementation. Well intentioned interventions might fail or might have unintended consequences if policymakers do not consider deeply rooted norms and practices. For instance, affirmative action or positive discrimination has sometimes overlooked or underplayed the effects of social norms on overall outcomes.[67]

Efforts to promote women's representation in positions of leadership have yet to succeed, and major prejudices persist about women's ability to participate politically and function in high office. Representation quotas for women sometimes do not deliver the envisaged transformation and risk promoting tokenism by introducing women's presence while power remains entrenched in traditional hierarchies and privileges based on other identities such as class, race and ethnicity.

Varied alternatives should be priorities in light of multiple and complementary identities rather than competing, conflicting ones—the multiple identities of an individual as a woman, a mother, a worker and a citizen should be mutually supportive, not counterposed. So, choices that enhance multiple freedoms are to be prioritized over choices based on a singular identity that diminish other freedoms. Any approach addressing gender inequality should consider the multidimensional character of gender and be sensitive to local social norms. Norm-aware interventions for women focus on supporting them by providing solutions that work around existing social norm constraints.

Options to reduce gender inequalities—and many other horizontal ones—need to consider how to directly target changes in unequal power relationships among individuals within a community or to challenge deeply rooted roles.

The backlash against changing gender roles in households, workplaces and politics affects entire societies influenced by shifting power relations

This may include a combination of efforts in education, raising awareness by providing new information and changing incentives.

An additional and important consideration to influence change in social norms and traditional gender roles is for options to be inclusive of both women and men, which may hold also for other horizontal inequalities. When choosing among alternatives—whether norm-aware or those pursuing social norm change—targeting both women and men is crucial. The importance of adequately engaging men and boys in overcoming gender inequality or addressing their own gender-related vulnerabilities is acknowledged, but actions have a long way to go.

Finally, analysis that goes beyond averages requires more and better data to keep pushing for gender equality and to make other horizontal inequalities visible (box 4.6).

Analysis that goes beyond averages requires more and better data to keep pushing for gender equality and to make other horizontal inequalities visible

BOX 4.6

Better data are needed on gender inequalities

Gender data face challenges of quantity and quality. The first refers to not having enough data to depict women's current situation. For instance, among the Sustainable Development Goals over 70 percent of data for 58 indicators linked to gender equality and women's empowerment is missing.[1] The second refers to current data that might not accurately reflect reality and that might underestimate women's roles and contributions.

Some organizations perceive collecting and producing gender data as expensive in time and cost. Some data collection methods are outdated and biased against women because they follow gender social norms, such as interviewing only the male head of household, not disaggregating by sex and age, using outdated measurements of time use and collecting data only on households instead of individuals. Changes in these measurements can affect indicators such as the Multidimensional Poverty Index, calculated for households rather than individuals, so that complementary research may be needed to clarify the relationship between gender and poverty.[2]

More information is needed to get a better picture of gender biases specific to a region, country or community, as with information on the impact of media and social networks in reinforcing traditional norms and stereotypes.[3]

Notes

1. Human Development Report Office calculations based on data from UN Women (2017). 2. UNDP 2016. 3. Broockman and Kalla 2016; Paluck and others 2010.

SPOTLIGHT 4.1

Women's unequal access to physical security—and thus to social and political empowerment

Violence against women is one of the cruellest forms of women's disempowerment can be perpetuated through social norms

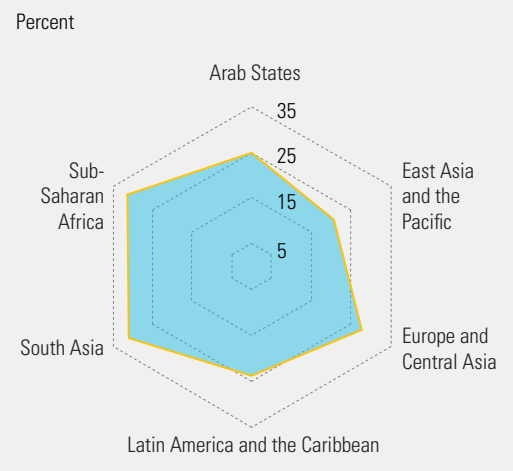
Violence against women is one of the cruellest forms of women's disempowerment. Magnifying inequality, it happens throughout the lifecycle, in different spaces—households, institutions, public spaces, politics and online—in all societies, among all socioeconomic groups and at all levels of education. And it reflects the same social norms that legitimize harassment and discrimination.

More than a third of women—and more than two-thirds in some countries—have experienced physical or sexual violence inflicted by an intimate partner or sexual violence inflicted by a nonpartner (figure S4.1.1).[1] Some 20 percent of women have experienced sexual violence as children. Nearly a quarter of girls ages 15–19 worldwide report having been victims of violence after turning 15.[2] And violence is typically underestimated because of stigma, denial, mistrust of authority and other barriers to women reporting an incident.

Intimate partner violence has been recurrently associated with such factors as age, wealth, marital status, number of children, education attainment and economic empowerment.

FIGURE S4.1.1

About a third of women ages 15 and older have experienced physical or sexual violence inflicted by an intimate partner, 2010



Source: WHO 2013.

Decomposing these factors reveals inequality in the experience of violence, an insight that can help in designing more focused interventions. For instance, although violence can occur at all education levels, greater education attainment can protect women from partner violence. Educated women have better access to information and resources that help them identify an abusive relationship and end it.[3] Women's economic empowerment through participation in the workforce had mixed associations with the risk of intimate partner violence,[4] challenging the notion that economic empowerment protects women from gender-based violence. This finding highlights the heavy influence of social norms in women's perceptions of their status in society in some cultures. In developing countries women make up a large proportion of the informal sector workforce with low-paying jobs, a structure that might perpetuate the myth of male superiority.[5]

Violence against women can be perpetuated through social norms. For example, female genital mutilation and cutting remain widespread. An estimated 200 million women and girls living today have undergone female genital mutilation, even though most men and women oppose the practice in many countries where it is performed.[6] Violence against women and girls is sustained by individual behaviours and beliefs as well as by social norms from the communities and networks that can slow change. Violent actions, attitudes and behaviours are triggered by unequal power relations dictating gender roles at the household level. Some examples are beliefs that a man has a right to physically discipline a woman for an incorrect behaviour, divorce is shameful or sex is a man's right in marriage.

When women assert autonomy or aspire to exert power at any level—from the household to the national government—they often face a backlash that can include violence (psychological, emotional, physical, sexual or economic), whether as discrimination, harassment, assault or femicide. More than 85 percent of female members of European parliaments

have experienced psychological violence, and 47 percent have received threats of death, rape, beating or kidnapping (figure S4.1.2).[7] Moreover, the only country in the world that has legally made political violence a separately defined crime is Bolivia.[8] Elsewhere, lacking laws, regulations and sanctions, women are left unprotected from this type of violence. In 2016 the #NotTheCost campaign was launched to raise awareness and stop violence against women in politics. The name alludes to how women are told that harassment, threats, psychological abuse and other forms of violence are "the cost" of participating in politics.[9] Traditional gender norms play a role in such political violence.

Globally, there are some efforts to fight the backlash. Political violence and sexual harassment and assault received attention in 2017 when American actress Alyssa Milano called for women to come forward with their experiences. Some 1.7 million tweets using the hashtag #MeToo responded, and 85 countries had at least 1,000 #MeToo tweets. The movement gave visibility to the issue and propelled initiatives to conduct more research on sexual harassment and assault, especially in the United States. Some 81 percent of women and 43 percent of men in the United States reported experiencing some form of sexual harassment or assault in their lifetime. The most common forms of sexual harassment are whistling, honking, saying disrespectful or unwanted comments or purposely touching or brushing up against someone. Women are harassed mostly in public spaces, their workplaces, their residences or their schools.[10]

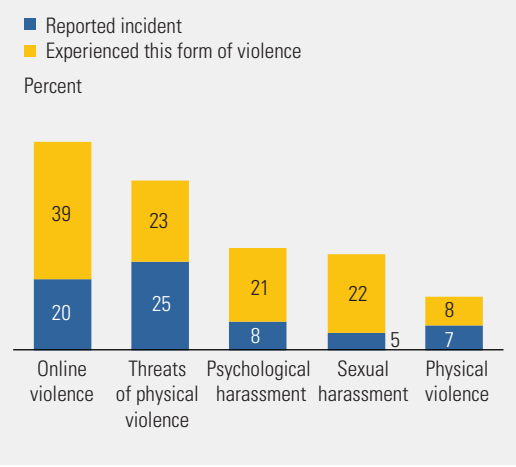
Through social media and other online platforms and applications, women are vulnerable to harassment and bullying in a new space—the digital public space. Ensuring that this space is safe and empowering for women and girls is a new challenge. Some 73 percent of women online have been exposed to some type of cyberviolence, and women are 27 times more likely than men to be the victims of cyberviolence.[11] Besides the impact of violence against women and girls in other spaces, cyberviolence impedes their digital inclusion and keeps them from enjoying digital dividends. Even though technology can connect and empower, it can also reinforce traditional gender roles and normalize stereotypes reflecting a culture of misogyny and marginalization. Security and harassment are among the top five barriers to women's mobile phone ownership and use.[12] Online harassment, sexist attitudes and misogynistic remarks can undermine women's sense of legitimacy, competence and safety, making them mistrust technology and even opt out of its use. Besides hindering technological inclusion, violence against women and girls in this space has a cumulative emotional and physical cost on them.

For each demographically "missing" woman, many more fail to get an education, job or political responsibility they would have obtained if they were men.[13] Gender is a global factor in unequal human autonomy, physical security and social, economic and political empowerment. Women's human development depends on socioeconomic enabling factors such as the ability to pursue a profession, to attain income stability and to achieve earnings comparable to men's. Women's empowerment in health, education, earning opportunities, and political rights and participation can change social decisionmaking and development (figure S4.1.3). Women's human development also requires positive gender norms and an absence of gender discrimination, with laws preventing unequal treatment, harassment and violence against women. Education, reproductive rights and political participation are key assets in all these areas, while the right to human security is fundamental.

Women are harassed mostly in public spaces, their workplaces, their residences or their schools

FIGURE S4.1.2

Female members of European parliaments experience high rates of acts of political violence against women, 2018

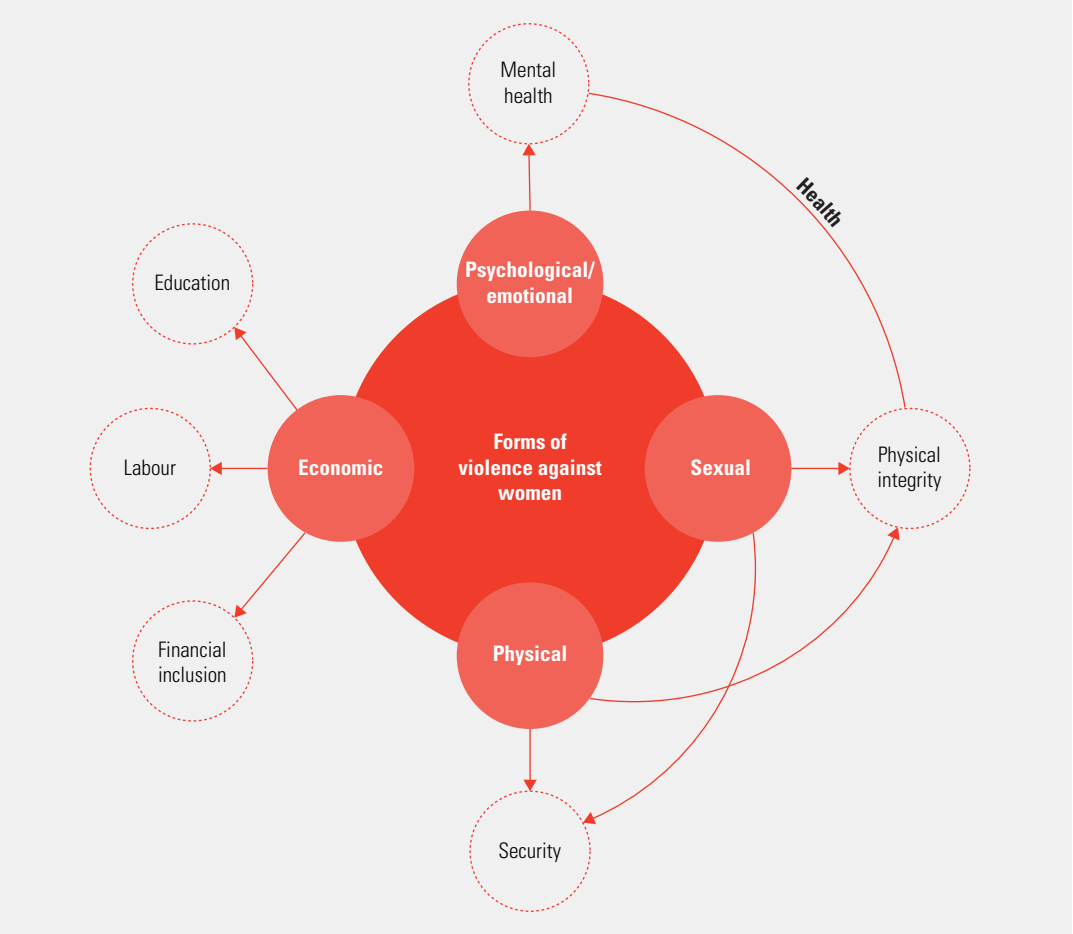


Source: IPU 2019.

Women's empowerment in health, education, earning opportunities, and political rights and participation can change social decisionmaking and development

FIGURE S4.1.3

Traditional social norms encourage different forms of violence against women



Source: Human Development Report Office based on UN General Assembly (2006).

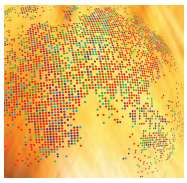
Notes

1 WHO 2013.
2 UNICEF 2014a.
3 Flake 2005; Waites 1993.
4 Sardinha and Catalán 2018.
5 Uthman, Lawoko and Moradi 2011.
6 UNICEF 2018a.
7 IPU 2019.
8 Government of Bolivia 2012.
9 NDI 2019.
10 Kearl 2018.
11 Broadband Commission for Digital Development Working Group on Broadband and Gender 2015; Messenger 2017.
12 GSMA Connected Women 2015.
13 Duflo 2012.
14 Caprioli 2005.
15 Ouedraogo and Ouedraogo 2019.
16 Stone (2015) as cited in O'Reilly, Ó Súilleabháin and Paffenholz (2015).

Part III

Beyond today

PART III.



Beyond today

This Report has taken us on a journey. It identifies the evolution of different inequalities in human development and examines the dynamic ways in which they limit human freedoms. It goes beyond averages to discover trends in the complete distribution of income and wealth. It also looks at gender inequality and delves into the factors holding back half of humanity. We are now almost at the end of the journey: What is to be done?

No single policy will suffice, nor will the same policies be appropriate for all countries. There are large and significant differences across countries in history, institutions, incomes and administrative capabilities. Culture and social norms also matter, as the discussion on gender inequality highlights (chapter 4). Moreover, inequalities in human development are linked. It is unlikely that households deprived of enhanced capabilities, let alone basic capabilities, will be at the top of the income scale. It is also unlikely that women who suffer discrimination in access to education and jobs will be among the very rich. As parts I and II of the Report highlight, inequalities along the various dimensions interact and generate feedback loops. This makes fighting inequality a daunting task. How can countries tackle the myriad policies and institutions that stand behind all the dimensions of inequality? Where should they begin? Should they focus on capabilities, on income or on gender? What policies are more effective when and where?

Part III of the Report, dealing with policies, addresses these questions. It proposes a framework to support countries in tailoring a response to inequalities in human development to their specific circumstances, taking into account their political constraints and administrative capabilities. The aim is to help them craft their own responses—rather than offer a single recipe applicable to all.

In beginning to think about what can be done, it is essential to consider time and place. Addressing inequalities in human development in the 21st century is not the same as it was before. Policymakers interested in fighting inequalities will take into account today's complexities and challenges. Certainly, much is to be learned from what policies have worked and what policies have failed in the past, but those lessons have to be relevant to here and now.

In this context, chapters 5 and 6 discuss two key trends that could blunt the fight against inequalities in all countries. Understanding these trends is essential because left on their own, they will tend to increase inequalities in human development.

The first trend relates to climate change (chapter 5). Much has been written about this topic—the focus here is on its interactions with inequality. In a nutshell, increased volatility in the world's climate and rising average temperatures are likely to translate into more floods, droughts, hurricanes and related phenomena. The chapter also documents that the impacts will not be distributed evenly within or across countries. Some countries will suffer more than others, and within countries some regions more than others. In parallel some households will suffer more.

All this will tend to increase inequalities—and may even reduce the effectiveness of policies. For instance, countries might make progress against income inequality through more progressive taxation, but that progress could be undone by households' greater exposure to climate risks. Climate change may thus require strengthening old tools and introducing new ones—from drought-resistant crops to new insurance approaches. The chapter also considers interactions in the other direction—how inequalities can complicate responses to climate change. Indeed, it is far harder to rally around common responses in societies that are more polarized.

Chapter 6 focuses on technological change. It has always been with us, but since the Industrial Revolution it has affected the distribution of income and capabilities in far more profound and long-lasting ways, in part because economic prosperity—and increasingly the nature of sustainability—is tied to the direction of technological change. Recent trends associated with robotics and artificial intelligence

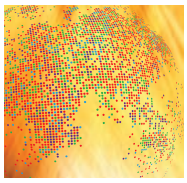
pose new challenges but also create opportunities. The relative demands for skills and tasks will change, as will the locations of economic activity, given the dramatic increases in economies of scale and the dramatic reductions in transportation costs. This will induce offshoring of some tasks and the disappearance of others. Enhanced capabilities will be critical for people to navigate the upheavals that technology can bring. Technology itself can help in this regard, if policies are chosen such that technology helps to reinstate demand for labour.

With these two chapters as background, chapter 7 deals with policies to combat inequalities in human development. It does not provide a recipe for all countries, since policies are country specific. Instead it presents a framework to think about policies to address pernicious inequalities in human development. It shows that the range of available policies is large and that it is feasible to address some of the underlying drivers of the inequalities in capabilities. The central message is unequivocal. The trends documented in parts I and II are not inevitable —they result from policies and institutions, and much can be done both nationally and internationally to reform them. We have a choice. And we must act now.

Chapter **5**

Climate change and inequalities in the Anthropocene

5.



Climate change and inequalities in the Anthropocene

The climate is in crisis. The effects are already unspooling in the form of melting ice sheets and, as is likely, record heatwaves and superstorms. Without bold collective action, these will only worsen over time, joined by a suite of other calamities, from depressed crop yields to rising sea levels to potential conflict. As recognized in the Sustainable Development Goals and the Paris Climate Agreement, climate change is a global challenge.

But it will not affect everyone equally — not in the same way, not at the same time, not at the same magnitude. Poorer countries and poorer people will be hit earliest and hardest. Some countries could quite literally disappear. Of all climate change's disequalizing effects, perhaps none is greater than that on future generations, which will shoulder the burden of previous generations' fossil fuel-dependent development pathways.

Inequality runs the gamut of climate change, from emissions and impacts to resilience and policy. Climate change is a recipe for more inequality in a world that already has plenty. But climate change and inequality, and the interaction of the two, are choices, not inevitabilities. Even though the window for decisive and bold action on climate is shrinking, there is still time to make different choices.

This chapter suggests that by redressing inequalities, action on climate could also be made easier and faster. To see why, consider two of the multiple possible channels at play.[1] The first relates to how individual consumption decisions add up to total emissions (box 5.1).[2] The second, which is the focus of this chapter and likely more consequential, relates to how inequality interacts with technological change

BOX 5.1

Household income, inequality and greenhouse gas emissions

Higher household incomes are associated with higher emissions, but the impact of inequality on aggregate emissions depends on how quickly emissions increase as income rises.[1] There is a wide range of empirical estimates for this relationship, showing that, on balance, emissions increase more slowly than income in most developed and middle-income countries but at the same rate (or even a little faster) in lower income countries.[2]

Taking this channel alone into account would imply that income inequality should be associated with lower emissions in developed countries. To see how, consider the impact of transferring income from the rich to the poor in a developed country. Even though rich people emit more, given that the rate at which emissions increase is slower than the rate at which income does,[3] the increase in emissions by poor people would be higher than the corresponding decrease in consumption by rich people, leading to a net increase in emissions. And one would expect to see the opposite in developing countries, with reductions in inequality lowering emissions.[4] However, the scale of the impact of inequality through this channel tends to be small, certainly when compared with other determinants of changes in emissions, such as technological change and policies.[5]

Perhaps more important, the interplay of these consumption patterns within and across countries—although trending towards lower emissions overall—appears unlikely to substantially reduce global aggregate emissions.[6]

Notes

1. It also depends on how inequality interacts with rising income. For a comprehensive description of the different possibilities, see Ravallion, Heil and Jalan (2000). 2. See, for instance, Liddle (2015). For a detailed estimate for the Philippines, see Seriño and Klasen (2015). 3. When this relationship is measured in terms of how much a percentage change in income is reflected in a corresponding percentage change in emissions—in technical terms, an elasticity—this implies an elasticity of less than 1. 4. More precisely, this would happen if the elasticity were greater than 1. For some empirical support of the hypothesis of this differential impact of inequality in emissions in developed and developing countries, see Grunewald and others (2017). 5. To illustrate, Sager (2017) calculated consumption-based carbon emissions Engel curves (showing the relationship between household income and average carbon dioxide emissions) for the United States for several years between 1996 and 2009. In a scenario where income is redistributed to perfect equality (a dramatic and extreme case), average carbon dioxide emissions in 2009 would have increased 2.3 percent, from the actual 33.9 tonnes per household to 34.7 tonnes. In contrast, had there been no technological change and assuming the same consumption composition between 1996 and 2009, average emissions would have increased 70 percent, to 57.9 tonnes. 6. Caron and Fally 2018.

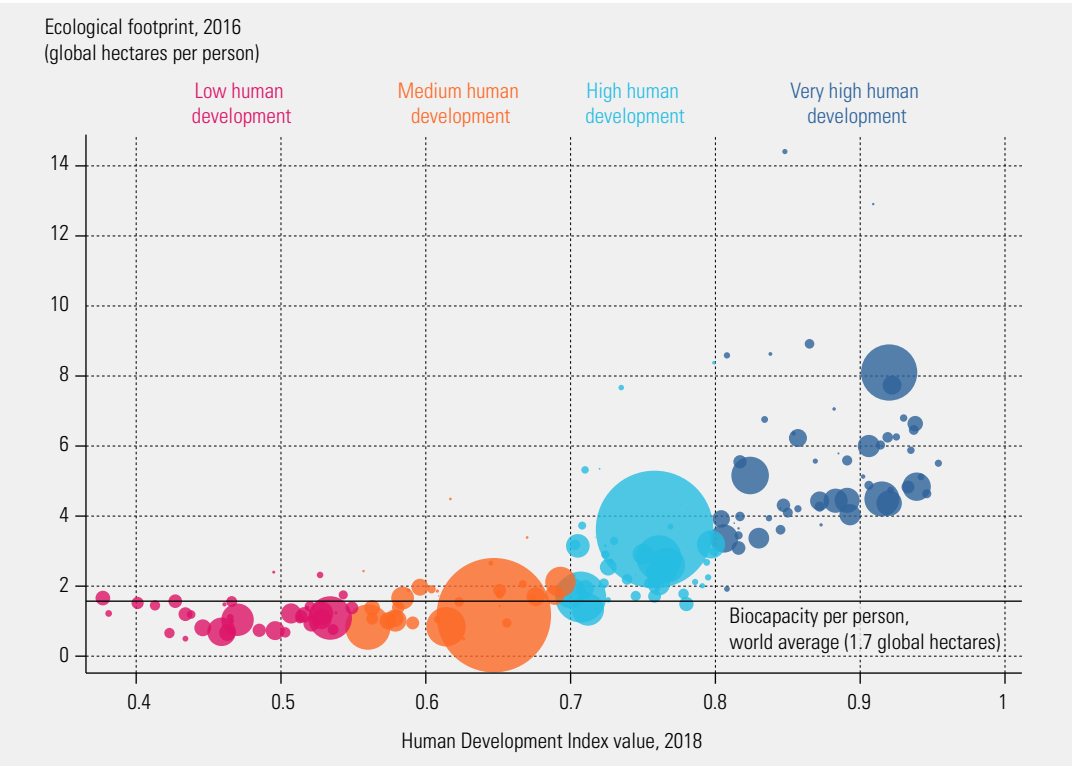
and policy formation. There is some evidence that high inequality hinders the diffusion of new environmentally friendly technology.[3] Inequality can influence the relative power of interests arguing for and against curbing emissions. Emissions would be expected to be higher when income is concentrated at the top and when the resulting concentration of economic power coincides with the interests of groups that oppose action on climate.[4] More generally, higher inequality tends to make collective action—key both within and across countries to curb climate change—more difficult.[5] Information is critical for collective action, but the ability of different interest groups to communicate tends to be lower when inequality is high,[6] with the concentration of income potentially leading to the suppression or propagation of information in order to serve a particular interest.[7] Other interacting mechanisms relate to how inequality shapes perceptions of fairness (with implications for compliance and enforcement).[8]

Higher inequality tends to make collective action—key both within and across countries to curb climate change—more difficult

Where emissions are being decoupled from economic growth—a hopeful sign that is directionally right but not yet at scale, despite accelerating over the past two decades—this is related to countries having "underlying policy frameworks more supportive of renewable energy and climate change mitigation efforts,"[9] which shows the feasibility of a break from unsustainable development models that have endured for centuries.[10] Still, countries with higher human development generally emit more carbon per person and have higher per capita ecological footprints (figure 5.1).[11] Richer countries and communities may put a premium on local concerns, such as water and air quality, but they tend not to experience locally the full extent of their impacts on the environment, which are driven more by their income than by "green" self-identities and associated behaviours.[12] Instead, they often shift a significant portion of the environmental impacts of their consumption preferences to less-visible countries and communities elsewhere, including to

FIGURE 5.1

Per capita ecological footprints increase with human development



Note: Covers 175 countries in the Global Ecological Footprint Network database (www.footprintnetwork.org/resources/data/; accessed 17 July 2018). As used here, the ecological footprint is a per capita measure of how much area of biologically productive land and water a country requires, domestically and abroad, to produce all the resources it consumes and to absorb the waste it generates. Each bubble represents a country, and the size of the bubble is proportional to the country's population.
Source: Cumming and von Cramon-Taubadel 2018.

those along global supply chains.[13] In the case of climate change, they also shift the impacts to future generations, which are even less visible.

Environmental burden shifting happens not just for greenhouse gas emissions but also across many environmental domains.[14] Thus, this chapter goes beyond climate to examine inequalities and burden shifting in other important areas, such as waste generation, meat consumption and water use. Environmental burden shifting is linked to gradients in economic and political power. Attempts to redress these power differences and how they manifest environmentally are likely to be ever more relevant as humanity enters what has been called the Anthropocene (box 5.2).

The 2007/2008 Human Development Report showed not only how climate change was an existential threat to future generations, exacerbating intergenerational economic inequality, but also that it would increase income inequality across and within countries.[15] Recent research has confirmed, and made more precise, how disequalizing climate change can be: Income inequality across countries may already be about 25 percent higher than it could have been without climate change.[16]

This chapter takes that analysis further, showing how climate change exacerbates inequalities in other dimensions of human development and how inequality is also relevant to building climate and disaster resilience. Some evidence suggests that "development on its own" may not offer protection from the negative impacts of climate change.[17] New, broadly shared approaches to resilience may needed. Echoing a central theme

Some evidence suggests that development on its own is unlikely to offer protection from the negative impacts of climate change

BOX 5.2

From Holocene to Anthropocene: Power—and who wields it—at the brink of a new era

The environment has a profound impact on people's capabilities and on their ability to convert capabilities into achievements—and thus on human development.[1] Conversely, human activity affects the natural world, shaping environmental processes and patterns at a global scale. Arguably, humankind today is not just witnessing but also causing the sixth mass species extinction in the Earth's history.[2] While the stratigraphy community has yet to formally declare a new epoch (meaning that humanity is still in the Holocene), the unfolding changes to the environment are so dramatic, and so heavily influenced by humans, that the expression Anthropocene has entered current use.[3]

The Anthropocene portends a worrying mix of power, fragility and uncertainty. The end of the last glacial period and the beginning of the Holocene more than 10,000 years ago ushered in a stable climate regime—a climatic cradle for humans—with conditions favourable for permanent agriculture and the dawn of civilizations. Rising populations, wealth and technological know-how have translated into greater, seemingly unbridled power, including over the environment. Yet fragilities have always been evident. Crops are susceptible to pests and bad weather. Infectious diseases have sprung from (and through) domesticated animals and elsewhere.[4] The interplay among humans, geography and the environment has been central to the way civilizations have come and gone.[5]

Fast forward to today, and the intertwining of power, fragility and uncertainty has not changed. The differences are in the scale and the stakes. Humans have far more power to affect the environment, including at the planetary level, but no greater control. The list of negative feedback from human activities ranges from introducing invasive species to the plastics epidemics in the oceans to fisheries stress and collapse to fossil fuel emissions and climate change.[6] These and other activities have not just destabilized ecosystems but have also transformed planetary biogeochemical processes.[7] Humanity is thought to have already breached at least four of nine planetary boundaries, the safe operating limits for different components of the Earth system seen as critical to maintaining a stable Holocene-like state.[8] Two of these—climate change and biosphere integrity—are considered core boundaries, meaning they have the potential on their own to push the Earth into a new state.[9] Humans have exceeded the safe operating space for both; the risk of crossing a critical threshold, destabilizing the Earth system and exiting the Holocene is no longer assuredly low.[10]

This is the Anthropocene: human power at scale, without illusions of control and without fully grasping or heeding the consequences. Through unmitigated greenhouse gas emissions and other actions, humans are pulling themselves out of the relative stability of the current geological epoch into the uncertainty of a new one. The Anthropocene is essentially a leap into the unknown. Making a choice for sustainable human development, based on a country's unique set of circumstances, is necessary. But it is not easy—and it is made all the more difficult when persistently high inequality, in its many forms, with its corrosive effects, implies that both people and planet lose. Choices rooted in inclusion and sustainability can turn the damaging historical relationship between development and ecological footprints on its head—breaking humanity free from old development approaches that simply will not work as it enters the brave new world of the Anthropocene.

Notes

1. Robeyns 2005. 2. Barnosky and others 2011; Ceballos, Ehrlich and Dirzo 2017; Ceballos, García and Ehrlich 2010; Ceballos and others 2015; Dirzo and others 2014; McCallum 2015; Pimm and others 2014; Wake and Vredenburg 2008. 3. Scott (2017) attributes to Paul Crutzen the introduction of the term and the proposal to date the start of this era to the late 18th century, coinciding with the invention of the steam engine, which unleashed the Industrial Revolution (even though Scott himself proposes the concept of a "thin Anthropocene," which could be dated as far back as the hominid use of fire). In May 2019 the 34-member Anthropocene Working Group voted to designate the Anthropocene as a new geological epoch. The panel plans to submit a formal proposal to the International Commission on Stratigraphy, which oversees the official geological time chart. 4. Dobson and Carper 1996; McNeill 1976; Morand, McIntyre and Baylis 2014; Wolfe, Dunavan and Diamond 2007. 5. Crosby 1986; Diamond 1997, 2005. 6. Choy and others 2019; Early 2016; Millennium Ecosystem Assessment 2005; Seebens and others 2015; US NOAA 2018. 7. Campbell and others 2017; Steffen and others 2015. 8. Steffen and others 2015. 9. Steffen and others 2015. 10. Steffen and others 2015.

of this Report, this chapter finds convergence in basic capabilities to cope with climate change and divergence in enhanced ones. Countries are converging—even though large disparities persist—in their preparedness to "normal" shocks, ones expected at a certain frequency and magnitude based on historical trends—a basic resilience capability. Climate change impacts, however, do not always conform to historical trends, with more "surprises" than in the past.[18] Shocks take on a new, unanticipated character. Building preparedness—which relies less on the experienced past and more on how science and technology, including advanced weather prediction systems, can help prepare for an uncertain future—is becoming an enhanced capability in which gaps are emerging. The challenge is to ensure that climate resilience does not become the reserve of only a select group of countries and communities that can most afford it, thereby further exacerbating the inequality impacts of the climate crisis.

The challenge is to ensure that climate resilience does not become the reserve of only a select group of countries and communities that can most afford it

The urgency for action to combat climate change, including by fully implementing the Paris Agreement under the United Nations Framework Convention on Climate Change, cannot be overemphasized. So why isn't more being done? True, there is renewed interest in many countries around the world in carbon pricing, but to take just a simple illustration, only 5 percent of emissions are covered by a carbon price high enough to achieve the goals of the Paris Agreement.[19] Some even argue that carbon pricing will not be enough and that instead of relying on market signals, more fundamental transformations of economies and societies will be needed.[20] The various mechanisms through which inequality influences technology diffusion and policies, reviewed briefly above, speak to the complex interplay between climate change and inequality and even how action on climate can be hamstrung, as in the case of the *Mouvement des gilets jaunes* (yellow vests movement), perhaps an instance when people felt as though they were being left behind.

Addressing inequality and the climate crisis together can move countries towards inclusive and sustainable human development. For instance, when carbon pricing is part of a broader set of social policy packages, it is possible to address inequality and climate together while facilitating the realization of people's human rights. Climate policy can create virtuous feedback loops in which emissions decline from direct effects (such as a carbon price) and from indirect effects (such as lower inequality, which may facilitate even bolder climate policies). This chapter, as well as chapter 7, tees up some of these key issues.

How climate change and inequalities in human development are intertwined

This section starts by expanding beyond inequalities in carbon emissions between countries to inequalities within them, adding to the more familiar story on how climate change will harm—and has already impacted—different dimensions of human development. Finally, it takes an illustrative look at climate resilience, framing it as an enhanced capability that risks divergence.

From inequality in emissions to inequality in impact: Two dimensions of climate injustice

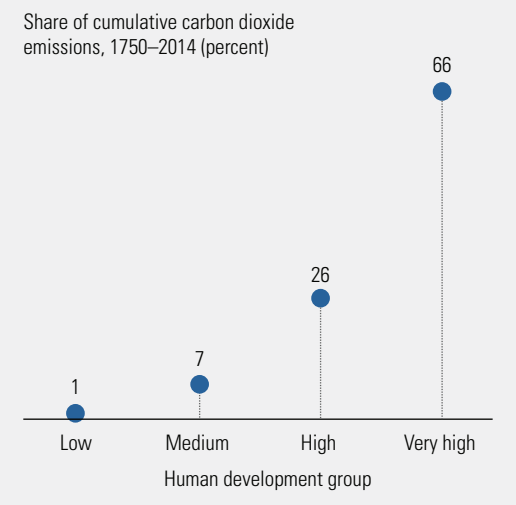
Carbon dioxide is not the most potent anthropogenic greenhouse gas, but it is the most widespread, driven overwhelmingly by fossil fuel combustion (87 percent of total carbon dioxide emissions over 2008–2017) for electricity, transportation and other uses.[21] It is widespread because carbon emissions are deeply embedded in current patterns of production and consumption, and powerful fossil fuel interests have generally tried to keep it that way.[22]

The richest countries account for the lion's share of cumulative carbon dioxide emissions (figure 5.2); they are still among the top polluters on a per capita basis and in terms of aggregate country emissions today.[23] These inequalities in cumulative emissions are central to the global conversation on climate, particularly for climate justice, burden sharing and differentiated responsibilities.[24]

The same pattern of inequality plays out within countries, with households at the top of the income distribution responsible for more carbon emissions per person than those at the bottom. While there is no direct way of allocating emissions to individuals, estimates

FIGURE 5.2

Today's developed countries are responsible for the vast majority of cumulative carbon dioxide emissions



Source: Human Development Report Office calculations based on Ritchie and Roser (2018).

based on plausible approximations suggest that global carbon dioxide equivalent emissions are highly concentrated: The top 10 percent of emitters account for 45 percent of global emissions, while the bottom 50 percent account for 13 percent. The top 10 percent of emitters live on all continents, a third of them in emerging economies (figure 5.3).[25]

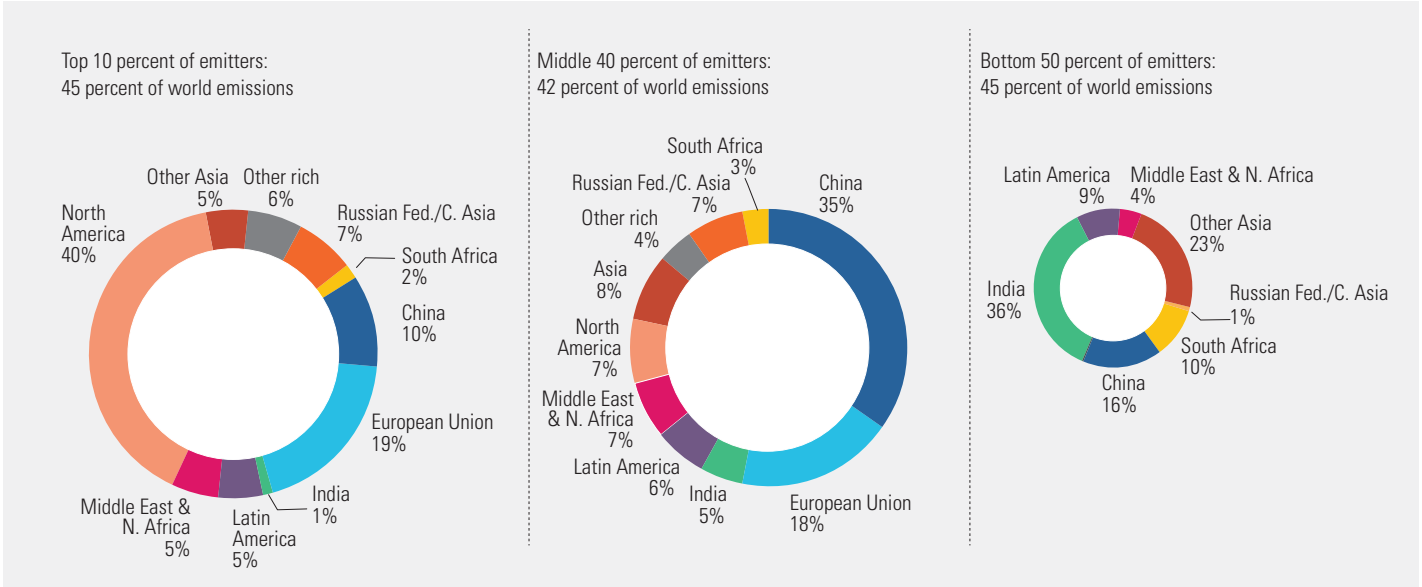
Inequality in global carbon dioxide equivalent emissions between individuals has decreased, but within-country inequality is steadily rising and approaching the share of between-country inequality in the global dispersion of carbon dioxide equivalent emissions (figure 5.4). In 1998 a third of inequality in global carbon dioxide equivalent emissions was due to within-country inequality; by 2013 half was.

Turning from emissions to impact, unmitigated climate change drives inequalities in human development through two main mechanisms: differential exposure and vulnerability.[26] Debate continues on the relative importance of each. This chapter takes the view that both matter. Differential exposure is real: Climate change will hit the tropics harder first, and many developing countries are in the tropics.[27] At the same time, developing countries and poor and vulnerable communities have fewer capacities to adapt to climate change and severe weather events than do their richer counterparts. Part of the reason climate change and disasters are disequalizing is that inequality exists in the first place; they run along, exploit and deepen existing social and economic fault lines. These fault lines were dramatically laid bare when Hurricane Katrina

Part of the reason climate change and disasters are disequalizing is that inequality exists in the first place; they run along, exploit and deepen existing social and economic fault lines

FIGURE 5.3

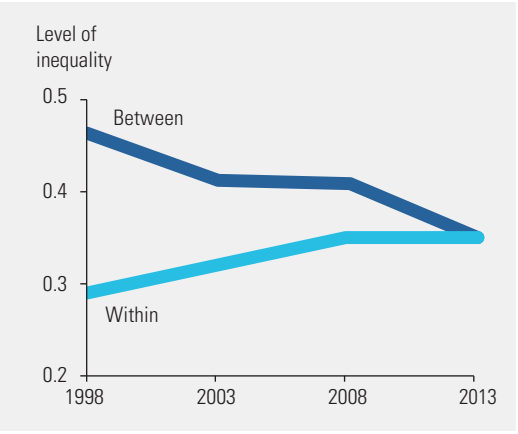
Of the top 10 percent of global emitters of carbon dioxide equivalent emissions, 40 percent are in North America, and 19 percent are in the European Union



Source: Chancel and Piketty 2015.

FIGURE 5.4

Within-country inequality in carbon dioxide equivalent emissions is now as important as between-country inequality in driving the global dispersion of carbon dioxide equivalent emissions



Note: In 2008 the within-country component of the Theil index, which measures dispersion in the distribution of a variable that can be perfectly decomposed into between-group and within-group components, was 0.35 and the between-country component was 0.40—that is, between-country inequality accounted for 53 percent of total inequality
Source: Chancel and Piketty 2015.

struck New Orleans in 2005. A more recent example is the tragic loss of life and devastation wrought by Hurricane Dorian in the Bahamas in 2019. Dorian was the strongest hurricane to strike the country since recordkeeping began in 1851.[28] The communities hardest hit included shantytowns populated mostly by poor Haitian immigrants, some of whom had fled the devastating 2010 earthquake in their home country.[29]

The global economic impacts of climate change have been modelled many times, producing a range of estimates, each with its own range of possible outcomes. From these estimates, two key points emerge: First, climate change will reduce global GDP, especially in the long run, and second, negative economic impacts are generally worse at higher temperature thresholds.[30] Moving beyond these general trends to more precise estimates is challenging. The exact magnitude of the economic effects of climate change is highly uncertain, and it varies by geography and many other variables. Nonlinearities complicate matters: Each additional unit of change in the climate is unlikely to yield the same incremental impact over time.[31] The complexities of the climate system make significant tipping points and thresholds possible—for example, the possibility for catastrophic events, whose impacts are generally not systematically captured in many models.[32] As Martin Weitzman once claimed, "All damage functions are made up—especially for extreme situations,"[33] yet many of the most widely used economic models of climate change rely on "smooth" damage functions that may not fully account for the possibility of catastrophic events.[34]

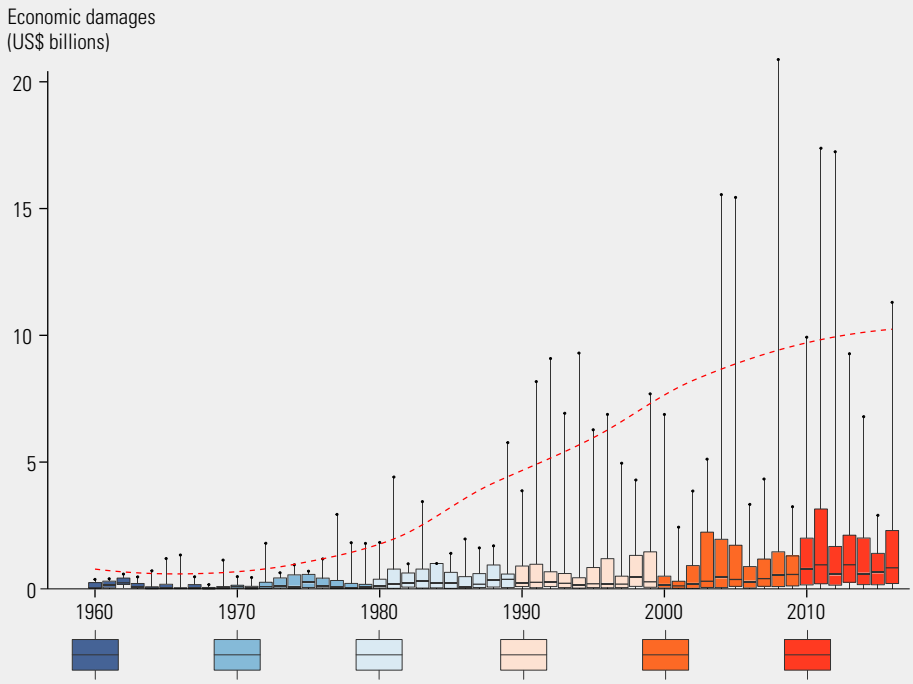
The complexities of the climate system make significant tipping points and thresholds possible

Over the past few years research has attempted to incorporate tipping points into integrated assessment models. The findings of such work have generally strengthened the case for a greater precautionary approach to the climate.[35] The bottom line is that estimates of economic effects of future climate change give some broad directional agreement, and while uncertainties abound, the costs of potential catastrophic events coupled with the pace at which the scientific evidence is accumulating on the scale of damages reinforce arguments for early and forceful action.[36] For example, there is strong evidence that the economic damages of extreme natural hazards have increased globally over the past several decades (figure 5.5). Some new modelling approaches that attempt to incorporate risk and uncertainty point to large costs associated with delays in taking forceful action on mitigation, with these costs compounding over time (a five-year delay implies a cost of $24 trillion, and a 10-year delay implies a cost of $100 trillion).[37]

The negative impacts of climate change extend to health and education. Between 2030 and 2050 climate change is expected to cause some 250,000 additional deaths a year from malnutrition, malaria, diarrhoea and heat stress.[38] Hundreds of millions more people could be exposed to deadly heat by 2050, and the geographic range for disease vectors—such as mosquito species that transmit malaria or dengue—will likely shift and could expand.[39] Lower agricultural yields due to temperature changes can affect food security, and food insecurity can worsen nutrition. Good nutrition is essential for healthy pregnancies and for early childhood survival and development, which can reduce inequalities in human development (chapter 2). It is also important for school attendance, performance and achievement.[40] Malnutrition, by contrast, complicates the course of other illnesses, such as tuberculosis and AIDS.

FIGURE 5.5

Economic damages from extreme natural hazards have been increasing



Note: Data are the yearly distribution of economic damages associated with 10,901 disasters that occurred worldwide between 1960 and 2015. Partial boxplots are coloured by decade. The lower hinge is the median, the middle line is the 75th percentile, the upper hinge is the 90th percentile and the upper whisker is the 99th percentiles. The red dashed line tracks the time progression of the 99th percentile.
Source: Coronese and others 2019.

By the end of the 21st century, unmitigated climate change could cause an additional 1.4 billion drought exposure events a year and 2 billion more extreme rainfall exposure events a year, inevitably increasing flood risk.[41] The impact of these shocks on livelihoods can impede human development, influencing factors ranging from the availability of food to the ability to pay for health care and schooling. Out-of-pocket health spending pushes almost 100 million people into extreme poverty each year.[42] Even where schooling is free, livelihood shocks can siphon children from school into income-generating activities. These interrelated, overlapping shocks, when combined, will also have consequences for mental health, which now appears in some countries' national health strategies for adapting to climate change.[43]

Climate change is likely to have already been a force for increasing income inequality between and within countries (see spotlight 5.1 at the end of the chapter), as noted in the opening of this chapter. Climate change is likewise driving inequality in other dimensions of human development. An analysis of the last 40 years further substantiates the general pattern: Temperature-related shocks hit poorer countries harder than richer countries.[44] In fact, even though some richer countries may have enjoyed small benefits on average from temperature increases, the evidence suggests that all countries will eventually be negatively affected by climate change.[45]

For health, the evidence from large-scale empirical studies on climate impacts shows:[46]

- In all regions the proportion of people vulnerable to heat exposure is rising. The elderly account for a significant portion of that vulnerability (see spotlight 5.2 at the end of the chapter). Heat stress, cardiovascular disease and renal disease are among the many causes of heat-related illness and death.[47] In 2017, 153 billion labour hours were lost because of heat, an increase of more than 62 billion hours since 2000.
- Global vectorial capacity[48] for the transmission of dengue fever virus continues to rise, reaching a record high in 2016. In other

Climate change is likely to have already been a force for increasing income inequality between and within countries. It is likewise driving inequality in other dimensions of human development

words, conditions are becoming more favourable for transmission of dengue.

- In the highlands of Sub-Saharan Africa, malaria vectorial capacity has increased 27.6 percent since the 1950 baseline.
- In the Baltic region, changes in sea surface temperatures have steadily increased suitability for cholera outbreaks.

Since poor countries—and poor and vulnerable people within countries—are disproportionately burdened by these health conditions, climate change has already put pressure towards greater health inequalities, both within and between countries.[49]

In many developing countries exposure to floods, droughts and hurricanes in utero and during early life impair later education and cognitive outcomes. In Southeast Asia higher than average temperatures during the prenatal period and early life are associated with fewer years of schooling, perhaps because heat has a negative impact on education attainment where local climates are historically warm and wet.[50] In some developed countries there is also evidence that prenatal heat exposure increases the risk of maternal hospitalization and of hospital readmission in the first year of life for newborns, with differentiated impacts across segments of the population that tend to increase maternal health gaps.[51] These and other potential impacts of climate change on education outcomes have clear inequality implications, both within and across generations.

Climate change's biophysical and social dimensions are working in the same direction: towards worsening inequality

As noted above, climate impacts are often framed as the interaction of exposure and vulnerability.[52] Exposure can be driven by vulnerability, as vulnerable groups are driven to less secure, more disaster-prone locations, especially in urban areas.[53] Such vulnerability-driven exposure is widespread. The location or operation of polluting factories and expressways, waste management[54] and landfills, gazetted parks and conservation areas[55], and even airports[56] and other transportation hubs (and their expansion) in or near vulnerable communities rests on decisions that can take advantage of those communities' relative lack of power—either explicitly or implicitly. For example, cost-benefit analyses for policy decisions—analyses that purport to be objective, impartial or efficient—can, among other potential pitfalls, implicitly take advantage of vulnerable communities by misconstruing ability to pay for willingness to pay, thereby systematically undervaluing those communities' needs and desires.[57]

Consider the impact of climate change on crop yields. Without improved crop varieties, climate change will cause significant declines in average crop yields over the course of the 21st century in many regions. The largest declines will occur where food insecurity is already a threat.[58] Climate change–related inequality is partly a biophysical phenomenon of differential exposure. In regions where natural climate variability is lower—such as the tropics, where many developing countries are found—climate signals will emerge from the "noise" more quickly and easily in the tropics.[59] Recent modelling shows that poorer countries will generally experience weather-related changes before richer countries. Regional heat extremes, for example, are expected to change noticeably in Africa, large parts of India and most of South America after 1.5°C of warming, but mid-latitude regions will not see such changes until global temperatures increase by about 3°C.[60]

Climate-induced inequality is also a social phenomenon. Vulnerable people will suffer more because, for instance, with less irrigation, yields are more weather dependent. With fewer and less robust cereal market stabilization mechanisms, livelihoods can be volatile. With less income and wealth, poor people are less able to absorb spikes in food prices. With discriminatory laws, marginalized groups are burdened with compounding insecurities. Climate change is expected to exacerbate these and other vulnerabilities, its biophysical and social dimensions working in the same direction: towards worsening inequality.[61]

Recent modelling has started to capture the interaction between biophysical and social aspects through the spatial correlation of countries' cereal productivity and gains from trade. Climate change, instead of affecting countries' cereal yields uniquely or independently, will cause regional changes that affect countries' yields more similarly the closer countries are to one another. So, developing countries will take a direct hit from climate change as cereal yields decline and an additional hit when neighbouring countries also experience a decline. The decline in productivity across neighbouring trade networks reduces the gains from trade,

which could worsen income inequality among countries by an additional 20 percent over the course of the 21st century.[62]

Feedback mechanisms have long been important in climate science, especially in terms of biophysical systems. Economic feedback mechanisms, such as knock-on trade effects, are coming increasingly into view. Another is the impact of climate-induced GDP declines on carbon emissions. Climate-driven decreases in GDP may in turn decrease energy use and carbon emissions over the course of the 21st century. In some scenarios fossil fuel emissions drop 13 percent, enough to offset positive carbon emission feedback mechanisms from natural systems.[63]

Here again recent empirical analysis complements income inequality projections. One study using longitudinal data from more than 11,000 districts in 37 countries suggests that since 2000, warming has made tropical countries at least 5 percent poorer than they otherwise would be.[64] The study also sheds light on the importance of exposure and vulnerability as mechanisms for climate-related inequalities: Disparities in the economic impacts of warming are driven more by differences in exposure than differences in underlying vulnerability. In other words the negative impacts of warming cut similarly across communities of all levels of development. Richer ones are not insulated from warming because they are rich, and poorer ones are not uniquely vulnerable because they are poor. Part of the challenge is that exposure to damaging temperatures is much more common in poor regions.

That study's findings, which imply a primacy of exposure, correspond to those of another recent study on climate's impacts on education across 29 countries, mostly in the tropics. It found that the level of education of the head of household did not buffer households from the long-term impacts of adverse climate events.[65] In fact, children from more educated households suffered greater education penalties, with hot temperatures having a levelling effect on education attainment. On the other hand, a recent study using global data spanning four decades found the opposite: that richer countries are more insulated than poorer countries from the effects of temperature increases.[66]

Thus, the debate continues around an unsettled, and unsettling, question: Might climate change overwhelm response capacities, as typically conceived, across many—perhaps all—levels of human development? For countries where climate change is an existential threat, the answer is a resounding yes. For others, if exposure ultimately matters much more than vulnerability, climate change may not be something that countries can necessarily grow or "develop" out of.

Countries have already started adopting tools, implementing policies and making investments that build resilience to climate change and other kinds of shocks, precisely because old ways of doing things are insufficient to the task.[67] They are charting different development paths that try to respond to the sobering, unfolding reality of climate change. Data and technology, ranging from satellite imagery to drought-tolerant seeds, are seen as important parts of forward-looking climate adaptation.[68] So are fiscal rules that help protect economies from unexpected climate shocks.[69] Plus, building resilience is a good economic investment. The Global Commission on Adaptation found that every $1 invested in adaptation could result in benefits worth $2–$10.[70]

Countries have already started adopting tools, implementing policies and making investments that build resilience to climate change and other kinds of shocks, precisely because old ways of doing things are insufficient to the task

So, empirical analyses that emphasize exposure-driven pathways need not undermine the rationale for resilience. On the contrary, such studies provide important historical lessons for why conscious efforts to build resilience matter—and matter urgently. From a forward-looking inequality perspective the challenge is to ensure that climate resilience is a broadly shared capability and a collective investment in human development rather than a capability that is the reserve of only a select group of countries and communities that can most afford it, thereby opening a new area of divergence in the face of a global climate crisis.

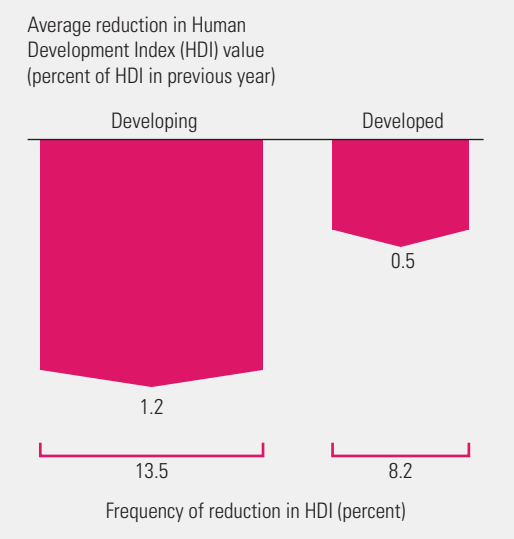
As some analysts have noted, some impacts of climate change may be smaller than the impacts of demographic change and economic growth.[71] Poverty projections at certain levels of warming similarly depend at least as much on development scenarios as on warming itself.[72] The 2011 Human Development Report probed the ways various environmental and inequality scenarios might affect human development across low, medium, high and very high human development countries.[73]

A world of greater inequality is one possible future, depending on the choices societies

ultimately make. Although unmitigated climate change will continue to narrow those choices over time—and indeed some climate change is already baked in, owing to legacy emissions—much can still be changed. Carbon dioxide and other greenhouse gas emissions are the product of human choices mediated largely by biophysical processes as well as by economic and social systems.[74] Development paths that prioritize resilience and inclusion can be chosen, too. The disproportionate impacts on poor countries—and poor and vulnerable people within countries—largely reflect and are likely driven at least in part by structural inequalities. If such inequalities—across income, wealth, health, education and other elements of human development—are in no small part the result of social choices, as this Report argues, the course of climate change and the way it ultimately affects inequality have a lot of choice built in. There still is time to choose differently.

FIGURE 5.6

Human development crises are more frequent and deeper in developing countries



Source: Human Development Report Office calculations for countries with annual data for 1980–2017.

Differentiated paths in the ability to adapt to climate change: Convergence in basic, divergence in enhanced capabilities yet again?

The effects of shocks do not appear to be randomly distributed; instead, they seem to do more harm to the more vulnerable

This section considers asymmetries in capabilities relevant to withstanding disasters linked to natural hazards. The effects of shocks (linked not only to disasters but also to other causes ranging from conflict to terms-of-trade crises) do not appear to be randomly distributed across different groups; instead, they seem to do more harm to the more vulnerable. Over 1980–2017 developing countries recorded a higher frequency of crises in human development, measured as a yearly reduction in Human Development Index (HDI) value, than developed countries did, and the impact of these reductions was more severe. The average reduction in HDI value when facing a crisis was 0.5 percent for developed countries but 1.2 percent for developing countries (figure 5.6).

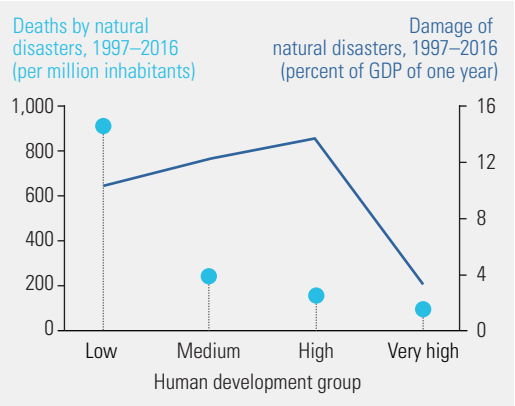
Low human development countries are more exposed to the human and economic losses from shocks from all sources. While some extreme negative shocks can have an equalizing effect within countries,[75] people in very high human development countries are better shielded from the costs because they have more options for responding to shocks, greater ability to move and more resources with which to recover. People in low human development countries are 10 times more likely than people in very high human development countries to die due to natural hazards leading to disasters. And the relative cost (as a percentage of GDP) of disasters is about four times lower in very high human development countries than in other countries (figure 5.7). These results are merely suggestive and should be seen in the context of broader trends in the global reduction in causalities linked to natural hazards and accelerating increases in the economic damages—with asymmetric impacts across climate regions depending on the nature of the hazard.[76]

Developing countries tend to have fewer resources to prevent and respond to disasters linked to natural hazards.[77] The support and enforcement of building codes, the construction and maintenance of basic infrastructure, and the development of contingency plans, among other investments, demand resources. And with poverty and deprivation much more prevalent in developing countries, people are more vulnerable.[78]

Within countries the effects of disasters vary with income. Poorer people are more likely to be affected by natural hazards. In 12 of 13 country studies from developing countries, the

FIGURE 5.7

The lower the level of human development, the more deadly the disasters



Note: Data are simple averages across human development groups. Country values are the sum of population or GDP over 20 years divided by the population or GDP in one representative year.
Source: Human Development Report Office calculations based on data from the Centre for Research on the Epidemiology of Disasters' Emergency Events Database (www.emdat.be/database; accessed 28 October 2019).

percentage of poor people affected by natural hazards was larger than that of nonpoor people.[79] In El Salvador and Honduras people in the lower quintiles of the income distribution were more likely to be affected by floods and landslides (figure 5.8).

There has been progress curbing the effects of recurring shocks behind disasters. Even though too many preventable casualties remain from events such as flooding, drought and earthquakes, total causalities per recorded event have declined. In the 1960s and 1970s there were twice as many deaths, despite a fraction of the number of recorded events, as over the past 20 years (figure 5.9). This reflects good work on disaster prevention, preparation and response.

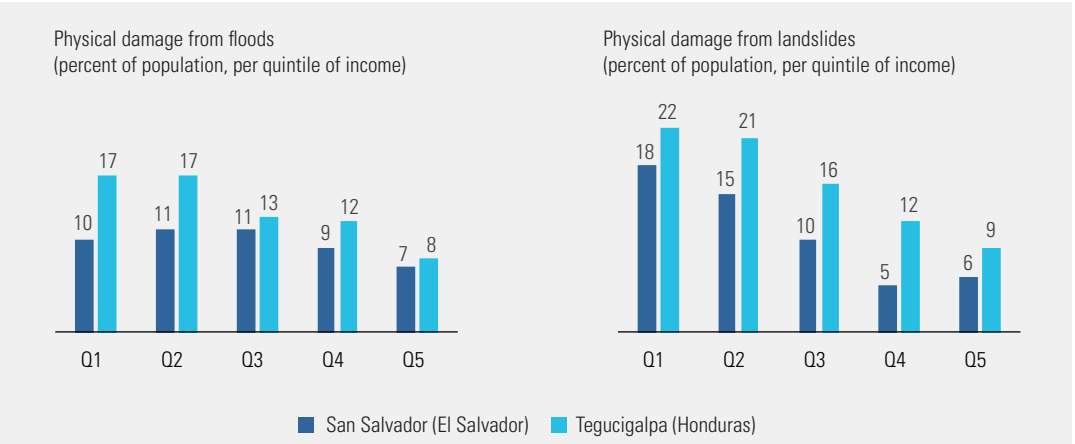
International instruments—including the Yokohama Strategy (1994) and the Hyogo Framework for Action (2005), leading to the 2015 Sendai Framework for Disaster and Risk Reduction—have mobilized stakeholders across the globe to invest in disaster risk reduction.[80] As a result, developing and developed countries are converging to lower vulnerability.[81]

But progress in reducing the absolute number of deaths appears to have plateaued since the 1990s—likely the result of two forces. One is further progress in adaptation, leading to convergence towards greater preparation to recurrent events. Second is the greater frequency and severity of shocks, possibly related to climate change—increasing the human cost in poorer areas, creating inequalities. The IPCC's 2014 Synthesis Report warned that "continued emission of greenhouse gases will cause further warming [...] increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems."[82] Climate change "risks are unevenly distributed and are generally greater for disadvantaged people and communities in countries at all levels of development."[83] If disasters tend to hit disadvantaged people harder, climate change could make vicious cycles of low outcomes and low opportunities more persistent.[84]

If disasters tend to hit disadvantaged people harder, climate change could make vicious cycles of low outcomes and low opportunities more persistent

FIGURE 5.8

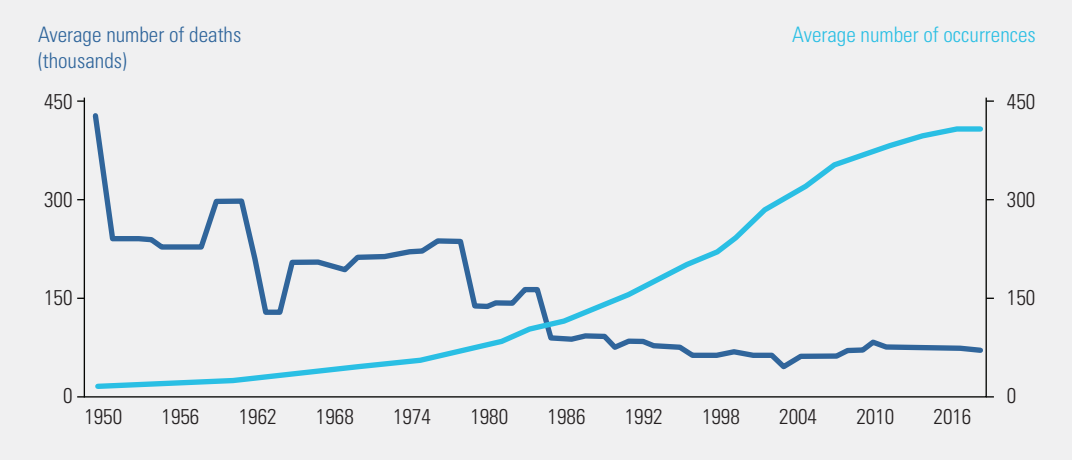
In El Salvador and Honduras people in the lower quintiles of the income distribution were more likely to be affected by floods and landslides



Source: Hallegatte and others (2017), based on Fay (2005).

FIGURE 5.9

Fewer deaths in the 2000s than in the 1960s and 1970s despite more occurrences of natural disasters



Note: Data are rolling 20-year averages.
Source: Centre for Research on the Epidemiology of Disasters' Emergency Events Database (www.emdat.be/database).

Shocks, including those related to climate change, can push people into poverty. In Senegal, households affected by a natural disaster were 25 percent more likely than others to fall into poverty during 2006–2011.[85] The impacts of natural disasters go beyond income. In Ethiopia, Kenya and Niger children born during droughts are more likely to suffer from malnutrition.[86] In Cameroon climate shocks reduce girls' chances of finishing primary school by 8.7 percentage points. In Mongolia, wildfires reduced the probability of completing secondary school by 14.4 percentage points.[87]

Climate change may also increase forced population displacements. In 2017 there were 18.8 million new internal displacements associated with disasters across 135 countries and territories, most caused by floods (8.6 million) and storms, including cyclones, hurricanes and typhoons (7.5 million). While countries at different incomes were affected, most displacements took place in developing countries,[88] where the risk of becoming homeless due to disasters is more than three times higher than in developed countries.

In sum, climate change impacts mediated by disasters differ across the globe, with shifts in both the nature of the events and their probability. This affects the ability to measure the effects and to formulate policies (box 5.3). Developed countries appear to have a broader set of resources and institutions that enable them to prepare for and respond better to surprise shocks, including climate-related ones.[89]

Environmental inequalities and injustices are pervasive—a global snapshot of waste, meat consumption and water use

Environmental inequalities become a lens to understand and address other forms of inequality, and the distribution of power and decisionmaking more broadly

Environmental inequalities and environmental injustices have much deeper roots than the current climate crisis.[90] The environmental justice movement has had strong links with other social justice movements.[91]

Ultimately, environmental inequalities—and environmental justice—are not just about the environment. They give expression to stigmatizing social norms and discriminatory laws and practices, which are manifestations of inequality in different dimensions, many taking shape as horizontal inequalities.[92] Environmental inequalities thus become a lens to understand and address other forms of inequality, and the distribution of power and decisionmaking more broadly.

Many environmental inequalities and injustices persist around the world. They are many, pervasive and persistent because differences in power (and how it is wielded) are as well. Environmental inequalities operate at many scales, reproducing and reinforcing familiar gradients, as seen in the preceding climate discussion and elsewhere in this Report. The rest

BOX 5.3

When history is no longer a good guide

When an event recurs, societies are likely to adapt through learning about four aspects:

- The nature of the shock.
- The probability of occurrence.
- The effects of the event on well-being.
- The actions to reduce damage.

Common knowledge accumulates over time, informed by historical conditions, with lessons learned about what works to reduce the negative effects of shocks. So when the events are uncertain but their effects are "known" from historical experience, coping mechanisms are easier to develop. The upshot: a substantial reduction in the negative effects of shocks.[1] This sort of adaptation occurs in all societies in different ways.

However, when events fall outside of the historical norm, there is significant unpredictability in the four aspects outlined above. And with climate change, it appears that communities around the world will confront more and more "surprises" (shocks outside of the historical experience).[2]

With climate change the basic structure of shocks does not disappear but evolves into a different process. Current policy frameworks may become incomplete. Some effects of climate change might take the form of "black swans," low-probability but high-impact events to which both public and private institutions are ill-prepared to respond. In other cases the effects are completely unknown and unpredictable: when events never experienced before are observed (such as new record temperatures). The ability to successfully adapt to climate change depends on resources for an enhanced system of preparation and response.[3]

Notes
1. See, for instance, Clarke and Dercon (2016). 2. For an example based on the climate impact on ocean temperature, see Pershing and others (2019); for the implications in terms of the need to develop a more prospective, as opposed to retrospective, ability to respond to surprise shocks, see Ottersen and Melbourne-Thomas (2019). 3. See, for instance, Farid and others (2016).
Source: Human Development Report Office.

of this chapter takes a look at a few of them, in the forms of waste, meat and water use.

Waste

Waste[93] comes from the flow of materials, often in the form of products, through society. More waste generally means more upstream extraction of raw materials, from mining to deforestation, with negative impacts on natural habitats. It also means more conversion of raw materials into products, which usually entails the intensive use of industrial energy (especially from fossil fuels), the consumption of water and the emission of pollutants across interconnected networks.

Waste management requires transportation and energy. It is a notable contributor to climate change. Nearly 5 percent of global greenhouse gas emissions are due to waste management (excluding transportation), driven mainly by food waste and improper management.[94] When burned openly, waste contributes to air pollution and health hazards; when deposited in landfills, it takes up space and can leach toxins into soil and groundwater.

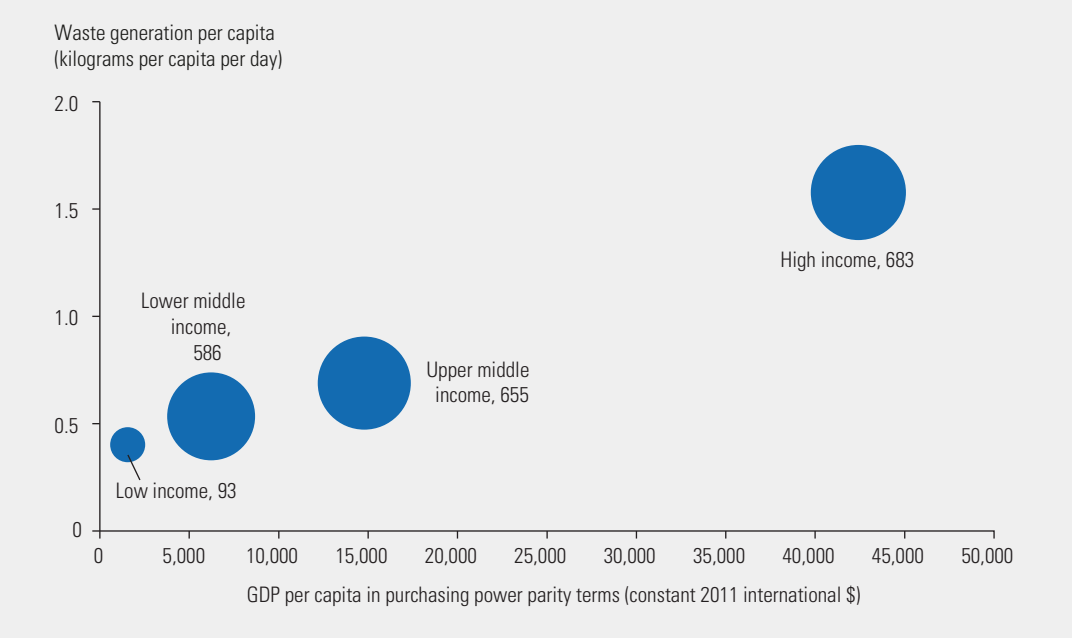
Waste also finds its way into waterways and oceans. More than 270,000 tonnes of plastic waste are in the world's oceans,[95] where gyres concentrate it in enormous garbage patches. Three have been identified so far: one in the North Pacific (the Great Pacific Garbage Patch), one in the South Pacific and one in the North Atlantic.[96] The Great Pacific Garbage Patch measures 1.6 million square kilometres (three times the size of France), and parts of it have upwards of 100 kilograms of plastic per square kilometre.[97] Plastics can circulate in oceans for years, degrading in sunlight into microplastics, forming a sort of peppery soup that birds and fish consume.[98] Marine microplastics are not confined to the sea surface; they have also been documented in the water column and animal communities of the deep sea.[99] The largest living space on earth, the deep sea, may also prove to be one of the largest reservoirs of microplastics, which have also been found in the atmosphere and remote mountains.[100]

In 2016 the world generated just over 2 billion metric tonnes of solid waste, or 0.74 kilogram per person per day, an average that varies widely by country (0.11–4.54 kilograms).[101] Under a business-as-usual scenario total waste is expected to grow to 3.4 billion metric tonnes by 2050—and to grow fastest in low-income countries, tripling by 2050. Richer countries produce more waste per capita and poorer countries less (figure 5.10).

More than 270,000 tonnes of plastic waste are in the world's oceans, where gyres concentrate it in enormous garbage patches

FIGURE 5.10

Richer countries generate more waste per capita



Source: Kaza and others 2018.

Rates of waste collection vary considerably between and within countries. Waste collection is nearly universal in high-income countries, with little disparity between urban and rural areas. At lower income levels waste collection rates decline steadily, and stark disparities between urban and rural areas open up. About 40 percent of global waste is disposed of in landfills, and one-third is openly dumped. The vast majority of waste in low-income countries is openly dumped, and open dumping steadily declines in favour of landfills, as country income increases. Incineration is used primarily among upper-middle and high-income countries. Industrial waste typically far exceeds municipal solid waste and shows a steep gradient by country income. Generally, recycling is a significant waste disposal method only in high-income countries.[102]

In addition to urban-rural divides, inequalities in waste are evident within countries.[103] Waste sites, polluting factories, and noisy airports and expressways are eyesores and health hazards that no community wants to be near. Their location in poorer communities thus reflects other forms of inequality.

Meat consumption

Livestock production is important for livelihoods and economies. It employs at least 1.3 billion people worldwide and supports the livelihoods of some 600 million poor households, mostly in developing countries,[104] where it accounts for 20 percent of total agricultural output. Animal-source foods are important components of healthy, nutritious diets, contributing especially to children's balanced growth and cognitive development. Among many other benefits, livestock can also help cushion households from negative impacts of shocks, such as droughts.[105]

Livestock is the world's largest agricultural user of land resources, with pasture and cropland dedicated to the production of feed accounting for almost 80 percent of all agricultural land (while providing only 37 percent of the world's protein and 18 percent of its calories—after including aquaculture).[106] About a fifth of available freshwater is directed to livestock production.[107] The intensity of resource use by livestock is closely tied, directly and indirectly, to energy inefficiencies in animal food production systems. Most plant matter that animals ingest, including

Livestock is the world's largest agricultural user of land resources, with pasture and cropland dedicated to the production of feed accounting for almost 80 percent of all agricultural land

feed, is used up by the animals themselves rather than stored as muscle or fat for consumption by people. The loss ratio varies but has been estimated to be as high as 90 percent,[108] making animals a highly inefficient source of calories for people. For each calorie, the production of animal foods requires much more land and resources than the production of an equivalent amount of plant-based foods.[109]

Up to 80 percent of greenhouse gas emissions generated by the global agricultural sector are from livestock production, which adds up to 7.1 gigatonnes of carbon dioxide equivalent per year—or 14.5 percent of global anthropogenic greenhouse gas emissions.[110] Emissions emanate from across the supply chain, with feed production, enteric fermentation, animal waste and land use changes among the most important sources at the farm level).[111] Cattle are responsible for about two-thirds of livestock-related carbon dioxide equivalent emissions, largely in the form of methane emissions, a greenhouse gas roughly 30 times more potent than carbon dioxide in trapping heat.[112]

Improving farm management is one way to reduce these and other environmental impacts. For many major agricultural products, greenhouse gas emissions vary widely across farms. Livestock is no exception. For beef the top 10 percent of emitters produce up to 12 times as much greenhouse gases per unit of protein as do the bottom 10 percent of emitters. The problem is concentrated at the top: The majority of emissions from beef herders come from the highest impact 25 percent of producers. One-size-fits-all approaches are unlikely to work, but significant opportunities exist to reduce variability among farms and mitigate the environmental impacts of beef, livestock and agricultural production generally. Reducing losses across the supply chain is another option, as is reducing demand for meat where possible and appropriate. For instance, on a per unit of protein basis, greenhouse gas emissions from the bottom 10 percent of beef producers still exceed those from peas by a factor of 36.[113]

The environmental benefits of dietary change exceed what producers can achieve on their own (box 5.4).[114] But the trend is in the opposite direction, owing mostly to population growth but also to other variables, such as urbanization and rising per capita incomes, that tend to increase demand for animal foods.[115] Between 2000 and 2014 the global production of meat rose 39 percent and milk 38 percent. The Food and Agriculture Organization of the United Nations estimates that by 2030 meat production will increase another 19 percent from that in 2015–2017, with developing countries accounting for almost all the increase (figure 5.11). Milk production is projected to grow 33 percent in the same period.[116] Even

Up to 80 percent of greenhouse gas emissions generated by the global agricultural sector are from livestock production, which adds up to 7.1 gigatonnes of carbon dioxide equivalent per year—or 14.5 percent of global anthropogenic greenhouse gas emissions

BOX 5.4

The impacts of a global dietary shift on sustainable human development

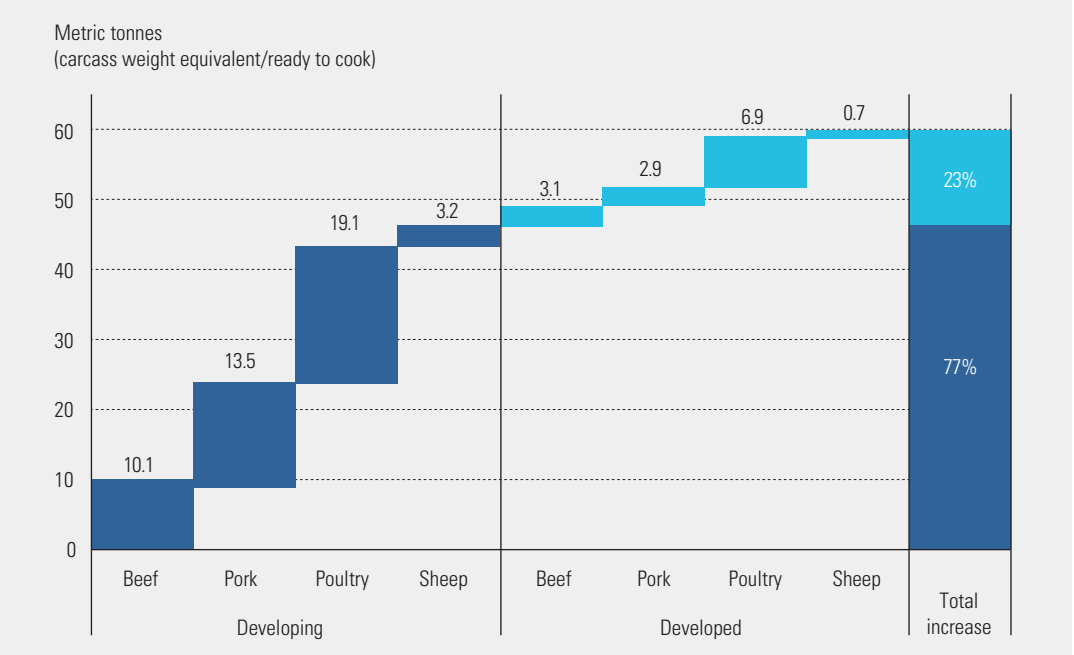
A global dietary shift favouring more plant-based foods and following guidelines for good nutrition would impact several dimensions of sustainable human development, both in aggregate and in distribution. The climate would also benefit. One estimate is that dietary changes could reduce growth in food-related greenhouse gas emissions by 29–70 percent by 2050.[1] On a per capita basis, food-related emissions could fall twice as much in richer countries as in poorer ones, narrowing the inequality in carbon dioxide equivalent emissions between them.[2] This would be driven primarily by reductions in red meat consumption, which also has health benefits[3] (though a series of recent systematic reviews have, with some controversy, called into question the degree to which reducing red and processed meat consumption improves key health indicators).[4] Numerous studies have estimated the impacts of nutritious, plant-based diets, including on overall mortality reduction.[5] The benefits, however, are not evenly shared. On a per capita basis, high- and middle-income countries might benefit more, owing to reduced red meat consumption and lower energy intakes.[6] A global shift to sustainable, nutritious, plant-based diets, therefore, could improve health overall globally while potentially worsening some kinds of health inequalities among countries.

Notes

1. Springmann and others 2016. 2. Springmann and others 2016. 3. Springmann and others 2016. 4. Han and others forthcoming; Vernooij and others forthcoming; Zeraatkar, Han and others forthcoming; Zeraatkar, Johnston and others forthcoming. See also Carroll and Doherty (2019) and Johnston and others (forthcoming). 5. Key and others 2009; Le and Sabaté and 2014; Orlich and others 2013; Springmann and others 2016; Tilman and Clark 2014. 6. Springmann and others 2016.

FIGURE 5.11

Developing countries will drive most of the rise in meat production to 2030



Source: FAO 2018.

though developing countries will drive future growth in meat production, the world's richer countries eat meat most intensively, and this is expected to continue well into the future.[117]

As incomes rise, food expenditures favour more nutrient-rich foods, such as animal foods (Bennett's Law).[118] This is explained partly by the nutritional benefits of meat and other animal products, especially for children in poorer households. There are clear inequalities in spending on meat across income quintiles, but as incomes increase, inequalities in meat consumption decline.[119]

Projections of meat consumption—and inequalities—do not account for wild cards such as technological breakthroughs that could greatly alter current trajectories and reduce environmental damages. An estimated 31 start-ups are working to become the first company to market synthetic animal protein.[120] Competition will also come from elsewhere, particularly novel vegan meat replacements[121] New areas of divergence could open up, since products are likely to be rolled out initially in rich countries. And if these foods offer additional benefits in reducing noncommunicable diseases, they could exacerbate health inequalities.

Water use

Global water withdrawal has nearly septupled over the last century, outpacing population growth by a factor of 1.7. Most of it is for agricultural use

Water and sanitation are essential for human development. They have also been recognized as human rights.[122] Despite the expansion of safely managed drinking water and sanitation services over the past two decades, significant gaps remain. As of 2017, 29 percent of people worldwide lacked access to safe drinking water. The gap is even higher for sanitation, at 55 percent.[123]

How much water humans use and in what ways have consequences for the environment and societies. Global water withdrawal has nearly septupled over the last century, outpacing population growth by a factor of 1.7.[124] Most of it is for agricultural use (69 percent), followed by industry (19 percent) and municipalities (12 percent).[125] Attempts have been made to establish a meaningful safe operating space for water use at the global level.[126] The conceptual underpinnings are also being revisited to consider subnational boundaries and to expand beyond consumptive use of blue water (freshwater in the form of rivers, lakes, groundwater and so on) to include green water (soil moisture that evaporates or transpires) and

other elements of the dynamic, global hydrological cycle. Much analytical, management and policy work remains at the national level and at smaller spatial scales, such as the basin.[127]

It is at these spatial scales where water stress, scarcity and crises are manifest. By some estimates, as many as 4 billion people, about two-thirds of the global population, live under conditions of severe water scarcity for at least one month of the year.[128] Half a billion people face water scarcity year-round.[129] One-third of the world's 37 largest aquifer systems are considered stressed.[130] Globally, enough freshwater is available to meet annual demand, but spatial and temporal mismatches between water and supply drive water scarcity. The 2006 Human Development Report argues forcefully that limits on physical supply are not the central problem but rather that "the roots of the crisis in water can be traced to poverty, inequality and unequal power relationships, as well as flawed water management policies that exacerbate scarcity."[131]

Water footprints are one way to understand and measure human use of water. Every country has a national water footprint, the amount of water produced or consumed per capita. The footprint includes virtual water, which is the water used in the production of such goods as food or industrial products. Across countries, agriculture constitutes the single greatest component (92 percent) of the water consumption footprint, with cereals the largest subcomponent (27 percent), followed by meat (22 percent) and milk products (7 percent).[132] Because the national water footprint of consumption includes imported virtual water, some countries have water footprints much larger than might be expected based on national water resource endowments alone. The transboundary movement of virtual water is significant. Over 1996–2005 about one-fifth of the global water footprint was bound up in exported goods, with trade in crops the lion's share.[133]

Water footprints vary considerably across countries. The widest variation is for developing countries. Indeed, some of them have national water footprints of consumption on par, or exceeding, those in developed countries.[134] The high water footprints in some developing countries have been attributed more to lower efficiencies of water use in consumed products than to higher overall consumption of those products per se,[135] though the latter can be relevant as well.[136] This points to the enormous potential that remains for efficiency improvements.

Water access and consumption also vary greatly within countries. Consider access to safe drinking water and sanitation, where significant inequalities persist between and within countries. Gaps in coverage between rural and urban areas have long been important. Globally, over the past two decades the gaps have narrowed, falling from 47 percentage points to 32 for safely managed water services and from 14 percentage points to 5 for safely managed sanitation services. In many countries inequalities by wealth are significant. In some, basic water and sanitation coverage for the wealthiest quintile is at least twice that for the poorest quintile (figure 5.12). For water, wealth inequalities generally exceed urban-rural ones within the same country. While water and sanitation coverage has generally improved over the past two decades across most, but not all, countries, inequalities by wealth have shown no such general trend. In some countries inequalities have declined; in others they have increased.[137]

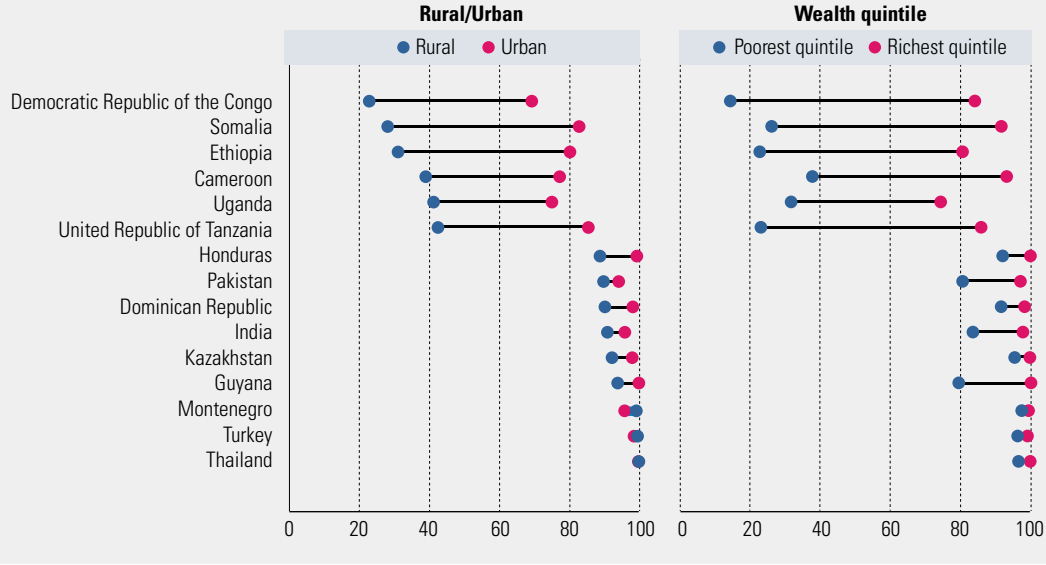
In many countries, basic water and sanitation coverage for the wealthiest quintile is at least twice that for the poorest quintile

As with urban-rural divides, national averages can mask differences and deprivations at lower levels. In South Africa the national Gini index for piped water is .36, but this varies considerably across the country's provinces, from .06 (least unequal) to .57 (most unequal).[138] Reducing inequality in water access and use cannot mean denying people their right to water, a right embedded in South Africa's constitution and affirmed by legislation that includes sanitation.[139] The human right to water and sanitation is also affirmed in the Sustainable Development Goals. The very realization of this right should go a long way in reducing inequalities.

Increasingly severe water-related crises around the world are driving what some have argued is a fundamental transition in freshwater resources and their management. Approaches that focus singularly on meeting water demand are giving way to more multifaceted ones that recognize various limits on supply, broader ecological and social values of water, and the costs and efficiency of human use. Nexus approaches are emerging that identify and respond to the way in which water is linked to other resources, such as energy, food and forests.[140]

FIGURE 5.12

In some countries basic water and sanitation coverage for the wealthiest quintile is at least twice that for the poorest quintile



Source: UNICEF and WHO 2019.

Economic production systems, demographic trends and climate change are all playing big parts in this shift. So is technology. Over the past two decades, for example, the spread of sophisticated precision irrigation technology has improved efficiency of water use in agriculture. Modern technologies are also transforming wastewater treatment and reuse, as well as the economic viability of seawater desalination. Remote sensing provides real-time data. Smart water meters and improved water pricing policies can both improve efficiency.[141] The response to and shaping of these new tools and trends—the extent to which inclusion is made a bedrock principle of a shift to freshwater sustainability—will play a big role in determining whether the human rights to water and sanitation are progressively realized, inequalities in access to both are reduced and a path of sustainable water use is embarked on.

Environmental inequalities are largely a choice, made by those with the power to choose. Remedying them is also a choice

A break from the past: Making new choices for people and planet

This chapter has shown that environmental inequalities are many and that they are inextricably linked with inequalities in human development. They reflect the way economic and political power—and the intersection of the two—is distributed and wielded, both across countries and within them. Often, these environmental inequalities and injustices are the legacy of entrenched gradients in power going back decades; for climate change, centuries. Countries and communities with greater power have, consciously or not, shifted some of the environmental consequences of their consumption onto poor and vulnerable people, onto marginalized groups, onto future generations. Environmental inequalities are largely a choice. Remedying them is also a choice, but doing so cannot come at the expense of achieving the full suite of people's human rights.

Technology has been central to the climate story. It has underpinned development trajectories that are directly linked to the climate crisis. Technology, in the form of renewables and energy efficiency, offers a glimpse that the future may break from the past—if the opportunity can be seized quickly enough and broadly shared.[142] If so, both people and planet win. The way people grapple with these and other technologies so that they encourage, rather than threaten, sustainable and inclusive human

development is the subject of the following chapter on technology.

The uptake and broad diffusion of climate-protecting technologies old and new will be critical in charting new development paths for all countries. Historical development paths have exacted environmental and social tolls that are too great. They must change, and there are encouraging signs that they are. The SDGs, the Paris Agreement and renewed interest in and expansion of progressive carbon pricing offer promising paths forward. So do efforts thus far at building climate resilience. But much more on the policy front needs to be done urgently, with developed and developing countries working together, to avoid dangerous climate tipping points and to ensure that poor and vulnerable people are not left behind. Chapter 7, which takes a panoramic look at policy options across the Report, discusses some potential policies that help address climate change and inequality together in the hope that they help countries chart their paths for more sustainable, more inclusive human development.

Historical development paths have exacted environmental and social tolls that are too great. They must change, and there are encouraging signs that they are

Spotlight 5.1

Measuring climate change impacts: Beyond national averages

A recent study that moved beyond national averages to a more granular look at climate change impacts in 3,143 counties across the continental United States[1] could signal the future for climate change economic impact assessments—partly because some of the model's parameters were linked to real-world, observed data.

The study found significant spatial heterogeneity in agricultural yields and all-cause mortality. Projected economic impacts varied widely across counties, from median losses exceeding 20 percent of gross county product to median gains exceeding 10 percent. Negative economic impacts were concentrated in the South and Midwest, while the North and West showed smaller negative impacts—or even net gains.

Climate change will worsen inequality in the United States because the worst impacts are concentrated in regions that are already poorer on average

The study concluded that climate change will worsen inequality in the United States because the worst impacts are concentrated in regions that are already poorer on average. By the latter part of the 21st century, the poorest third of counties are projected to experience damages of 2–20 percent of county income. Effects in the richest third are projected to be less severe, ranging from damages of 6.7 percent of county income to benefits of 1.2 percent. Nationally, each 1°C increase in global mean surface temperature will cost 1.2 percent of GDP.

The study does not address one of the main coping mechanisms for climate change: migration. Migration would affect national impact estimates as well as the absolute costs and benefits for individual counties. In theory, migration could also dampen the impact on inequality, as those experiencing the most negative impacts move to areas less affected and with more opportunities. The United States has a long history of migration for economic opportunity, including in times of environmental and economic crisis (such as the Dust Bowl).[2] In practice today, however, some evidence suggests migration may not be a significant coping mechanism for poor people, thereby worsening inequality. Mobility in the United States has fallen in recent decades.[3]

While in middle-income countries warming has increased emigration to cities and other countries, in poorer countries warming has reduced the likelihood of emigration.[4] Although this does not mean that poorer people in rich countries are less likely to migrate in response to climate change, it does indicate that other variables—perhaps poverty-related ones at various levels—can interact with climate change to shape migration likelihood and overall coping capacity. It also suggests that migration as a coping mechanism for climate change is less common in poorer countries than in richer ones.

Granular analyses, adapted for differences in data availability and quality, could be useful in other contexts. They could also be linked to deprivation and vulnerability data so that climate exposure, impacts and vulnerabilities could be brought together, superimposed and integrated for policy-relevant analysis and visualization, perhaps using geographic information systems. Vulnerability hotspots could be identified—spatially and by population—for policy action, including through impact mitigation and resilience building. Granular analyses would also be key in developing place-specific adaptation pathways, which could advance climate change adaptation, structural inequality reduction and broader Sustainable Development Goal achievement by "identifying local, socially salient tipping points before they are crossed, based on what people value and tradeoffs that are acceptable to them."[5]

Notes

1 Hsiang and others 2017.
2 Hornbeck 2012.
3 Carr and Wiemers 2016.
4 Cattaneo and Peri 2016.
5 Roy and others 2019, p. 458.

Spotlight 5.2

Climate vulnerability

Much like economic feedback mechanisms, attention to structural inequalities and development deficits in the context of climate change is a fairly recent advance. In a literature review in four climate-change journals through 2012, 70 percent of published studies articulated climate change itself as the main source of vulnerability, while less than 5 percent engaged with the social roots of vulnerability.[1] The Intergovernmental Panel on Climate Change's (IPCC) Fifth Assessment Report in 2014 helped redress this imbalance.[2]

How the variables of social (or structural) vulnerability aggregate at different levels—from individuals and households to towns and cities to districts and provinces to countries and regions—will shape the patterns of climate-related impacts across space and across populations in those spaces. Different patterns of inequality may emerge at different scales and depending on the kind of inequality being measured. The impact on inequalities at those different levels depends critically on whether more negative impacts are disproportionally borne by those on the lower ends of existing inequality distributions—that is, those already experiencing various forms of greater deprivation or development deficits. Given that structural inequalities exist in various forms and are inextricably linked to communities' and countries' capacities to cope with climate change, then absent mitigating factors, some worsening inequality due to climate change is already "baked in." Furthermore, the idea of "soft" and "hard" adaptation limits, as well as "loss and damage" and "residual climate-related risks," in the climate change literature is a recognition of the variability of communities and human institutions to respond to and cope with climate change impacts.[3] The IPCC's 2018 special report on global warming of 1.5°C briefly summarizes the latest literature on approaches and policy options to address residual risk and loss and damage, looking at adaptation and disaster risk reduction strategies; compensatory, distributive and procedural equity considerations; litigation and litigation risks; international assistance (such as for regional public insurance mechanisms); and global governance.[4]

The IPCC's Fifth Assessment Report concluded with very high confidence that climate change would worsen existing poverty and exacerbate inequalities.[5] The IPCC's 2018 special report summarized subsequent literature showing that "the poor will continue to experience climate change severely, and climate change will exacerbate poverty (*very high confidence*)."[6] The special report cites evidence of poorer subsistence communities already affected by climate change through declines in crop production and quality, increases in crop pests and diseases, and disruption to culture. A series of studies referenced in the special report indicates that children and the elderly are disproportionally affected by climate change and that it can increase gender inequality. The special report also cites a 2017 report that claims that by 2030, 122 million additional people could become extremely poor, due mainly to higher food prices and worse health. The poorest 20 percent across 92 countries would suffer substantial income losses. Lower-income countries are projected to experience disproportional socioeconomic losses from climate change, placing pressure towards greater inequality between countries and countering prevailing trends of recent decades towards less inequality between countries.[7] Furthermore, the special report identifies critical research gaps, stating that "impacts are likely to occur simultaneously across livelihood, food, human, water and ecosystem security...but the literature on interacting and cascading effects remains scarce."[8]

A 2016 United Nations Department of Economic and Social Affairs (UNDESA) report summarizes the literature on structural inequalities and their relationship to climate-related exposure and vulnerability.[9] Within countries, the UNDESA report notes that many poor people live in floodplains, along riverbanks or on precarious hillsides for lack of alternatives, putting them at greater risk of flooding, mudslides and other weather-related disasters. A climate change axiom is that wetter

Some worsening of inequality due to climate change is already "baked in." The idea of "soft" and "hard" adaptation limits is a recognition of the variability of communities and human institutions to respond to and cope with climate change impacts

areas will become wetter and dry areas drier. Flood frequencies are expected to double for 450 million more people in flood-prone areas.[10] Climate change will also place additional drought-related stress on those in arid and semi-arid areas, where large concentrations of poor and marginalized people live. Poor people are expected to be more exposed to droughts for warming scenarios above 1.5°C in several countries in Asia and in Southern and West Africa.[11] The rural poor in poor countries will suffer a double whammy from climate change: a negative shock to their livelihoods and spikes in food prices resulting from drops in global yields.

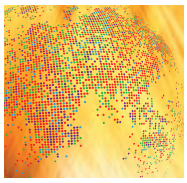
Notes

1 Tschakert (2016), based on data from Bassett and Fogelman (2013).
2 IPCC 2014.
3 Klein and others (2014), as cited in Roy and others (2019).
4 Roy and others 2019.
5 IPCC 2014.
6 Roy and others 2019, p. 451.
7 Pretis and others (2018), as cited in Roy and others (2019).
8 Roy and others 2019, p. 452.
9 UNDESA 2016.
10 Arnell and Gosling (2016), as cited in Roy and others (2019).
11 Winsemius and others (2018), as cited in Roy and others (2019).

Chapter **6**

Technology's potential for divergence and convergence: Facing a century of structural transformation

6.



Technology's potential for divergence and convergence: Facing a century of structural transformation

Will the technological transformations unfolding before our eyes increase inequality? Many think so, but the choice is ours. There certainly is historical precedent for technological revolutions to carve deep and persistent inequalities. The Industrial Revolution may have set humanity on a path towards unprecedented improvements in well-being. But it also opened the Great Divergence,[1] separating societies that industrialized,[2] producing and exporting manufacturing goods, from many that depended on primary commodities well into the middle of the 20th century.[3] And by shifting the sources of energy towards the intensive use of fossil fuels (starting with coal), the Industrial Revolution launched production pathways culminating in the climate crisis (chapter 5).[4]

Whether the ongoing changes in technology can be characterized as a revolution is for future historians to determine. The digitalization of information and the ability to share information and communicate instantaneously and globally have been building over several decades, as with computers, mobile phones and the internet. The 2001 Human Development Report considered how to make these and other new technologies work for human development, focusing on their potential to benefit developing countries and poor people.[5] While the report did not address technology's impact on jobs and earnings in detail, it highlighted the growing demand for technology skills and the potential for job creation in both developed and developing economies, suggesting the possibility for reducing inequality within and across countries. But recent advances in technologies such as automation and artificial intelligence, as well as developments in labour markets over the course of the 21st century, show that these technologies are replacing tasks performed by humans—raising with heightened urgency the question of whether technology will give rise to a New Great Divergence.

Advances in artificial intelligence grabbed headlines when a computer programme became, in just a few hours, the world's best chess player. The programme had no prior information on how to play the game. Given only the rules, it taught itself how to win—not only at chess but also at Go and Shogi.[6] This was the latest of several technological breakthroughs powered by artificial intelligence techniques known as machine learning—particularly deep learning—which enables machines to match, or even surpass, what humans can do on tasks ranging from translating languages to recognizing images and speech.[7] As artificial intelligence continues to improve the benchmark performance in a wider range of tasks,[8] it is likely to reshape the world of work in fundamental ways—for workers performing those tasks and across the entire labour market.[9]

Artificial intelligence is not the only relevant technology. Nor does it work in isolation. It interacts with digital technologies in ways that are reshaping knowledge-based labour markets, economies and societies.[10] Perhaps for the first time in human history, these technologies are known almost everywhere. East Asian countries are investing heavily in artificial intelligence and in advances in its use (discussed later in the chapter). And African countries have seized the potential of mobile phones to foster financial inclusion.[11]

These technologies also change politics, culture and lifestyles. Basic artificial intelligence algorithms meant to increase the number of clicks in social media have led millions towards hardened extreme views.[12] In some countries family and friends are being displaced by the internet as the main vehicle for couples to meet, partly because of better artificial intelligence algorithms for matching people.[13] The world of finance is being fundamentally reshaped, with nonfinancial technology firms providing payment services. China leads the way in

mobile payments, which represent 16 percent of GDP, followed by the United States, India and Brazil—but at a distance, at still less than 1 percent of GDP.[14] These firms are also extending credit and other financial services. In China artificial intelligence enables online lenders to make decisions on loans in seconds, with new credit granted to more than 100 million people.[15] And central banks from China[16] to Rwanda[17] are considering digital currencies.

Now take a step back. Technology has always progressed in every society, creating disruptions and opportunities (from gunpowder to the printing press). But the advances were typically one-off and did not translate into the sustained and rapid progress[18] that Simon Kuznets described as "modern economic growth."[19] Sustained improvements in productivity and living standards depend on constantly introducing new ideas and using them productively.[20] But having these gains in productivity and well-being reach everyone is not a given, and people who lack access can face new and deeper deprivations when access is simply assumed.[21]

Technology is not something outside economies and societies that determines outcomes on its own

Technology is not something outside economies and societies that determines outcomes on its own.[22] It co-evolves with social, political and economic systems. This implies that it takes time for the productive use of technology to settle, because it requires complementary changes in economic and social systems.[23] But how technology will shape the evolution and distribution of human development in the 21st century does not need to be left to chance. At a minimum another Great Divergence should be avoided while simultaneously addressing the climate crisis.

The impact of technical change can be an explicit concern for policymakers.[24] With a clear emphasis on enhancing human development, it can increase the employability of workers and improve the reach and quality of social services. Investments in artificial intelligence need not simply automate tasks performed by humans; they can also generate demand for labour. For example, artificial intelligence can define more detailed and individualized teaching needs and thus generate more demand for teachers to provide a wider range of education services.[25] More generally, technological change can be directed to both reduce inequality and promote environmental sustainability.[26]

Can artificial intelligence enhance human development? The direction of technological change involves many decisions by governments, firms and consumers.[27] But making technology work for people and nature is already part of the conversation in some countries.[28] Public policy and public investment will drive technological change, as they have historically.[29] But so will the distribution of capabilities. The cleavages that may open are not necessarily between developed and developing countries or between people at the top and people at the bottom of the income distribution. North America and East Asia, for instance, are far ahead in expanding access to broadband internet, accumulating data and developing artificial intelligence.[30]

This chapter shows that while access to basic technologies is converging, there is a growing divergence in the use of advanced ones, echoing the findings in part I of the Report. The chapter describes how some aspects of technology are associated with the rise of some forms of inequality—for instance, by shifting income towards capital and away from labour and the increasing market concentration and power of firms. It then examines the potential for artificial intelligence and frontier technologies to narrow inequalities in health, education and governance—pointing to technology's potential in redressing inequalities in human development. It concludes that technology can either replace or reinstate labour—it is ultimately a matter of choice, a choice not determined by technology alone.

Inequality dynamics in access to technology: Convergence in basic, divergence in enhanced

A refrain throughout this Report is that despite convergence in basic capabilities, gaps remain large in enhanced capabilities—and are often widening. This is also the case for technology, especially for access, the focus here. To be sure, this is only a partial perspective, given the inequalities in leveraging new technologies, having a seat at the table in the development of these technologies and being trained or reskilled for working with them. There are also gender disparities, with women

and girls under-represented in education and careers in science, technology, engineering and mathematics.[31] Still, the evidence on access in this chapter shows that despite convergence in access to basic technologies (which is still far from equal), there is divergence in the access to and use of advanced ones.

In fact, the ability to access and use digital technologies has a defining role both in the pattern of production and consumption and in how societies, communities and even households are organized. More and more depends—to a great extent—on the ability to connect to digital networks. This section shows that:

- Groups with lower human development have systematically less access to a wide range of technologies, as is widely established.
- Gaps in basic entry-level technologies, though still evident, are closing—reflecting convergence in basic capabilities.
- Gaps in advanced technologies[32] (even when considered commonplace by the standards of many) are widening—mirroring the pattern in enhanced capabilities identified earlier in the Report.

Inequalities in access to technology are widespread

The higher the level of human development, the greater the access to technology (figure 6.1, top panel). The digital revolution has moved fast and had enormous impact, but it is far from universal. In 2017 almost 2 billion people still did not use a mobile phone.[33] And of the 5 billion mobile subscribers in the world, nearly 2 billion—most of them in low- and middle-income countries—do not have access to the internet.[34] In 2017 the number of fixed broadband subscriptions per 100 inhabitants was only 13.3 globally and 9.7 in developing countries, and the number of mobile broadband subscriptions per 100 inhabitants was 103.6 in developed countries compared with only 53.6 in developing countries.[35] Inequalities are much greater for advanced technologies, such as access to a computer, internet or broadband (figure 6.1, bottom panel).

The convergence in basic technologies, such as mobile phones,[36] has empowered traditionally marginalized and excluded people—with greater financial inclusion a good illustration (box 6.1). But digital gaps can also become barriers not only in accessing services or enabling economic transactions but also in being part of a "learning society."[37] It is thus important to complement this static picture of gaps with an analysis of how they are evolving.

Catching up in the basics, widening gaps in advanced technologies

Inequalities in access to basic entry-level technologies are shrinking. Mobile phones, including basic service, have spread rapidly in most parts of the world (figure 6.2, left panel). In 2007 there were 102 mobile subscriptions per 100 inhabitants in developed countries compared with 39 in developing countries. By 2017 the gap had narrowed, with 127 mobile subscriptions per 100 inhabitants in developed countries and 99 in developing countries. This convergence reflects both rapid expansion at the bottom and a binding constraint at the top, with little room for further growth.

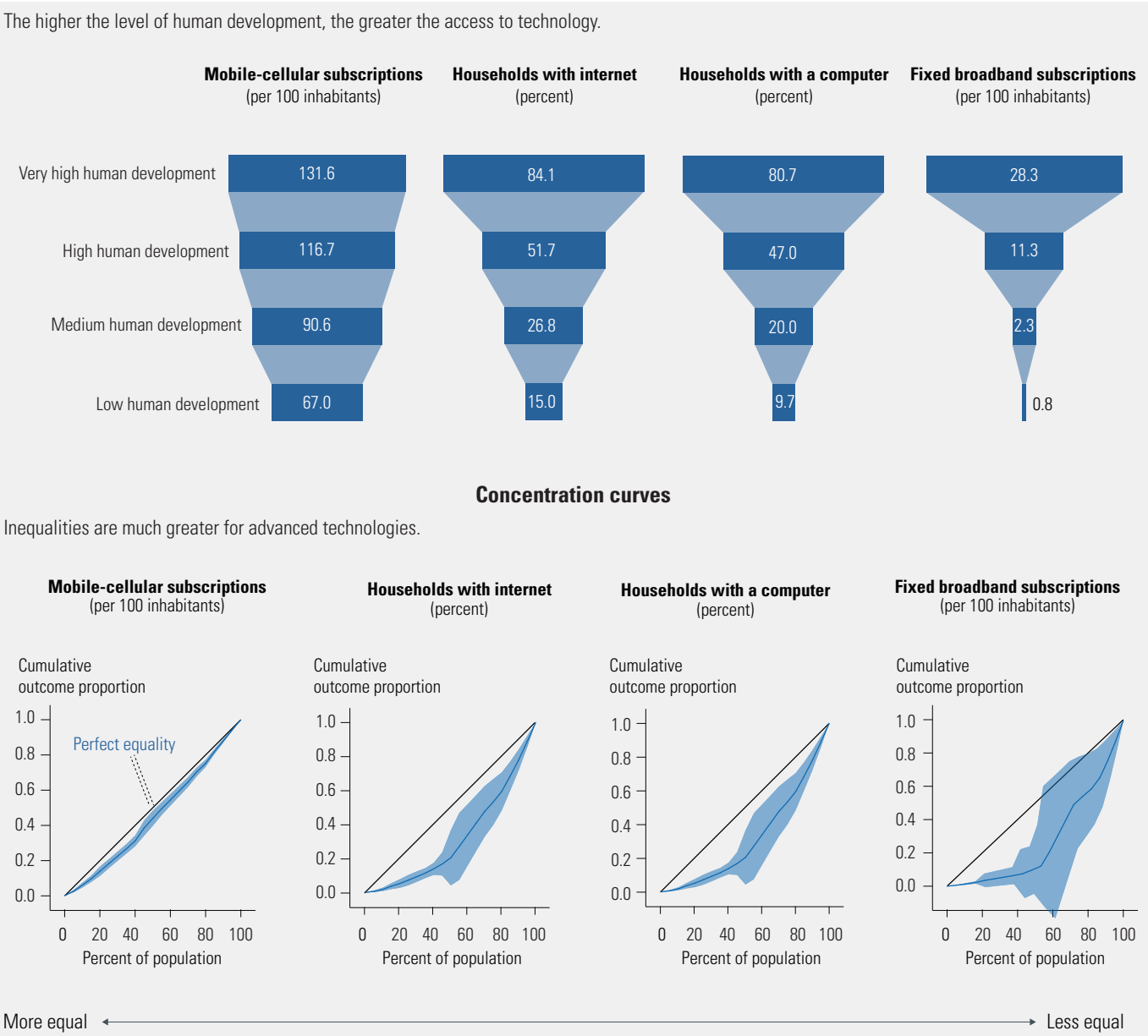
In more empowering areas of technology, involving access to more information and a potential transition from consuming content to producing it, the gaps are larger and widening (figure 6.2, right panel). Low human development countries have made the least progress in these technologies—a trend consistent with the widening gaps in installed broadband capacity, especially in absolute differences, to which the chapter turns next in some detail.[38]

In more empowering areas of technology, involving access to more information and a potential transition from consuming content to producing it, the gaps are larger and widening

The distinction between the number of telecommunication subscriptions and the availability of bandwidth mattered little when there was only fixed-line telephony, since all the connections had essentially the same bandwidth. But as artificial intelligence and related technologies continue to evolve, bandwidth will be increasingly important (as will be cloud computing, which depends on the ability to connect computers with each other). Access to bandwidth, comparable in quantity and quality to that in developed countries, is essential for developing countries to cultivate their own artificial intelligence and related applications. Also essential are transferring and adopting technologies developed by leaders in the digital world. Taking these two groups of countries in the aggregate, there has been convergence. In 2007 high-income countries had 22.4 times

FIGURE 6.1

Digital divides: Groups with higher development have greater access, and inequalities are greater for advanced technologies, 2017



Note: Data are simple averages across human development groups. Shaded areas are 95 percent confidence intervals.
Source: Human Development Report Office calculations based on country-level data from the International Telecommunications Union.

the bandwidth per capita of other countries; by 2017 the ratio had fallen to 3.4 (figure 6.3).

While the convergence in broadband among developing countries as a whole is positive, the pattern of convergence in technologies has differed across regions. Take mobile subscriptions and installed broadband potential. The regional distribution of mobile subscriptions already reflects the population distribution (meaning that the distribution of both is roughly equivalent), and in East Asia and the Pacific mobile subscriptions have already caught up with the region's share in the global population (figure 6.4). In Africa there is still a difference, though convergence is not far off. But the distribution of installed bandwidth potential follows neither

BOX 6.1

Mobile technology promotes financial inclusion

Financial inclusion is the ability to access and use a range of appropriate and responsibly provided financial services in a well regulated environment.[1] Mobile money, digital identification and e-commerce have given many more people the ability to save money and transact business securely without needing cash, to insure against risks and to borrow to grow their businesses and reach new markets.

In 2017, 69 percent of adults had an account with a financial institution, up 7 percentage points from 2014.[2] That means more than half a billion adults gained access to financial tools in three years.

Well known examples of mobile money—platforms that allow users to send, receive and store money using a mobile phone—include Kenya's M-Pesa and China's Alipay. Mobile money has brought financial services to people long ignored by traditional banks. It reaches remote regions without physical bank branches. It can also help women access financial services—an important aspect of equality, since women in many countries are less likely than men to have a bank account.[3]

Increases in e-commerce have also been dramatic, including individuals and small businesses selling products and services on online platforms. In particular, inclusive e-commerce, which promotes the participation of small firms in the digital economy, is important because it can create new opportunities for traditionally excluded groups. In China, for example, an estimated 10 million small and medium enterprises sell on the Taobao platform; nearly half the entrepreneurs on the platform are women, and more than 160,000 are people with disabilities.[4]

From artificial intelligence to cryptography, innovation in financial technology is transforming the financial sector globally.[5] While financial technology offers many potential benefits, there are also considerable concerns about these new technologies' vulnerabilities. Blockchain technology, for one, provides applications that include a secure digital infrastructure to verify identity, facilitate faster and cheaper cross-border payments and protect property rights. But these technologies bring new risks that are not fully considered by existing regulations.[6] Policymakers will need to address several tradeoffs to reap financial technology's potential benefits.

Notes
1. UNCDF 2019. 2. Demirgüç-Kunt and others 2018. 3. McKinsey 2018; World Bank 2016. 4. Luohan Academy 2019. 5. He and others 2017. 6. Sy and others 2019.

the distribution of the population nor the distribution of gross national income. East Asia and the Pacific has already taken the lead in installed bandwidth potential, with 52 percent in 2017.

So, the emerging technology cleavages do not follow a simple developed–developing country dichotomy, and the emerging disparities are fairly recent. From 1987 to 2007 little changed in the global ranking of installed bandwidth potential (figure 6.5). In 1987 a group of developed countries were in the top global ranks: The United States, Japan, France and Germany hosted more than half the global bandwidth, mainly through fixed-line telephony. At the turn of the millennium things started to change, notably with the expansion of bandwidth in East and North Asia: By 2007 Japan, the Republic of Korea and China occupied ranks 1, 3 and 5. And in 2011 China took the lead in installed bandwidth. Beyond broadband, projections on the distribution of future economic benefits linked to artificial intelligence confirm this shifting geography of technology divergence, with estimates suggesting that by 2030 about 70 percent of the global economic benefits tied to artificial intelligence will accrue to North America and East Asia.[39]

New technologies tend to have higher prices when initially introduced, with prices falling and quality increasing as the technologies diffuse.[40] Thus, every innovation has the potential to initially carve a divide, at the beginning of the diffusion process—a point also made in chapter 2, in the discussion of how gradients in health emerged when health technologies became available. The contribution here is to show that the gaps for advanced technologies are widening, not closing—in a new geography of divergence that goes beyond developed and developing countries. Avoiding a New Great Divergence implies paying attention to the evolution of technology distribution, because benevolent technology diffusion is neither automatic nor instantaneous.[41] Instead, technology may well catalyse divergence in human development outcomes. By what processes? That is the topic of the next section.

East Asia and the Pacific has already taken the lead in installed bandwidth potential, with 52 percent in 2017

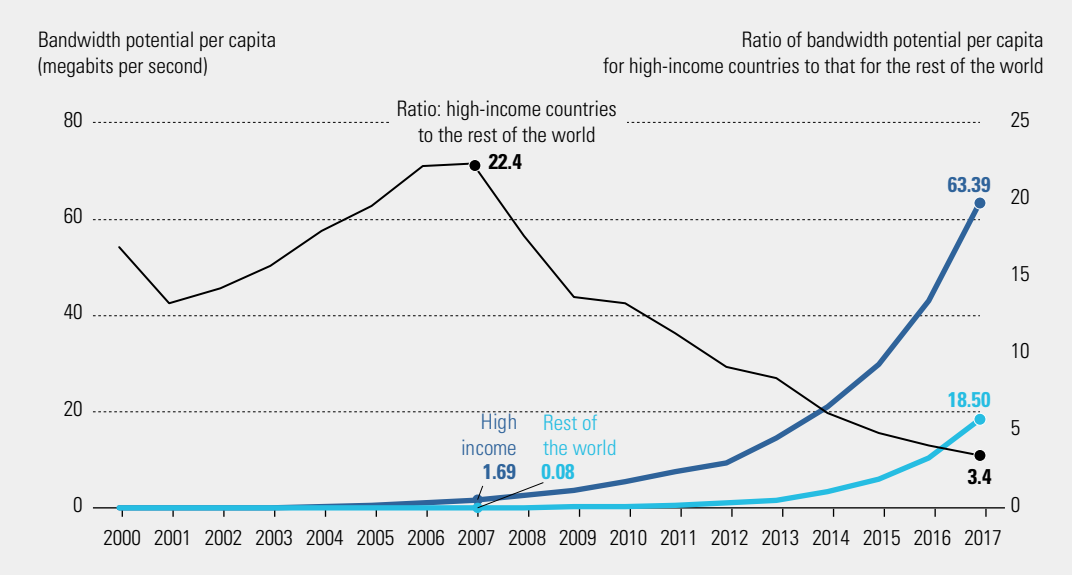
FIGURE 6.2

Dynamics of access to technology

Note: Convergence and divergence are tested for in two ways: by using the slope of an equation that regresses the change over 2007–2017 with respect to the initial value in 2007 (with ordinary least squares, robust and median quantile regressions) and by comparing the gains of very high human development countries and the gains of low and medium human development countries. For mobile subscriptions there is convergence according to both metrics (*p*-values below 1 percent). For fixed broadband subscriptions there is divergence according to both metrics (*p*-values below 1 percent).
Source: Human Development Report Office calculations based on data from the International Telecommunication Union.

FIGURE 6.3

The bandwidth gap between high-income and other countries fell from 22-fold to 3-fold



Source: Hilbert 2019.

Technology is reshaping the world: How will it shape inequality in human development?

Technology is reshaping lives—not only economies but also societies and even politics. What specific changes will bear on inequality in human development? This question is difficult to address, in part because it may never be possible to assign to technology alone any of the major changes that will reshape inequality in human development, especially with globalization and its interaction with technological change also playing a major role. Still, this section highlights some emblematic ways in which technology is upending previously stable patterns in the distribution of income and economic power. The aim is not so much to attribute causality as to give a sense of technology's potential to reshape inequalities in human development over the next few years.

Unravelling stable trends[42]

For most of the 20th century the shares of national income going to labour and to capital held remarkably constant across many economies.[43] This was far from a foregone conclusion to those witnessing the evolution of economic growth.[44] And it may have been the result of creating and strengthening such institutions as trade unions and social insurance.[45] However, with a decline in labour's share of income since the 1980s across both developed and developing economies, this empirical regularity has been unravelling.[46] For developed economies, technology has been a key driver of the decline, in part by replacing routine tasks, as described in chapter 2.[47] For developing countries the evidence is ambiguous, with both technology and globalization playing important roles.[48]

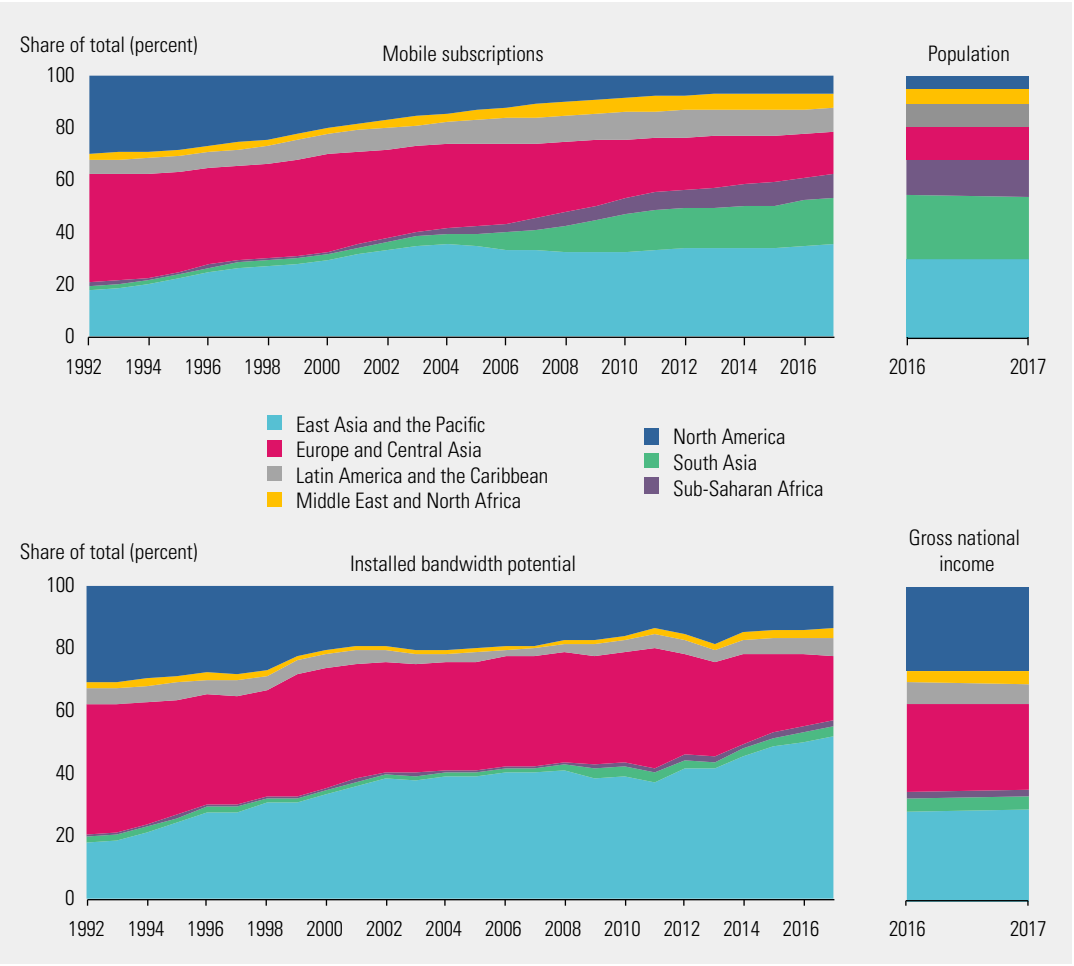
A related trend is the steep decline in the price of machinery and equipment, such as computers (generally designated as capital or investment goods), relative to the price of consumer goods.[49] Since 1970 the relative prices of investment goods in developing countries fell by almost 60 percent, with 75 percent of the decline occurring from 1990 onwards.[50] Among investment goods the price decline has been dramatic for computing and communications equipment, pointing to a link between technology and the incentives for firms to replace labour with capital, a process that in developing countries was also associated with greater integration in global value chains.[51]

Another recent development—linked to the two trends just noted as well as to the increase in

For most of the 20th century the shares of national income going to labour and to capital held remarkably constant across many economies

FIGURE 6.4

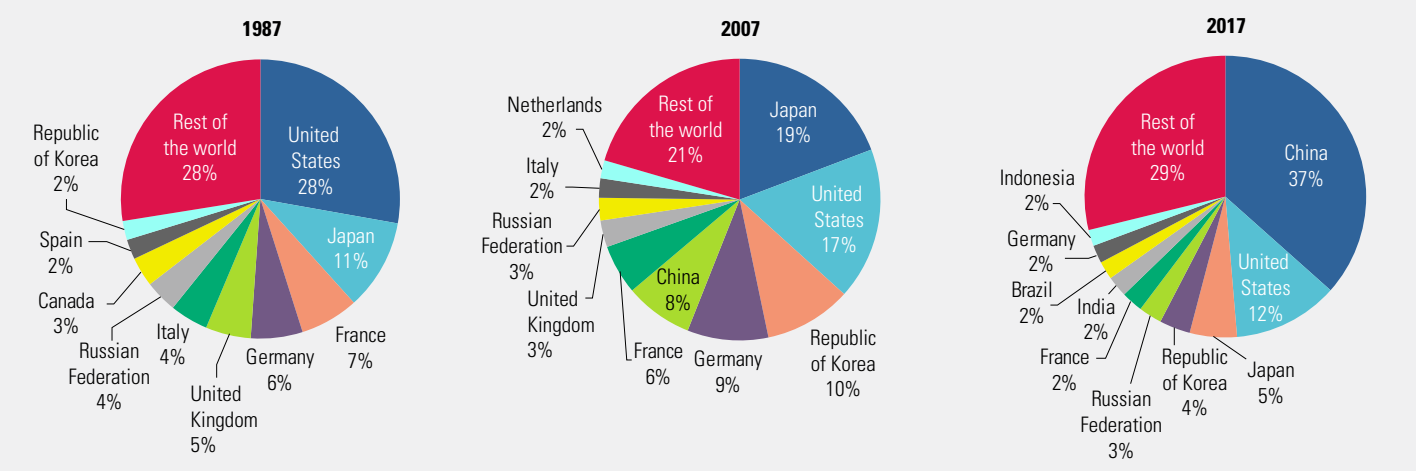
The distribution of mobile subscriptions is converging to the distribution of population by region, but installed bandwidth potential is not



Source: Hilbert 2019.

FIGURE 6.5

From 1987 to 2007 little changed in the global ranking of installed bandwidth potential, but at the turn of the millennium things started to change, with the expansion of bandwidth in East and North Asia



Source: Hilbert 2019.

corporate profits (discussed below) and changes in corporate income tax rates (discussed in chapter 7)—is the shift in the balance of savings held by households and by firms. National savings (comprising household, corporate and government savings) are needed to fund investments. Until the late 1980s most savings were held by households, but today as much as two-thirds are accounted for by the corporate sector.[52] And given that corporate investment has been stable, this means that corporations have been holding on to these savings, in some countries using them to repurchase their own stock.

Perhaps more consequential for the distribution of income is a breakdown in many countries in the association between improvements in labour productivity and the typical worker's earnings, well documented for developed countries. This Report has already shown the trend towards the accumulation of income at the top in several countries (chapter 3). Here the emphasis is specifically on labour income. This breakdown between productivity and earnings not only goes against what used to be stable trends but is also inconsistent with simple models of the labour market.

As workers become more productive (in part as a result of technological change), one would expect their earnings to increase. That is, after all, the assumed process for technological change to deliver improvements in living standards—perhaps not to everyone immediately but for the majority over time. And indeed, until the 1980s real average earnings for the bottom 90 percent of the population (a proxy for the income of a typical household) increased in step with productivity growth for many countries.[53] Since then, there has been a decoupling in the evolution of these two indicators, with the earnings of a typical family remaining flat or increasing less than productivity growth. The International Labour Organization has documented a similar decoupling for 52 developed economies, showing that from 1999 to 2017, labour productivity increased 17 percent while real wages rose 13 percent.[54]

Shifting economic power

The market power of firms can be manifested in their ability to charge prices above the cost of production or by paying lower wages than would be needed in an efficient labour market. There is evidence that both manifestations of market power are increasing, and even though technology is not the only element driving this shift, it is playing an important role.

There has been a sharp increase in markups (the difference between what a firm charges and the marginal cost of production), and this has been linked directly to labour's declining share in income.[55] While the trend of increased market power is widely shared across several sectors and industries, firms in sectors that intensively use information and communications technologies have witnessed faster, and greater, increases in markups (figure 6.6), suggesting that technology's relevance pervades across a wide range of firms.[56] Look now at big digital companies, commonly known as Big Tech, and explore how they have been acquiring market power.

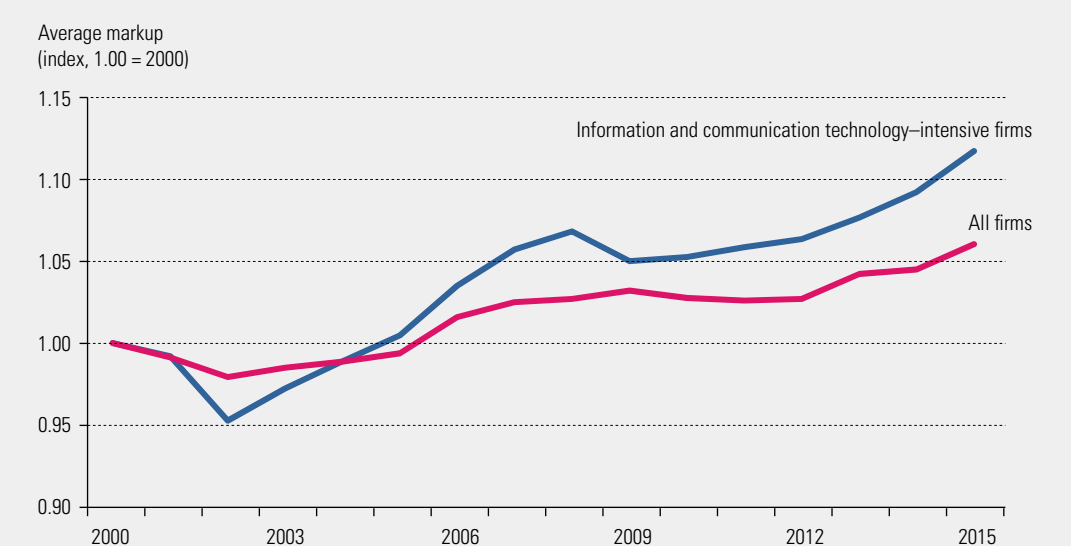
There has been a sharp increase in markups (the difference between what a firm charges and the marginal cost of production), and this has been linked directly to labour's declining share in income

Many Big Tech firms are platforms. Uber, the ride sharing company, is a platform where drivers offer their services and customers come looking for those services. Gojek and Grab work in the same way in Asia. Amazon is a platform linking sellers of products with potential buyers. All platforms benefit from network effects—that is, the value of the platform increases when there are more participants on both sides of the market. For Amazon the more sellers and the more buyers, the better for each group—and, of course, for Amazon as well.[57] Getting big supports staying big, since buyers are reluctant to leave a platform where they find sellers, and sellers, buyers. Social media companies such as Facebook and Instagram also benefit directly from network effects—people stay on the network where their friends and family are.

Big Tech intensively uses data and, increasingly, artificial intelligence, so another network spillover common to all platforms is economies of scale in data use, making these firms prone to acquiring market power.[58] Even though these platforms lower prices for consumers (and so, from that perspective, a more traditional measure of market power such as markups may not seem to apply), they can exercise market power by potentially limiting competition and choice.[59] The big players spend vast amounts on lobbying to influence policies that keep them in place and potential new entrants out.[60] And they can use their vast reserves of cash to simply buy up new platforms starting to make a mark. Google

FIGURE 6.6

Market power is on the rise, particularly for firms intensive in information and communication technology



Note: Values are average markups for firms from 20 countries, advanced and emerging, both publicly listed and privately held.
Source: Diez, Fan and Villegas-Sánchez 2019.

bought its competitors DoubleClick and YouTube. Facebook first acquired Instagram, then WhatsApp. Both companies, like others, are the products of hundreds of mergers.[61]

In parallel to the rise of monopoly power in product markets is the growing market power in labour markets—monopsony power (exercised by employers), which, once again, is linked to the decline in labour's share of income.[62] And when employers have power in labour markets, the impact of technological change on inequality can be magnified.[63]

In parallel to the rise of monopoly power in product markets is the growing market power in labour markets—monopsony power (exercised by employers), which, once again, is linked to the decline in labour's share of income

Technology is enabling monopsony power in online platforms that are carving out tasks to assign to humans based on who charges the lowest price. This includes work in digital labour markets such as TaskRabbit and Amazon Mechanical Turk, commonly referred to as crowdwork. The availability of online work may lower search costs, which would make markets competitive. But market power is high even in this large and diverse spot market. For Amazon Mechanical Turk, employers capture much of the surplus created by the platform. This has implications for distributing the gains from digital labour markets, which will likely become greater over time.[64] While crowdwork is a product of technological advances, it also represents a return to the past casual labour in industrialized economies, and in developing economies it adds to the casual labour force.[65]

The discussion here illustrates how technology is already shaping the distribution of income[66] and of economic power through rising markups, with firms exercising power at the expense of workers and consumers, as reflected in the declining share of labour income and the decoupling of median wages from labour productivity.[67] Further advances in technology, linked to advances in automation and artificial intelligence, could accelerate these dynamics,[68] while pushing to the limit existing frameworks to curb market power. The merit of antitrust action is still assessed primarily by how much consumer prices have risen.[69] But technology platforms are based on an exchange of user data for "free services." So there are calls to revisit current antitrust approaches and how to extend them to curb monopsony power.[70]

Harnessing technology for a Great Convergence in human development

This chapter started by asserting that avoiding another Great Divergence was a matter of choice—though that does not imply that the task will be easy. It ends with indications of

how to exercise that choice and unleash a Great Convergence in human development. The focus will remain on digital and related technologies, guided by a broad set of principles linked to the implementation of the 2030 Agenda for Sustainable Development (box 6.2). It first provides a framework to analyse the impact of artificial intelligence and automation that suggests opportunities to generate demand for labour. The discussion also considers the challenges of artificial intelligence, including the potential to exacerbate horizontal inequalities, as well as the ethics of it. It then provides concrete illustrations of how technology can, in practice, reduce inequality, particularly addressing the divergence in enhanced capabilities identified in part I of the Report.

Automation, artificial intelligence and inequality: Will it be possible to increase the demand for labour?

Automation and artificial intelligence do not have to shrink the net demand for labour.[71] Automation can be leveraged to create new tasks—a reinstatement effect, which would counter the displacement effect.[72] The impact on inequality will depend on how technology changes the task content of production—whether it displaces or reinstates labour through the creation of new kinds of tasks. For example, jobs such as fulfilment centre worker, social media adviser and YouTube media personality did not exist a few decades ago. Technological advance also results in an overall increase in productivity, boosting the demand for all factors of production, including labour (figure 6.7). After elaborating on the potential of this framework to identify opportunities to use artificial intelligence to increase labour demand, the discussion moves towards some of broader risks associated with it.

Artificial intelligence's potential for reinstating work

In addition to the amount, it is important to consider the quality of work. Do the kinds of new tasks created through technology differ fundamentally from past ones? For example, the rise of platforms may push down the number of workers in brick-and-mortar retail stores while increasing the number employed in fulfilment centres preparing online orders for shipping.[73] Work available on platforms has introduced flexibility and extended work opportunities in some sectors but created challenges such as how to handle the large amount of data on workers, which poses risks for worker privacy and could have other consequences, depending on how the data are used.[74]

In addition to offering new work opportunities, platforms can enhance financial inclusion. This is happening in South-East Asia (where more than three-quarters of the population is unbanked) thanks to ride-hailing services such as Gojek and Grab.[75] Once drivers become part of these platforms, they get support to open bank accounts, and the apps have become vehicles to handle financial transactions, including

Automation can be leveraged to create new tasks—a reinstatement effect, which would counter the displacement effect

BOX 6.2

Digital technologies for the Sustainable Development Goals: Creating the right conditions

Digital technologies have transformational potential. Different actors at different levels have to participate for these applications to be taken to scale. Many applications are yet to be developed. Policies are needed—at the national and global levels—to provide the right incentives to developers and adopters of technology in the fields most beneficial for human development.

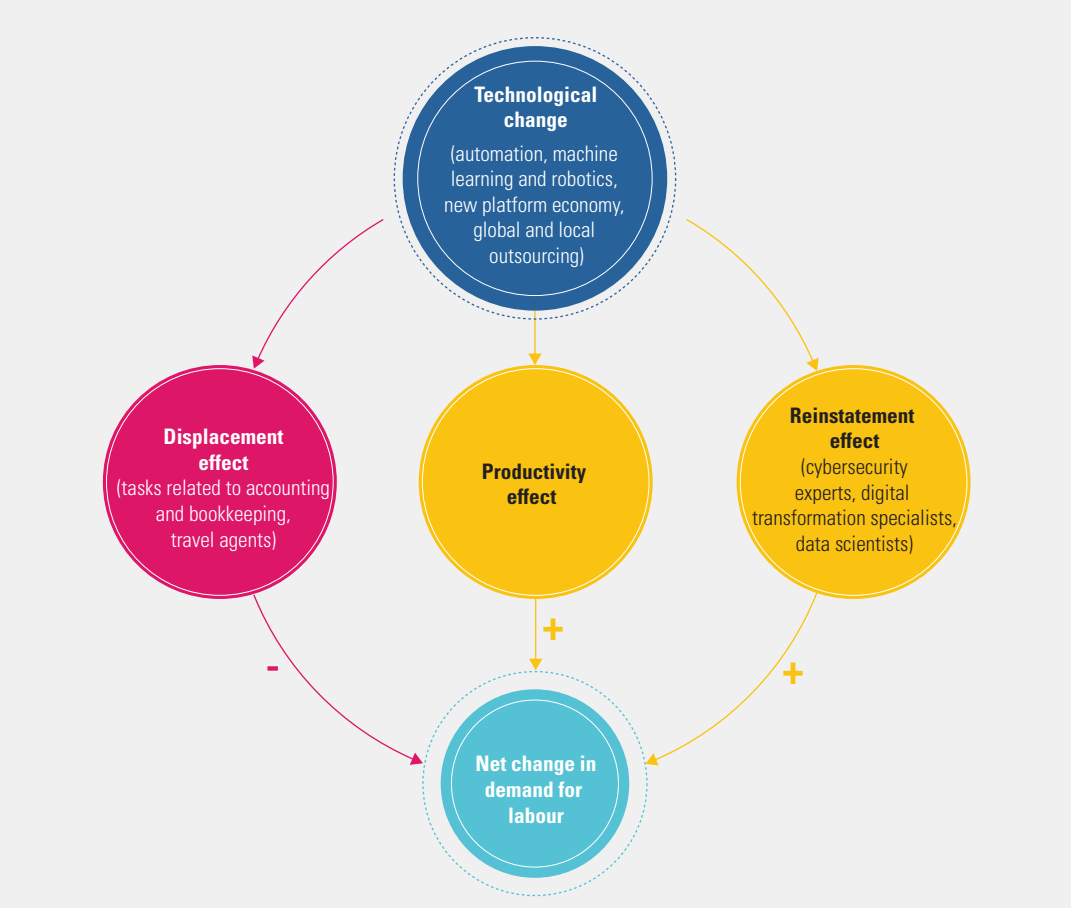
The UN Secretary-General established the High-level Panel on Digital Cooperation in July 2018 to identify examples of and propose ways for cooperating across sectors, disciplines and borders. Its final report made several recommendations under broad themes, such as build an inclusive digital economy and society; protect human rights and human agency while promoting digital trust, security and stability; and fashion a new global digital cooperation architecture.[1]

As a follow up to that report, the Global Charter for a Sustainable Digital Age provides a set of principles and standards for the international community, aiming to link the digital age with the global sustainability perspective. It sets out concrete guidelines for action for dealing with the challenges of the digital age.[2]

Notes
1. UN 2019a. 2. German Advisory Council on Global Change website (www.wbgu.de/en/publications/charter).

FIGURE 6.7

Technology can displace some tasks but also reinstate new ones



Source: Human Development Report Office.

cash. Incentives to adopt more formalized payment methods extend to retailers, such as food merchants using the platform to deliver to their customers.[76]

Basing the impact of artificial intelligence and automation on the assumption that technology could replace entire occupations can lead to high estimates of how many jobs are at risk.[77] An approach based on tasks (with occupations defined by a bundle of different tasks) provides a more balanced and more actionable framework to understand the impact—and potential—of artificial intelligence and automation. There is evidence that, within occupations, the possibility of tasks being replaced with artificial intelligence varies greatly, and different occupations have different resulting levels of susceptibility (table 6.1).[78]

Basing the impact of artificial intelligence and automation on the assumption that technology could replace entire occupations can lead to high estimates of how many jobs are at risk

Some occupations have several tasks that could be easily replaced by artificial intelligence bundled with other tasks that are difficult or impossible for machines to replace. A radiologist's task of checking medical images to identify anomalies can be performed by artificial intelligence, but a machine cannot set priorities, consult with the medical team, make treatment plans or communicate with patients and family—all tasks the radiologist performs. This suggests that when tasks within a job can be separated and rebundled, there is potential for job-redesign or job-crafting.[79] With the prevalence of highly accurate medical image recognition, radiologists can spend less time looking at images and more time interacting with other medical teams and with patients and family. Job-redesign and job-crafting thus offer opportunities to

leverage artificial intelligence to increase labour demand.

The ability of artificial intelligence to identify patterns, relationships and trends and to automatically display them through interactive dashboards or create automated reports is constantly improving. This implies updated task structures for many jobs, including stock market traders, copywriters and even journalists and editors. While a lot of tasks will be automated, high-level management and oversight of automated systems tasks are less susceptible. However, an occupation's aggregate suitability for machine learning score is not correlated with wages.[80] So it is not inevitable that artificial intelligence will replace or depress wages in certain occupations, as some argue about previous waves of automation.[81]

A human-centred agenda thus requires attention to technology's broader role in advancing decent work. Technology can free workers from drudgery and arduous labour. There is even potential for collaborative robots, or cobots, to reduce work-related stress and injury. Realizing technology's potential in the future of work depends on fundamental choices about work design, including detailed job-crafting discussions between workers and management.[82]

Intelligence augmentation (using computers to extend people's ability to process information and reason about complex problems) means that artificial intelligence, instead of aiming at automation, can integrate human agency and automation in a way that enhances both. The augmentation can take place in everyday human tasks. This happens already in spelling and grammar checking in word processors, which highlight text to correct errors, and in autocompletions of text input in internet search engines. Automatic suggestions, easily dismissible, can accelerate the search and refine ambiguous queries. These provide value, promoting efficiency, accuracy and the consideration of alternate possibilities. They augment, but do not replace, user interaction.[83]

Finally, the recent advances in artificial intelligence do not increase artificial general intelligence that could substitute machines for all aspects of human cognition. Artificial intelligence has been very effective at one aspect of intelligence: prediction.[84] But prediction is only an input into decisionmaking. The decision task is broader, requiring the collection and organization of data, the ability to take an action based on a decision and the judgement to evaluate the payoffs associated with different outcomes. For individual workers, advances in artificial intelligence will matter to the degree that prediction is a core skill in the tasks that make up their occupation. The diagnosis that a radiologist provides can also be partially made by artificial intelligence, but that is very different from a decision on the course of treatment or its implementation by a surgeon. Automated prediction thus enhances rather than replaces the value of these occupations.

TABLE 6.1

Different tasks have different potential for being replaced by artificial intelligence

Occupations with low suitability for machine learning	Suitability for machine learning score	Occupations with high suitability for machine learning	Suitability for machine learning score
Massage therapists	2.78	Concierges	3.90
Animal scientists	3.09	Mechanical drafters	3.90
Archaeologists	3.11	Morticians, undertakers and funeral directors	3.89
Public address system and other announcers	3.13	Credit authorizers	3.78
Plasterers and stucco masons	3.14	Brokerage clerks	3.78

Source: Brynjolfsson, Mitchell and Rock 2018.

Realizing technology's potential in the future of work depends on fundamental choices about work design, including detailed job-crafting discussions between workers and management

Exercising choices to seize on technology's potential: Balancing risks and opportunity

After establishing artificial intelligence's potential to reinstate work, this section elaborates on elements to consider in seizing the opportunities that artificial intelligence, and technology more broadly, are presenting. Doing so implies also having a clear-headed perspective on risks. For instance, artificial intelligence can accentuate biases and horizontal inequalities (box 6.3), including exacerbating gender disparities in the workforce, leading to even more women being in low-quality service jobs.[85] Women, on average, perform more routine or codifiable tasks than men and fewer tasks requiring analytical input or abstract thinking.[86] These differences are also present in gender gaps in education and employment linked to technology.[87] LinkedIn

BOX 6.3

Artificial intelligence and the risk of bias: Making horizontal inequalities worse?

Artificial intelligence applications have the potential to support positive social change—indeed, in some domains their impact could be revolutionary. But as with any new technology, actually achieving these positive results is challenging and risky.

Many groups of people across the globe may be on the receiving end of artificial intelligence's downside. They may lose their jobs as more tasks are performed by machine learning—even if net job loss is contained, inequalities in income and wealth could rise, and the quality of jobs fall. Workers may see strong biases against their skin colour or gender embedded in machine learning, and they may be subjects of surveillance. Algorithms for job matching may reproduce historical biases and prejudices. Companies need policies on transparency and data protection so that workers know what is being tracked. Regulation may be needed to govern data use and algorithm accountability in the world of work.

As uses of artificial intelligence become pervasive, questions arise about the rise of propaganda and manipulation, undermining democracy, and about surveillance and the loss of privacy. For example, artificial intelligence applications are linked with the development of smart cities.[1] This involves collecting data from cameras and sensors on a large scale. How does this differ from mass surveillance?

Machine learning algorithms are not biased inherently; they learn to be biased. Algorithmic bias occurs when the learning algorithm is trained on biased datasets and subsequently "accurately" learns the patterns of bias in the data.[2] In some cases the learned representations within machine learning algorithms can even exaggerate these biases.[3] For example, women are less likely to receive targeted ads for high-paying jobs potentially because the algorithm that targets the ads trained on data in which women had lower paying jobs.[4] And a computer programme used in the United States to assess the risk of reoffending by individuals in the criminal justice system incorrectly flagged black defendants as high risk nearly twice as often as white defendants.[5]

Facial recognition services can be much less accurate in identifying women or people with darker skin.[6]

The well recognized lack of diversity among the people designing and developing artificial intelligence is another problem. Few women work in artificial intelligence, as in the tech sector in general, and among the men, racial diversity is limited.[7] Diverse teams, bringing diverse perspectives, representative of the general population, could check biases.

Notes
1. Glaeser and others 2018. 2. Caliskan, Bryson and Narayanan 2017; Danks and London 2017. 3. Zhao, Wang and others 2017. 4. Spice 2015. 5. IDRC 2018. 6. Boulamwini and Gebru 2018. 7. IDRC 2018.

LinkedIn and the World Economic Forum found a significant gap between female and male representation among artificial intelligence professionals—only 22 percent worldwide are female

and the World Economic Forum found a significant gap between female and male representation among artificial intelligence professionals—only 22 percent worldwide are female.[88] Racial and ethnic differences among women in access to training and employment opportunities can exacerbate these disparities. Artificial intelligence and technology more broadly developed by teams that reflect a country's population can counter such risks. When teams are not diverse, artificial intelligence will tend to be trained on data that may have built-in biases that a more representative environment could avoid.

Researchers, firms and governments are responding to manage the risks of artificial intelligence—which include accentuation of biases as well as development of deceptive and malicious applications. For instance, thousands of artificial intelligence researchers have signed an open letter stating that they will oppose autonomous weapons, which search and engage targets without human intervention.[89] Many companies—from Big Tech to startups—are formulating corporate ethical principles overseen by ethics officers or review boards. Still, it is unclear how accountable they will hold themselves to the principles—which points to the need for regulation.[90] Governments increasingly use artificial intelligence themselves, and some are developing data ethics principles (box 6.4). When artificial intelligence systems inform decisionmaking that affects humans (such as medical diagnosis or providing a judge with an assessment of potential recidivism), avoiding bias and errors across different contexts and communities is especially important. And given the global application and reach of many artificial intelligence innovations, collective action may be needed at some point on some regulatory aspects.

BOX 6.4

The United Kingdom's Data Ethics Framework principles

1. *Start with clear user need and public benefit.* Using data in more innovative ways has the potential to transform how public services are delivered. We must always be clear about what we are trying to achieve for users—both citizens and public servants.
2. *Be aware of relevant legislation and codes of practice.* You must have an understanding of the relevant laws and codes of practice that relate to the use of data. When in doubt, you must consult relevant experts.
3. *Use data that is proportionate to the user need.* The use of data must be proportionate to the user need. You must use the minimum data necessary to achieve the desired outcome.
4. *Understand the limitations of the data.* Data used to inform policy and service design in government must be well understood. It is essential to consider the limitations of data when assessing if it is appropriate to use it for a user need.
5. *Ensure robust practices and work within your skillset.* Insights from new technology are only as good as the data and practices used to create them. You must work within your skillset recognising where you do not have the skills or experience to use a particular approach or tool to a high standard.
6. *Make your work transparent and be accountable.* You should be transparent about the tools, data and algorithms you used to conduct your work, working in the open where possible. This allows other researchers to scrutinise your findings and citizens to understand the new types of work we are doing.
7. *Embed data use responsibly.* It is essential that there is a plan to make sure insights from data are used responsibly. This means that both development and implementation teams understand how findings and data models should be used and monitored with a robust evaluation plan.

Source: UK Department for Digital, Culture, Media and Sport 2018.

A broader set of disruptions to the world of work, powered in part by artificial intelligence, is linked to digital labour platforms—alluded to earlier. These applications allow the outsourcing of work to geographically dispersed people, generating crowdwork. While they provide new sources of income to many workers in different parts of the world, the work is sometimes poorly paid, and no official mechanisms are in place to address unfair treatment. Compensation for crowdwork is often below the minimum wage.[91] True, much policy innovation is already under way, with subnational regulators stepping up.[92] But the dispersed nature of the work across international jurisdictions makes it difficult to monitor compliance with applicable labour laws. That is why the International Labour Organization suggests developing an international governance system for digital labour platforms that sets minimum rights and protections and requires platforms (and their clients) to respect them.[93]

Providing social protection

A related challenge is providing social protection to help address both the adverse impact of technology disruptions on specific income groups and the resistance to those changes.[94] During adjustments, vulnerable workers typically face periods of unemployment or see their earnings eroded. But if technology changes rapidly, it might be more challenging to find decent jobs in a new techno-economic paradigm[95] than after a more "standard" economic recession. Social insurance programmes can provide affected workers with sustenance during transition periods, but the nature of the transition matters as well: Sectors and locations where the displacement effect is stronger may need targeted social protection schemes.[96]

Compensation for crowdwork is often below the minimum wage

Active labour market policies—including wage subsidies, job placement services and special labour market programmes—can facilitate adaptation to a new techno-economic paradigm. The ideal would be a social protection floor that affords a basic level of protection to all in need, complemented by contributory social insurance schemes that provide increased protection.[97] The design of these systems presents policymakers with choices ranging from ensuring coverage at the bottom while curbing leakage to the better off[98] to balancing the generosity of transfers and the losses in efficiency[99] and ultimately to assessing the fiscal cost

against alternative uses.[100] Narrowly targeted policies could include measures to facilitate geographic mobility, supporting housing and moving costs,[101] particularly if technology creates jobs in one region while contributing to their elimination in others.

Ultimately, social protection will be only part of the response, because workers whose jobs are partially or fully automatable will need to adjust to substantially changed or entirely new occupations. Since automation affects some tasks and creates others, the nature and content of jobs change constantly. And this requires workers to learn throughout their lives. Artificial intelligence and automation tend to make high-skilled workers more valuable and in demand. There is evidence that those are the workers who avail themselves of lifelong learning opportunities, while participation among low-skill, low-wage workers is much lower (figure 6.8). Thus, there is a risk of patterns of divergence emerging in workplace and lifelong learning that are similar to those in enhanced capabilities. Lifelong learning risks creating a wedge by enabling the highly skilled to race further ahead.[102]

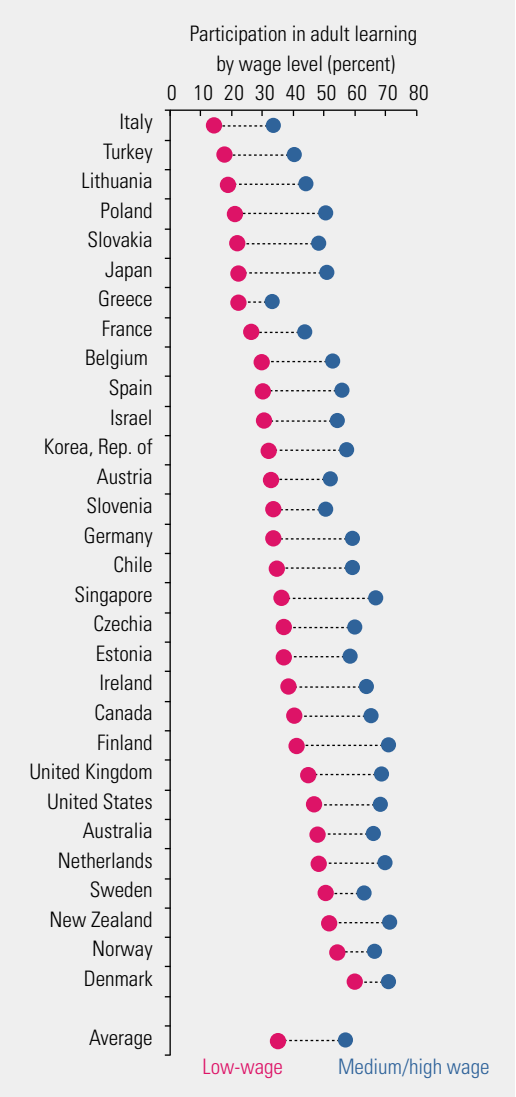
Taxation and data regulations

Beyond the impact of artificial intelligence on labour markets, two systemic challenges and risks merit particular attention: taxation and data regulation. As the potential for machines to replace tasks performed by humans grows, some have argued that there is an efficiency rationale for taxing robots[103] and for channelling technology to reinstate, rather than replace, labour.[104] In addition, digitally intensive economic activities, where the value of companies is linked less to their physical presence in a country and more to the number of members of networks around the world, are challenging longstanding assumptions underlying principles of taxation. Some proposed actions and ideas serve the interest of particular tax jurisdictions,[105] but given that digital activities are global and many companies operate across borders, there is a clear need for an international consensus on how to tax digital activities, and efforts to broker such an international agreement are under way.[106]

Data are at the centre of the digital economy. Whether targeting ads, managing supply chains or deciding the placement of drivers waiting for rides, the revenues of more and more firms are tied to collecting and analysing huge amounts of data. The free flow and use of data are important for businesses and governments. But there is also a need to protect personal data, data embodying intellectual property and data related to national security. For now the ownership and use of data are governed mostly by default norms and rules. But many jurisdictions at different levels are working out data policies to ensure that advances in innovation also protect users.[107] European governments,

FIGURE 6.8

Workers in medium and high wage jobs are more likely to participate in adult learning



Source: OECD 2019c.

through the European Union's General Data Protection Regulation, have instituted data privacy rules.[108] Beyond regulation are proposals to pay users for their data, to spread the wealth generated by artificial intelligence. Firms could generate better data by paying. Data-providing labour could come to be seen as useful work, conferring the same sort of dignity as paid employment.[109]

Deploying technology as a force for convergence in human development

For education to drive convergence implies preparing young people today for the world of work of tomorrow. Technology can help, for instance, in enabling individually customized content to "teach at the right level." This is especially important because the rapid expansion of access to primary and secondary education in developing countries has led to the enrolment of millions of first-generation learners. If they fall behind and lack instructional support at home, they may learn very little in school.[110] One example of how technology can help in middle school grades is a technology-led instructional programme called Mindspark used in urban India. It benchmarks the initial learning level of every student and dynamically personalizes material to match the individual's level and rate of progress. In just 4.5 months those with access to the programme scored higher in math and in Hindi.[111] In partnership with the programme, India's government is providing a personal learning platform called Diksha. Pointing a cell phone at a printed QR code opens a universe of interactive content—lesson plans for teachers and study guides for students and parents.[112]

Digital health solutions can also drive convergence. Still in their early days, they show the potential for expanding service coverage. Services include digitizing supply chains and patient data, with integrated digital platforms for information, bookings, payments and complementary services. They are important in areas that are remote and that have inadequate access to health care providers. Artificial intelligence is already taking hold, for example, in machine pattern recognition for medical scans and skin lesions.[113] There is also potential for machine learning to aid personalized nutrition.[114] And with the availability of real-time objective data on mood—from smartphone keystrokes, for example—artificial intelligence can help mental health diagnosis. Elderly care providers are starting to offload some parts of care to artificial intelligence, from early diagnosis of disease to at-home health monitoring and fall detection.[115] Artificial intelligence has also been used to pore through genetic data to discover that a shortage of the element selenium could be associated with premature births in Africa.[116]

Applications of artificial intelligence extend beyond education and health to other public services, leading not only to greater efficiency and enhanced transparency, but also to broader participation in various aspects of public life. For example, linguistic diversity, a given in most countries, can make e-governance services inaccessible for entire groups. In South Africa, with 11 official languages, the Centre for Artificial Intelligence Research is working on machine translation approaches to broaden access to government services.[117] In Uganda the AI Research Group at Makerere University is developing source datasets for some of the dozens of languages spoken there.[118]

The potential returns are huge in service delivery during and after disasters. Artificial Intelligence for Disaster Response is an open-source project that applies artificial intelligence to mine, classify and tag Twitter feeds during humanitarian crises, turning the raw tweets into an organized source of information that can improve response times. Soon after Ecuador experienced a major earthquake in 2016, Zooniverse, a web-based platform for crowd-sourced research, launched a website that combined inputs from volunteers and an artificial intelligence system to review 1,300 satellite images and, two hours after the website's launch, produced a heat map of damages.[119]

For social protection, technology is helping in targeting payments and other benefits, providing timely delivery and reducing opportunities for fraud. Public platforms that support interoperability and data exchange can reduce the administrative burden and the time to deliver services to poor, vulnerable and marginalized groups, promoting social and economic inclusion.[120]

Technology can help, for instance, in enabling individually customized content to "teach at the right level"

The direction of technological change can be an explicit concern for policymakers

Technology can also improve the availability of data and information for policymakers and businesses—and inform public debate. For instance, as digital imagery becomes ubiquitous and machine vision techniques improve, automated systems lend themselves to measuring demographics with fine spatial resolution in close to real time.[121] The same applies to measuring poverty and other social and economic indicators, often combining mobile phone data and satellite imagery, with the use of multiple lenses obtained from diverse datasets helping capture information on living standards more accurately.[122] For instance, in Senegal the Multidimensional Poverty Index can be accurately predicted for 552 communes using call data records and environmental data (related to food security, economic activity and accessibility to facilities). This approach can generate poverty maps more frequently, and its diagnostic capability is likely to assist policymakers in designing better interventions to eradicate poverty.[123]

In the same way that artificial intelligence can chart individualized learning paths for students, artificial intelligence's potential to collect detailed and frequent data can be leveraged to obtain very specific localized information.[124] For instance, using an artificial intelligence algorithm to analyse weather and local rice crop data in Colombia[125] led to distinct recommendations for different towns, helping 170 farmers in Córdoba avoid direct economic losses estimated at $3.6 million and potentially improving rice production. Other applications include using cutting-edge artificial intelligence to tackle urban challenges related to traffic, safety and sustainability. These applications range from artificial intelligence traffic management[126] to artificial intelligence systems that locate pipes at risk of failure.[127] Global telecommunication networks and cloud services can enable artificial intelligence insights to be transferred and adapted in different contexts.[128] Sharing artificial intelligence results among machines enables transfer learning,[129] through which knowledge moves and is customized into new contexts,[130] supplementing resources in previously underserved areas.

* * *

The direction of technological change can be an explicit concern for policymakers.[131] Recall that the public sector has supported fundamental research for technology that was subsequently commercialized by the private sector.[132] Technological innovation will be crucial to meet the Sustainable Development Goals.[133] Harnessing technology for that purpose calls for all countries to shape global and national institutions and policies that will determine the impact of technological change on sustainability and inclusion in a way that is nationally relevant.[134] It is in this context that international intellectual property rights matter. An overly stringent intellectual property rights regime can make technology diffusion harder (box 6.5).

The successful generation, diffusion and adoption of technology for development take place in a network of multiple actors—including the private sector, government and academia, often referred to as a national innovation system.[135] Public policies to influence the direction of technology are nested in such systems. Across countries, there are enormous asymmetries in the size and organization of innovation efforts. Research and development are still more intensive in developed countries (figure 6.9), and on average the gap with other countries is widening, but at the same time new regions are emerging as scientific and technological powerhouses, as in East Asia.

Important in the ability to invest nationally in science and technology, the diffusion of innovation will remain a powerful driver to increase productivity. Enhancing the productivity and employability of every worker—reaching those currently in informal and precarious forms of employment and excluded from more modern productive systems—will tend to reduce income inequality while increasing incomes.[136]

For this mechanism to work, workers must be able to use technology and benefit from the rise in productivity. Between 2007 and 2017 the median income in many countries grew less than productivity per worker, even though income and productivity are strongly correlated (figure 6.10, left panel). Moreover, the higher the productivity, the greater the share of productivity that the median worker receives as compensation (see figure 6.10, right panel). Decoupling median labour income from productivity implies that increasing productivity

BOX 6.5

Intellectual property rights, innovation and technology diffusion

In principle, intellectual property rights can be a powerful driver to incentivize innovation and creativity, even if they impose temporary restrictions on free access to new knowledge. But in some cases they have generated patent thickets, patent trolls and evergreening[1]—potentially curbing not only diffusion, but also innovation itself. Patent thickets imply long and costly negotiations to obtain multiple permissions. Patent trolling—where innovators face suits from others who own intellectual property simply to profit by licensing patents rather than undertaking production themselves—is costly.[2] And evergreening—where companies extend their patent protection by inventing new follow-on patents that are closely linked but allow for a longer period of monopoly than would otherwise be permitted—curbs competition.

On balance, while weak patent systems may increase innovation only mildly, strong patent systems can slow innovation.[3] In the last few decades a higher concentration of patent ownership, echoing the broader pattern of market concentration, has contributed to declines in knowledge diffusion and business dynamism.[4]

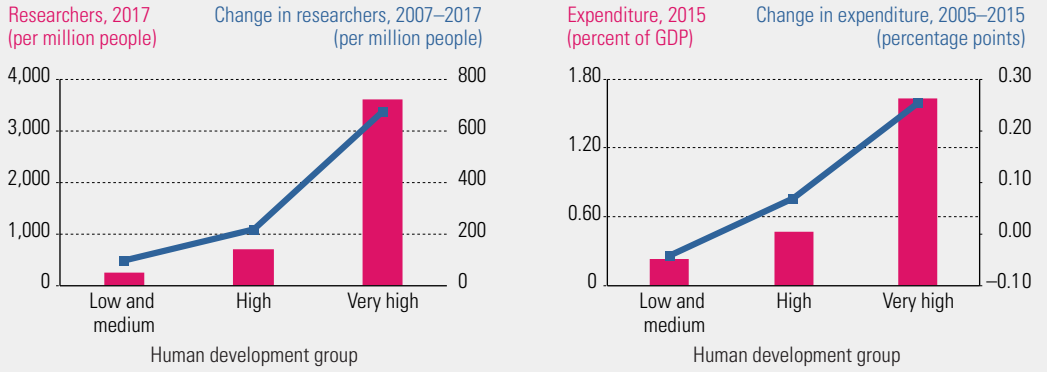
Under the World Trade Organization Trade Related Aspects of Intellectual Property System, developing countries are encouraged to increase the level and stringency of their intellectual property provisions in order to enhance international transfers of technology and spur innovative domestic firms.[5] The point is that intellectual property protection will give them the right to the profits from research and development breakthroughs. But country case studies show mixed evidence of intellectual property rights being important for foreign investment inflows, domestic technological development or technology transfers.[6]

Assigning patents to a shell company in a low tax country, paying royalties on their own patents to the shell companies and parking the income offshore illustrates how intellectual property rights can be used for tax avoidance.[7] These mechanisms further concentrate income, wealth and market power. Here, as in other areas, economic institutions and laws created in the 20th century to manage industrialization in developed economies may need to be reconsidered in the 21st century.

Notes
1. Baker, Jayadev and Stiglitz 2017. 2. Bessen and Meurer 2014. 3. Boldrin and Levine 2013. 4. Akcigit and Ates 2019. 5. Baker, Jayadev and Stiglitz 2017. 6. Maskus 2004. 7. Dharmapala, Foley, and Forbes 2011; Lazonick and Mazzucato 2013.

FIGURE 6.9

There are enormous asymmetries in research and development across human development groups



Source: Human Development Report Office calculations based on data from the World Bank's World Development Indicators database.

FIGURE 6.10

Income and productivity are strongly correlated, and the higher the productivity, the greater the share of productivity that the median worker receives as compensation

Source: Human Development Report Office calculations based on data for 94 countries from the International Labour Organization.

Technology diffusion matters not only for incomes, but also for addressing other challenges, including those related to climate change

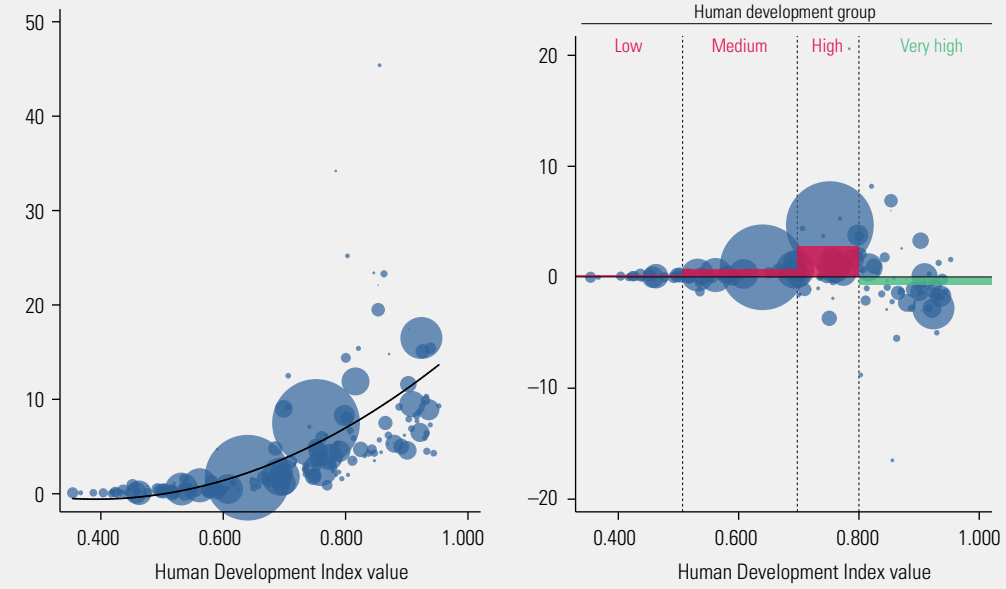
is not enough to increase wages, as discussed earlier.[137] But higher productivity can push the envelope for greater absolute compensation and for a more balanced distribution between workers and capital owners—and much of this push towards higher productivity depends on technology diffusion.

Technology diffusion matters not only for incomes, but also for addressing other challenges, including those related to climate change (chapter 5). Technological inequality between developing and developed countries harms developing countries' potential to move beyond traditional patterns of production and consumption.[138] A significant decoupling of emissions from economic development is taking place, and over the last decade several countries—predominately Organisation for Economic Co-operation and Development members with very high human development—have been reducing their carbon dioxide emissions per capita, reflecting more efficient forms of production (figure 6.11).[139] Technology diffusion will be key to extending that decoupling to countries at all levels of development.

This chapter has examined the distribution of enhanced capabilities related to technology. There is potential for harnessing technology for convergence in human development. At the same time, there is a possibility that these technologies end up causing more divergence. Making the right choices and policies, in this area and more broadly, are the topic of chapter 7.

FIGURE 6.11

A significant decoupling of emissions from development has allowed some countries to reduce their carbon dioxide emissions, reflecting more efficient forms of production

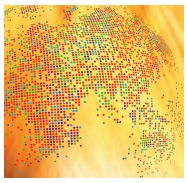


Note: Each bubble represents a country, and the size of the bubble is proportional to the country's population.
Source: Human Development Report Office based on data from the World Bank's World Development Indicators database.

Chapter **7**

Policies for reducing inequalities in human development in the 21st century: We have a choice

7.



Policies for reducing inequalities in human development in the 21st century: We have a choice

Three trends in inequalities in human development are revealed by looking beyond income and beyond averages. They frame the context for policies as we look beyond today to a world of mounting impacts of climate change and revolutionary advances in technology:

- Inequalities in basic capabilities are falling (some quite rapidly) but remain high, with many people still left behind. Moreover, the pace of convergence is not fast enough to eradicate extreme deprivations, as called for in the Sustainable Development Goals (SDGs).
- Inequalities in human development are growing in areas likely to be central to people over the next decades. Inequality in enhanced capabilities—those fast-becoming essential as we move to the 2020s—are increasing, both between and within countries.
- Inequalities in the distribution of opportunities between men and women have improved, but further progress may get harder, as the challenge of gender equality moves from basic to enhanced capabilities. There is even evidence of backlash in some countries.

This is both a hopeful and sobering picture.

Hopeful because progress in reducing gaps in basic capabilities shows that with appropriate policies, results follow. Policies have been insufficient to completely close gaps in basic capabilities, yet it may still be possible to get on track and eliminate extreme deprivations, as pledged in the 2030 Agenda for Sustainable Development. But aspirations are moving. So considering just how to catch up in basic capabilities is not enough: Reversing the divergence in enhanced capabilities is becoming increasingly important. Turning attention rapidly to this task could possibly avoid an entrenchment of divergences in enhanced capabilities.

Sobering because the compound effect of emerging inequalities, technological change and the climate crisis could make remedial actions down the road more challenging. We know this from the lifecycle approach that has informed so much of the analysis in this Report—that capabilities accumulate over time, as can disadvantages (chapters 1 and 2). The 2020s will welcome children who are expected to live into the 22nd century, so gaps that would seem small in the next few years can be amplified over decades, compounding already large inequalities in income and political power.

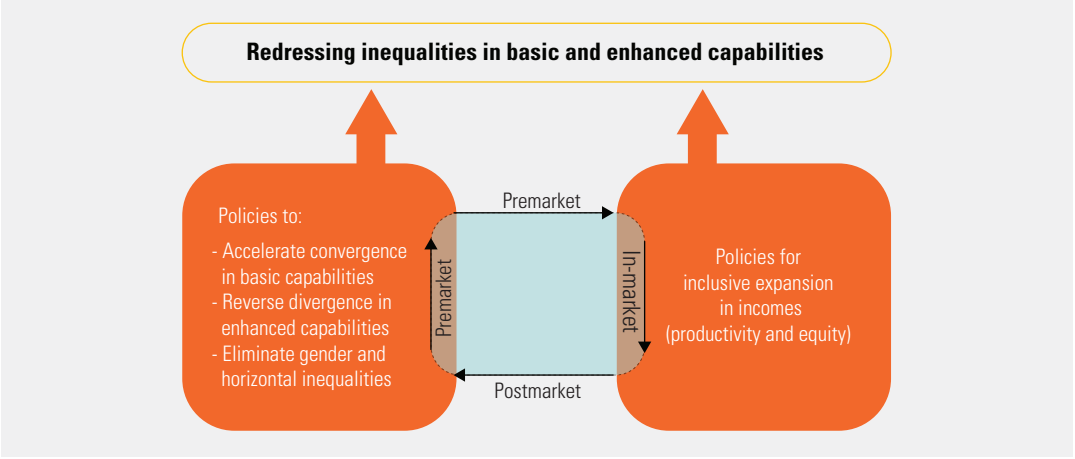
So we must act—but how?

This chapter proposes a framework for policies that links the expansion and distribution of both capabilities and income. With the overarching objective of redressing inequalities in both basic and enhanced capabilities, the framework includes two blocks (figure 7.1). The first block (the one on the left in figure 7.1) encompasses policies towards the convergence and expansion of capabilities, looking beyond income.[1] The policy goals are to accelerate convergence in basic capabilities while reversing divergences in enhanced capabilities and eliminating gender and other horizontal inequalities. The timing of many of these policies along the lifecycle matters, in relation to when they have an impact over the course of people's lives. The earlier in life some policies are pursued, the less interventions may be needed through other policies (which may be both more expensive and less effective) later in life.

The second block (the one on the right in figure 7.1) considers policies for the inclusive expansion of income. The policy objective is to jointly advance equity and efficiency in markets, increasing productivity that translates into widely shared growing incomes—redressing income inequality. The framework is based

FIGURE 7.1

A framework for designing policies to redress inequalities in human development



Source: Human Development Report Office calculations.

The framework is multidimensional, emphasizing the intrinsic importance of indivisible human freedoms: Redressing inequalities in basic and enhanced capabilities is the overarching intended outcome

on an integrated approach, because the two blocks of policies are interdependent. Policies to advance capabilities beyond income often require resources to fund government programmes, which are financed by taxes. And the overall resources available are, in turn, linked to productivity, which is linked in part to people's capabilities. The two blocks can thus work together in a virtuous policy cycle.

The framework is multidimensional, emphasizing the intrinsic importance of indivisible human freedoms: Redressing inequalities in basic and enhanced capabilities is the overarching intended outcome. Thus, it is not consistent with the reduction of inequalities in some capabilities at the expense of the drastic deterioration of others. Or with approaches that either reduce living standards–compromising sustainable growth through ill-designed distributive policies–or that simply pursue the creation of wealth while violating human rights and our planet's sustainability.

Multidimensionality also allows a better integration of the instrumental analysis of income and nonincome mechanisms behind the formation and progressive equalization of capabilities. The policy cycle can be described as one composed of premarket policies (primarily within the block on the left of figure 7.1 on nonincome capabilities and feeding into the block on the right), in-market policies (predominantly in the right block on inclusive income expansion) and postmarket policies (which connect the right block back to the left). Wages, profits and labour participation rates are typically determined in markets, which are conditioned by prevailing regulations, institutions and policies (in-market). But those outcomes also depend on policies that affect people before they become active in the economy (premarket). Premarket policies can reduce disparities in capabilities, helping everyone enter the labour market better equipped—even though it is important to emphasize that this is far from the only reason why capabilities matter and that by enhancing capabilities the contributions to expanding incomes go beyond participating in the labour market (they can, for instance, enhance political participation). In-market policies affect the distribution of income and opportunities when individuals are working, shaping outcomes that can be either more or less inclusive. Postmarket policies affect inequalities once the market, along with in-market policies, have determined the distribution of income and opportunities. These sets of policies interact. The provision of public services premarket may depend in part on the effectiveness of postmarket policies (taxes on market income to fund health and education, for instance), which matter in mobilizing government revenue to pay for those services. And taxes, in turn, are informed by how much society is willing to redistribute income from those with more to those with less.[2]

A corollary is that considering policies in isolation has limited effectiveness. Take, for instance, recommendations linked to the redistribution of income, which tend to dominate the policy debate. Tony Atkinson simulated the effect of an ambitious redistributive package on income inequality in the United Kingdom, showing that it would only halve the gap with Sweden in the Gini coefficient for disposable income and would be insufficient to reverse its increase between the late 1970s and 2013.[3] This should not be read as indicating that redistribution does not matter—the chapter argues quite the opposite—but decisive change depends on a wider and more systemic approach to policies.

Using this framework, the chapter has two sections, each corresponding roughly to policies associated with the two blocks. The aim of the chapter is to illustrate with specific examples of policies how the framework proposed can be used to redress inequalities in human development—it is not meant to provide a comprehensive analysis of all relevant policies. And given the large heterogeneity across countries and the uncertainties associated with future pathways (due not only to climate change and technology but also to other factors not considered in the Report[4]), each country will have to determine the most suitable set of policies for its unique circumstances.

The first section discusses how to expand capabilities beyond income, addressing both vertical and horizontal inequalities in human development. It considers both the structure and the design of education and health systems, as well as policies related to the emerging challenges of technology and climate change. Among horizontal inequalities, the focus is on gender equality, responding to the challenges outlined in chapter 4.

The second section addresses policies that can jointly lift productivity in ways that are translated into widely shared incomes—redressing income inequality. Those policies have a bearing on how markets for goods and services as well as for labour and capital function. The section also discusses the effect of redistributive policies at the national level. Because national policies can be constrained or facilitated by globalization, the section considers how international collective action—or the lack thereof—can shape inequalities in the 21st century.

Towards convergence in capabilities beyond income: From basic to enhanced universalism

Policies with universal reach speak to the fulfilment of the pledge to "leave no one behind" of the 2030 Agenda and to the Universal Declaration of Human Rights.[5] Progress towards universal achievements has been remarkable: 91 percent of children attend primary education,[6] more than 8 in 10 births are attended by a skilled professional[7] and more than 90 percent of people have access to an improved water supply.[8] These averages may hide the prevalence of deprivations (chapter 1) but are massive achievements.[9] They did not happen by chance: They were the result of policy choices. This section is about recalibrating ambitions and actions for the 21st century and for new generations that will see the 22nd century. It starts by arguing that convergence in capabilities beyond income should build on these achievements, but be further enhanced. Such enhancement would call for both political support (which would require overcoming constraints in social choice, as elaborated in spotlight 7.1 at the end of the chapter), as well as financial resources (to be addressed in the second half of the chapter). Beyond enhanced universalism, this section considers policies on eliminating horizontal inequalities (with a focus on gender inequality) and the enhancement of capabilities for climate shocks and to harness technology.

Towards enhanced universal systems

Universal policies built on extensive coverage only—without adequate resources or designed to ensure both quality and equity—are not genuinely universal.[10] They are useful: They boost floors, providing access to essential services, and can be credited for some of the convergence in basic capabilities. But they are unable to address on their own the persistence of inequalities in human development, as manifested in gradients in achievements.

This section argues that enhanced universal systems (illustrated with services linked to education and health) could be more effective in reducing human development inequalities if based on two pillars:

Universal policies built on extensive coverage only—without adequate resources or designed to ensure both quality and equity—are not genuinely universal

- Comprehensive social services ensuring equal access to quality services in line with the new demands and aspirations of the 21st century.[11] As chapter 2 noted, inequality in human development is multidimensional—transmitted through different channels, including markets, family networks and social networks—and can be compounded by factors such as violence. Health outcomes, for instance, depend on access to services but are also socially determined. Enhanced universal systems would incorporate these dimensions.
- Complementary special policies for excluded groups. Even though poor and marginalized people may benefit from universal policies, these alone might not be enough to reach those furthest behind, including due to group-based discrimination. For instance, children from households facing overlapping deprivations. Leaving no one behind thus also requires targeted policies addressing horizontal and group inequalities.[12]

Relying on private, fee-based schools for basic education can leave the poorest even further behind, due in part to unequal access and lower accountability for quality, which tends to harm poor students disproportionally, especially girls

Ensuring universal access to knowledge and lifelong learning

Policies to ensure equitable access to quality early childhood education have long-term consequences for health, cognitive development and employment prospects—and they even benefit a person's siblings and children (chapter 2).[13] Focusing primarily on providing access to education towards a minimum national standard has not always closed achievement gaps, even in developed countries.[14] Given that SDG target 4.6 calls for all young people to achieve numeracy and literacy skills, even equal grade attainment between rich and poor households in the same country would not necessarily ensure that this target is met. In fact, learning achievements in many developing countries are below the SDG target even for students from richer families—and children from poorer households have even worse school attainment. This implies that simple equalization—lifting up the children from the lowest socioeconomic status to the grade attainment achieved by children from the highest socioeconomic status in each country—would not achieve the SDG target of quality learning for all. Thus, enhancing learning outcomes to achieve the SDG target of universal numeracy and literacy implies that there are two gaps to address: the gap between poor and rich within countries and the gap between the top achievers in each country and the SDG target.[15]

Children from lower socioeconomic groups have a double disadvantage—fewer years of school and less learning each year. Policies that focus on outcomes rather than inputs require data on learning rather than just on enrolment, investing in children's mastery of basic concepts from an early stage and combining overall improvements with targeted interventions for groups that are especially disadvantaged.[16] Relying on private, fee-based schools for basic education can leave the poorest even further behind,[17] due in part to unequal access and lower accountability for quality, which tends to harm poor students disproportionally, especially girls. Free quality public education, improving teachers' training and enhancing inclusivity, especially for girls and disabled students, can mitigate these risks.[18]

Early childhood interventions that can help flatten gradients are showing results in developing countries (box 7.1). Several countries have been expanding coverage in preprimary education, with Ethiopia having pushed for a significant jump in coverage since 2010 (box 7.2). This not only is likely to contribute to equalization of capabilities in the long run but can also affect the distribution of unpaid work, favouring the inclusion of women in the labour market (as elaborated in the discussion about gender inequality later in this chapter).

Furthermore, technology demands updating skills throughout life (chapter 6). Lifelong learning would enhance both economic and social outcomes and help achieve more equitable opportunities at every age.[19] The International Labour Organization has made a concrete proposal on how to implement a system of entitlements to training, through reconfigured employment insurance or social funds that would allow workers to take paid time off to engage in training.[20] Workers would be entitled to a number of hours of training, regardless of the type of work they do. In countries where most workers work informally, national or sectoral education and training funds to provide informal workers access to education and training could be established. Policies to reduce informal

BOX 7.1

Enhancing capabilities in China: Tackling inequality at its roots

In addition to cognitive skills, social and emotional skills have been found to mark a productive adult.[1] But these skills are often left to the family. While weak social and emotional skills may be an emerging source of inequality, they can also be a consequence because the root can lie in inequalities in parents' education that may be transmitted to the next generation. But investing in these skills also provides an opportunity to break the vicious cycle of inequalities by creating a level start for all children.

China's scores in positive parenting and socioemotional development improved substantially between 2010 and 2014, especially for children from poorer families. Positive parenting was measured by survey questions that ask caregivers how often they intervene to enhance their children's age-specific skills (for instance, read to them or play outside with them). Socioemotional development was measured by an assessment of children's attitudes, behaviour and relation to others.

For younger children from the lowest income quintile the average positive parenting test score increased from 1.34 (on a scale of 1 to 5) in 2010 to 2.67 in 2014. For younger children from the richest quintile the average score increased from 2.37 to 3.17—less than for the other wealth quintiles. Average scores for older children showed a similar pattern, rising from 3.41 in 2010 to 3.61 in 2014 for children in the lowest quintile and from 3.49 to 3.65 for children in the richest quintile. So, inequality in parenting test scores between richer and poorer quintiles almost disappeared.[2]

China's improvements are linked to its national campaign to promote early childhood development, launched with the United Nations Children's Fund in 2010. The campaign has the ambitious goal of universal early childhood education. It emphasizes brain development in early childhood and provides parenting support through internet portals, websites and mobile phone applications. It also includes substantial investments in kindergarten and teacher training, especially in rural areas and for poor and migrant children in urban areas, and government support for early learning development guidelines, tools and national standards.[3]

Notes
1. Heckman, Stixrud and Urzua 2016.; Kautz and others 2014. 2. Li and others 2018. 3. Greubel and van der Gaag 2012; UNICEF 2019c.

BOX 7.2

Unlocking the potential of preprimary education for advancing human development in Ethiopia

An estimated 50 percent of children in the world are not enrolled in any form of early childhood education.[1] In developing countries children face even higher barriers—with only 20 percent enrolment—and often receive lower quality preprimary education. Sustainable Development Goal target 4.2 calls for all girls and boys to have access to quality early childhood development, care and preprimary education by 2030, but the poorest households have the least access to these learning opportunities.

Ethiopia shows how preprimary education can enable developing countries to improve education outcomes. Starting from one of the lowest preprimary enrolment rates in the world, just 1.6 percent in 2000, Ethiopia saw the rate rise to 45.9 percent in 2017—representing more than 3 million children.[2] Most of the growth was between 2007 and 2017, initiated by the National Policy Framework for Early Childhood Care and Education in 2010.

Acknowledging the key role of equitable access to preprimary education for human development, a core pillar of the policy framework is the expansion of preschool and school readiness programmes.[3] Led by the Ministry of Education, the main catalyst for the growth in preprimary education has been the "0-Class," a year of preschool intended for vulnerable households that aims to prepare young children for entry into grade 1, the first year of primary school. Although the ministry had initially considered two years of preprimary education, the plans were changed to broaden access.

Since its introduction the 0-Class has achieved high enrolment rates and is now by far the most widely available preschool, especially in rural areas.[4] In its first year, the programme enrolled almost three times more children than had access to kindergarten in the previous year. Fuelled by these early successes, further solutions to increase rural enrolment have been explored in Ethiopia. The United Nations Children's Fund and Save the Children piloted the Accelerated School Readiness model to reach children who did not attend 0-Class, including children in emergency situations.[5] The model consists of a two-month summer programme before grade 1. Run by primary school teachers and supported by low-cost learning kits, it provides young children with a basic curriculum in preliteracy and prenumeracy.

The impacts of preprimary education have been evaluated in multiple case studies in Ethiopia. A Save the Children project on advancing literacy and math skills found that children from lower socioeconomic backgrounds achieved significantly higher education gains—practically closing the learning gap with their peers from higher socioeconomic backgrounds.[6] Young Lives, an international study of childhood poverty led by researchers at the University of Oxford, followed the education achievements of two cohorts of children between 2002 and 2016 across Ethiopia.[7] Urban children who attended preschool programmes had a 25.7 percent higher likelihood of completing secondary education than their non-preschool counterparts.

Notes
1. UNICEF 2019c. 2. UNICEF 2019c. 3. Rossiter and others 2018. 4. Woodhead and others 2017. 5. UNICEF 2019c. 6. Dowd and others 2016. 7. Woldehanna and Araya 2017.

employment could be powerful, since formal jobs are associated with larger firms that invest more in worker training and with longer employment spells, where more on-the-job learning can occur.

Enabling everyone to lead a long and healthy life

While inequalities in health outcomes are often unrelated to the availability of health services (chapter 2 and box 7.3), universal health coverage, a priority in SDG target 3.8, has the potential to increase equality in health-related capabilities.[21] Thailand and Rwanda have rolled out universal health coverage schemes. In Thailand the policy, implemented in 2001, spread to all provinces the following year and reached 98 percent of the population in 2011.[22] Rwanda has the highest enrolment in health insurance in Sub-Saharan Africa, with community-based health insurance covering more than 75 percent of the population.[23] In Bangladesh, Brazil, Ethiopia, France, Ghana, Indonesia, Japan, Peru, Thailand, Turkey and Viet Nam—with a wide range of health systems and incomes—governments used an incremental approach to create and expand their universal health coverage programmes.[24] The process typically began by providing health insurance to civil servants and formal sector workers. Next was expanding coverage to poor and vulnerable people, which required a strong political commitment. In Brazil and Thailand social movements played an important role (see box S7.1.1 at the end of the chapter for the role of social movements more broadly in redressing inequalities).

Political commitment needs to go hand in hand with financial resources dedicated to universal health coverage, and different countries take different approaches

Political commitment needs to go hand in hand with financial resources dedicated to universal health coverage, and different countries take different approaches. France used earmarked taxes: first a payroll tax and later earmarked income and capital taxes. Brazil and Ghana earmark part of their social security contributions and value added tax. By contrast, Japan, Thailand, Turkey and Viet Nam do not have specific amounts earmarked but give it budget priority. In addition to financing, a major implementation challenge is the shortage of health care personnel. In many cases private and unregulated public health care of variable quality may increase sharply. In response, Indonesia reformed its accreditation of health professionals and standardized the processes for certifying them. Brazil and Ethiopia broadened their health professional recruitment pools for health extension and offered more flexible career opportunities to community health workers.[25]

BOX 7.3

The persistence of health gradients even with universal health coverage

Even countries with low income inequality and universal health coverage have not eliminated gradients in health. Sweden has an outstanding health care system, with broad coverage, minimal out-of-pocket costs and special help for vulnerable groups. But this equal access to health care does not produce equal health outcomes. For example:

- Mortality rates in Sweden are strongly correlated with socioeconomic status. At the bottom more than 40 percent of people die by age 80, compared with fewer than 25 percent at the top. People of lower socioeconomic status are twice as likely as those at the top to suffer from heart attacks, lung cancer, type 2 diabetes and heart failure.
- Only 10 percent of women from bottom-income households in Sweden receive the vaccination against human papillomavirus, compared with 40 percent of women from top-income households.
- Risky births are more common in poorer families in Sweden, since more than 30 percent of mothers in the bottom 1 percent smoke before or during pregnancy compared with only 5 percent of mothers in the top group.

Such persistent inequality in health outcomes can be accounted for in part by unequal access to health expertise outside the formal health system. Some policies that could mimic family access to health professionals include long-term visiting-nurse programmes, making more general practitioners available and ensuring that more providers are culturally compatible with their communities, since this increases trust. Such policies would be even more effective if targeted at the poorest.

Source: Human Development Report Office, based on Chen, Persson and Polyakova (2019).

Addressing horizontal inequalities: Focus on gender inequality

Universal policies can provide basic floors but may not be enough to eliminate horizontal inequalities. The latter are often rooted in long-standing social norms and social exclusion. Social exclusion happens when people are unable to fully participate in economic, social and political life because they are excluded on the basis of cultural, religious, racial or other reasons.[26] This may mean a lack of voice, lack of recognition or lack of capacity for active participation. It may also mean exclusion from decent work, assets, land, opportunities, access to social services or political representation.[27]

When there are large horizontal inequalities, targeted or affirmative action policies that directly support disadvantaged groups—for example, the provision of access to credit, scholarships or certain group quotas in employment and education—can complement universal policies. Several historical examples show that a combination of universal and targeted policies can reduce horizontal inequalities.[28] But there is also a risk that targeted policies further reinforce group differences or grievances, since members receive benefits precisely because of their group identity. Targeted policies are particularly relevant when a group has clearly been disadvantaged historically,[29] with policies having a defined timeframe so that they are applied only as long as the targeted group is truly disadvantaged. Clear communication about the policies is crucial to prevent grievances and feelings of disadvantage.

Given that gender remains one of the most prevalent bases of discrimination, policies addressing deep-seated discriminatory norms and harmful gender stereotypes, prejudices and practices are key for the full realization of women's human rights.[30] Policies can target social norms directly. Interventions to change unequal power relationships among individuals within a community or to challenge deeply rooted gender roles can be achieved through education, by raising awareness or by changing incentives. Education and raising awareness are both based on providing individuals with new information and knowledge that can foster different values and behaviours. Such initiatives might include formal education, workplace training or media campaigns against gender stereotyping. To change incentives, protective mechanisms can confront possible harm due to traditional gender norms or a backlash, such as school bullying or workplace harassment. Changing incentives can also be introduced to delay early marriage and reduce teenage pregnancies. The three dimensions (education, awareness, incentives) often reinforce each other, as the examples of policies included in this section suggest.

For example, Québec's 2006 nontransferable parental leave for fathers shifted incentives so that fathers became more involved in home caregiving. With new benefits fathers increased their participation in parental leave by 250 percent,[31] contributing to reverse the social norm that expected mothers to take sole responsibility for care work. And in households where men had the opportunity to use the benefit, fathers' daily time in household work was 23 percent higher than in households where new fathers did not participate, long after the leave period ended.[32] This example also shows the importance of including men in gender equality policies. In fact, according to a survey of Organisation for Economic Co-operation and Development (OECD) countries on implementing gender strategies or policies, almost everyone considers changing men's and boys' attitudes towards care activities to be the first priority.[33] Yet, even though the importance of adequately engaging men and boys in overcoming gender inequality or addressing their own gender-related vulnerabilities is widely acknowledged, public policies have yet to fully consider that dimension.[34]

Thus, laws and regulations can balance the distribution of care work in households—say, by increasing the duration of paid parental leave, as in the Québec example. But only about half of the countries in the world offer paternity leave in addition to maternity leave, and half of those offer fewer than 3 weeks for fathers and 80 percent offer fewer than 14 weeks for mothers.[35] Moreover, it is not enough for the policy to be gender-neutral; it must explicitly target men (as in Québec), precisely because otherwise social norms may prevail, impeding people from taking leave. In 2007 the Republic of Korea started to reserve a year of paternal leave, and by 2014 the number of male

Several historical examples show that a combination of universal and targeted policies can reduce horizontal inequalities. But there is also a risk that targeted policies further reinforce group differences or grievances, since members receive benefits precisely because of their group identity

workers who took advantage of it had tripled.[36] And some countries offer economic incentives for workers to use leave, as in Sweden, where parents receive a small gender-equality financial bonus for every day they use parental leave equally. This way, fathers' share of childcare during the early months or years of a child's life can be increased, which may allow for changes in social norms around childcare that can be reflected throughout a child's life.

Balancing the distribution of care, particularly for children, is crucial precisely because much of the difference in earnings throughout the lifecycle is generated before age 40, leading women to miss many labour market opportunities during the early stages of their careers.[37] These missed opportunities coincide with childbirth, which can encourage women to withdraw from the labour market. Offering access to affordable childcare can provide mothers opportunities to make their own work-life decisions, allowing them to engage in paid work. Mothers tend to adjust their choices around paid work to the demands of childcare.[38] Hence, accessible and affordable childcare is relevant for mothers' freedom to engage in paid work.[39]

Balancing the distribution of care, particularly for children, is crucial precisely because much of the difference in earnings throughout the lifecycle is generated before age 40, leading women to miss many labour market opportunities during the early stages of their careers

The impact of regulations and laws goes beyond changing the balance of care. Policies are important in areas ranging from protection from violence and discrimination to access to public services. But the way in which policies are designed and implemented is determined, in part, by participation in politics. Thus, affirmative action quotas that increase minority participation in politics can result in stronger institutional commitment to equality and nondiscrimination. Even though Tunisia is a young democracy (its first constitution was ratified in 2014), today it has one of the world's most progressive gender parity laws. It has legislated candidate, constitutional and electoral law quotas. The regulations guarantee equal opportunities for women and men at all levels of responsibility in all fields and ask candidates to file candidacy applications on the basis of parity between men and women alternating. By 2018 women occupied 47 percent of local council positions.[40] Almost all countries with high female political representation have such enabling measures as positive discrimination and affirmative action.

Policies can also increase the representation of girls in science, technology, engineering and mathematics (STEM; box 7.4). The Costa Rican Technological Institute set up a specialized training centre to build women's capacity in STEM and entrepreneurship. It celebrated the first all-female hackathon in Central

BOX 7.4

Girls' coding choices and opportunities

In Latin America 30 million young people are not in education, employment or training, and 76 percent of them are women. As an additional challenge, studying is not a guarantee for a bright future for women and girls: Less than 20 percent of women in the region transition from studying to formal jobs.[1]

Laboratoria is a nonprofit organization established in 2014 that targets girls from low-income families who face major barriers to accessing higher education. It combines applied coding education (including six-month coding bootcamps), socioemotional training, deep employer engagement and job placement services to create opportunities for students. Operating in Brazil, Chile, Mexico and Peru, it has graduated more than 820 girls and aims to reach 5,000 young women by 2021. More than 80 percent of students get jobs as developers, which often triples their incomes.

The chosen women face different barriers such as living on the outskirts of cities and having to spend 2–3 hours to commute to class or growing up believing tech sector jobs requiring mathematics skills were beyond their reach. In the courses the women learn coding essentials to build websites, apps and games. Classes follow the agile classroom model, learning as if they were working. When students near the completion of the training and begin their job search, Laboratoria pairs them with mentors from the technology field. Tech companies such as IBM, Google, LinkedIn and Microsoft have partnered with Laboratoria to increase the supply of female developers. The companies participating in and sponsoring Talent Fest have first access to Laboratoria's pool of talent, but other businesses can pay to browse student profiles as well.

Note
1. OECD 2017.
Source: Human Development Report Office based on Guaqueta (2017), Laboratoria (2019) and World Bank (2013).

America in 2018, using technology and STEM expertise to bolster sustainable development.[41] Cenfotec University and the institute established a follow-up strategy to create technology training spaces and support all women interested in a STEM career. NiñaSTEM (GirlSTEM), launched in early 2017 by the Mexican government in partnership with the OECD, invites women with prominent science and mathematics careers to act as mentors, visiting schools and encouraging girls to choose STEM subjects and be ambitious.[42]

For girls to choose STEM they must be in school. Some interventions can change incentives for girls to stay in school by either delaying marriage or reducing adolescent pregnancy. Cash transfers have been proven to increase school attendance. The Zomba Cash Transfer Programme in Malawi, where pregnancy is the main reason girls drop out, gave conditional and unconditional transfers to girls in school and girls who had recently dropped out. It significantly reduced HIV prevalence and pregnancy and early marriage rates and improved language test scores.[43]

As with education, it is important to consider how women may be uniquely vulnerable to health inequalities because of their sexual and reproductive health care needs. Reproductive health, which gives women agency and control over their own body and fertility, still has much room for progress. In Tigray, Ethiopia, a service delivery model that combines community-based distribution of contraception with social marketing benefits women and their communities.[44] In Bujumbura, the capital of Burundi, the government started a national module for comprehensive sexuality education in all schools to empower girls and women through awareness of and access to sexual and reproductive health assistance and family planning services—and to provide the community a platform for dialogue on sexual education and sexual and reproductive rights. The government has received support from international organizations, including the United Nations Population Fund, to develop the school club model and two manuals for teachers and students.[45]

Finally, social norms mould individuals' behaviours and beliefs about violence against women. Preventive policies can target both women and men. For example, SASA!, a programme designed by Raising Voices and first implemented in Kampala, Uganda, targets traditional social norms that perpetuate violence against women. Addressing both women and men in households, it approaches the power imbalance at the individual and structural levels by making communities rethink household relationship dynamics. Today the programme's results have been widely tested and standardized, as in Haiti and Tanzania, and it has been scaled up to 25 countries.[46]

Towards enhanced capabilities for climate shocks and technology

Climate change and technology are likely to shape inequalities in human development over the course of the 21st century, as explored in chapters 5 and 6. Enhanced capabilities related to these two factors are ultimately about how empowered people are to navigate the challenges and opportunities associated with them in the coming decades.

For climate change, enhanced capabilities encompass those that enable people to prepare and respond not only to shocks that have historical precedence but also to the more unprecedented disruptions that climate change is likely to bring about. Insurance can help in this regard. Article 8 of the 2015 Paris Agreement of the United Nations Framework Convention on Climate Change calls for risk insurance facilities, climate risk pools and other insurance solutions.[47] That same year the Group of 7 launched an initiative on climate risk insurance, pledging to reach 400 million uninsured people in poor countries.[48] Insurance, however, has well recognized challenges (such as moral hazard and adverse selection) that imply the need for appropriate regulation. This also applies to the design of climate-related insurance systems. Index-based microinsurance linking payouts to independently observed weather parameters, such as rainfall, can address some of these challenges, while sovereign insurance pools have also been proposed and implemented.[49]

Still, climate change poses unique challenges to, and perhaps limits on, the viability and function of insurance if it is difficult to share risks. Climate change is expected to affect large geographies in similar ways. As risks become

For climate change, enhanced capabilities encompass those that enable people to prepare and respond not only to shocks that have historical precedence but also to the more unprecedented disruptions that climate change is likely to bring about

more correlated, the benefits of risk sharing that insurance affords can become smaller. For instance, the probability that the top four maize-producing countries will experience a simultaneous production loss greater than 10 percent is now virtually zero. But as temperatures increase by 2°C, mean yields drop and absolute variability increases, the probability increases to 7 percent. At an increase of 4°C, it reaches 86 percent.[50]

Policies—local, national and international—thus have a major role in the design and implementation of climate-related insurance that includes poor and vulnerable people. Policies can support the application of new technologies. Drones, for example, have shown promise in gathering accurate data on weather-related damage to crops and property.[51] Or insurance premiums could be directly subsidized, and even means-tested. Reinsurance will also be important for affordable premiums, especially where insurance is local and climate-related risk profiles are fairly homogeneous.

The special report of the 2018 Intergovernmental Panel on Climate Change discusses place-specific adaptation pathways as opportunities for addressing structural inequalities, power imbalances and governance mechanisms that give rise to and exacerbate inequalities in climate risks and impacts.[52] But the report warns that such pathways can also reinforce inequalities and imbalances. Adaptation narratives built around self-reliance, for example, may intensify climate burdens on poor people and marginalized groups.

The special report also lists recent research that has linked long-term climate change mitigation and adaptation pathways to individual SDGs, to varying degrees. It calls for more nexus approaches, which investigate a subset of sustainable development dimensions together. Examples include a water–energy–climate nexus, leveraging the widely used shared socioeconomic pathways. Using new methods for poverty and inequality projections, shared socioeconomic pathway–based assessments have been undertaken for the local sustainable development implications of avoided impacts and related adaptation needs.

A focus on sustainable development can reduce the climate risk exposure of populations vulnerable to poverty by more than an order of magnitude,[53] including by developing narratives that would facilitate more SDG-focused analyses, with climate as one objective among other SDGs.[54]

When it comes to technology, chapter 6 highlights the importance of harnessing technological change towards inclusion and sustainability and the crucial role that "being connected" plays in enabling countries and people to leverage the potential of digital and artificial intelligence technologies. Even though the impact of technology on human development goes beyond access, the discussion here illustrates steps that can enhance capabilities (without suggesting that this is the most important policy response). Chapter 6 documents divergence in access to advanced communication technologies, which can be accounted for in part by gaps in relative costs. The Broadband Commission has set a target for 2025: entry-level broadband services (1 gigabyte) at a cost of less than 2 percent of monthly gross national income per capita. Currently most developed countries, almost half of developing countries that are not least developed countries and a small portion of least developed countries have met the target.[55]

The most salient self-reported barrier for mobile internet use is limited digital literacy and skills: 34 percent in Africa, 35 percent in East Asia, 37 percent in South Asia and 28 percent in Latin America

Still, the most salient self-reported barrier for mobile internet use is limited digital literacy and skills: 34 percent in Africa, 35 percent in East Asia, 37 percent in South Asia and 28 percent in Latin America.[56] Indeed, more than half the world's people lack basic information and communication technology skills. There are significant differences across income groups. For instance, in lower-middle-income countries only 6 percent of adults have sent an email with an attachment compared with 70 percent in developed countries.[57] Thus, education for both young and older people will be key to increasing digital literacy.

Connectivity can also be enhanced through public Wi-Fi services offered in public facilities such as libraries and community centres. Singapore and North Macedonia are two pioneers. In 2005 Singapore implemented the Wireless@SG programme to connect citizens through a network of hotspots in public and commercial facilities. In 2006 North Macedonia developed a plan to connect 460 primary and secondary schools and provide

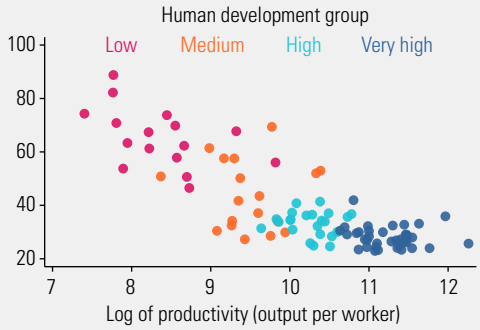
680 Wi-Fi kiosks with free access to internet services. Indonesia recently launched an ambitious plan to have public access across many of its 17,000 islands by 2022. In the Philippines the Free Public Access Program is expanding connectivity through the country: In 2019, 2,677 access points were operational, and 6,000 are expected to be added in a second phase. In Thailand the government is extending connectivity to 4,000 villages. In the Dominican Republic the government is installing 5,000 hotspots. In Madagascar the government has started a plan to connect schools and hospitals.[58] In fact, access to the internet is so important that it is making its way to being acknowledged as a right. In 2016 the United Nations General Assembly passed a resolution stressing the importance of "applying a comprehensive human rights-based approach in providing and in expanding access to Internet," requesting "all States to make efforts to bridge the many forms of digital divides." This expansion must be consistent with general human rights principles, "the same rights that people have offline must also be protected online, in particular freedom of expression."[59]

Towards inclusive income expansion: Raising productivity and enhancing equity

Episodes of rapid economic growth and structural transformation can go along with increases in economic inequality (chapter 2),[60] but higher labour productivity is associated with a lower concentration of labour income at the top (figure 7.2).[61] While the evolution of these two variables cannot be inferred simply by looking at a cross-section that represents a snapshot in time, the relationship appears to hold over time at all levels of human development (except for the Group of 7 economies; figure 7.3). This suggests that pathways that deliver both improvements in economic performance and labour incomes that are not concentrated at the top are not only feasible but also common—even if not inevitable, because this evidence does not indicate the direction of causality.[62] The challenge, therefore, is to identify those policies that are consistent with a framework of inclusive income expansion.[63]

FIGURE 7.2

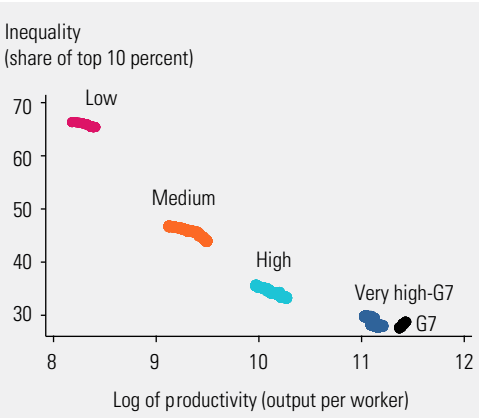
Higher labour productivity is associated with a lower concentration of labour income at the top



Note: Includes 94 countries with microdata.
Source: Human Development Report Office based on data from ILO (2019a).

FIGURE 7.3

The relationship between labour productivity and concentration of labour income appears to hold over time at most levels of human development



Note: Includes 94 countries with microdata.
Source: Human Development Report Office based on data from ILO (2019a).

Importantly, environmental sustainability also needs to be considered, especially the climate crisis, which spotlight 7.2 at the end of the chapter addresses.

Improving capabilities across the population also unleashes the productive potential of a country. Discussed here are policies primarily in-market and postmarket that have a bearing on the rate of expansion and distribution of income. The market distribution of income depends on how much people can use their assets and capabilities, the return on those assets

Higher labour productivity is associated with a lower concentration of labour income at the top. Improving capabilities across the population also unleashes the productive potential of a country

and capabilities, and their ability to respond to shocks.[64] Policies that improve the functioning of markets are thus crucial to increase productivity, also determining the distribution of income. Postmarket policies reflect primary choices associated with government taxes, transfers and public spending. This second half of the chapter considers policies in these dimensions.

Balancing power: Equitable and efficient labour markets

Most people receive income from work (a few also from capital gains), which is determined to a great extent by how markets are organized and regulated. Thus, labour markets and the world of work are important determinants of income inequality. For instance, increases in labour income towards the bottom of the distribution were central in Latin American countries that reduced income inequality in the 2000s.[65]

A minimum wage can be an instrument of efficiency when there is a monopsony (companies with excessive power in the labour market) or when the economy increases productivity in response to higher labour costs

Markets are not a baseline on which governments intervene;[66] rather, they are embedded in society (to use Karl Polanyi's expression).[67] And market outcomes are shaped by a number of policies and institutions, some of which are considered in this section. For instance, unions endow workers with the capacity to collectively bargain for their share of income, exercising agency and contributing to the outcome of negotiations, shaping the distribution of market income.[68] Due in part to the fragmentation of production associated with globalization unionization has become more difficult, with the influence of unions declining in many countries,[69] although with variations by country and over time.[70] While the relationship between changing inequality in human development and changing union density varies across countries, in practice, promoting equity through stronger unions is consistent with sustained gains in productivity.[71]

Policies and institutions underpinned by the respect for human rights determine what constitutes illicit labour markets, outlawing practices like slavery, human trafficking, child labour, human degradation, harassment and discrimination.[72] But beyond eradicating those practices, how can in-market policies contribute to a fairer distribution of incomes without hurting incentives for productivity? Policies that enhance women's participation in the labour market, in a context in which mothers and caregivers are empowered with the conditions discussed earlier in the chapter to exercise their free choice, would clearly achieve both objectives (box 7.5). The remainder of this section covers other relevant labour market institutions and policies.

Monopsonies, minimum wage and efficiency

Another important labour market policy is a minimum wage, which exists in 92 percent of countries.[73] As collective bargaining in firms becomes more challenging, broader subnational or national negotiations appear to be gaining relevance as a way to protect worker interests.[74] A minimum wage is an instrument to transmit productivity gains to the incomes of workers with limited bargaining power. But a minimum wage that is too high can reduce employment or provide incentives for informal employment.

Across countries, minimum wages show a negative relationship with inequality in labour income (figure 7.4).[75] This association does not prove any causality, but it is consistent with literature documenting that a minimum wage can, when well calibrated, increase salaries of low-income groups with limited effects on employment.[76] The distributive role is linked, in turn, to productivity.

A minimum wage can be an instrument of efficiency when there is a monopsony (companies with excessive power in the labour market, as alluded to in chapter 6) or when the economy increases productivity in response to higher labour costs.[77] Indeed, monopsony is likely to increase inequality, reducing the labour share.[78] The higher the concentration, the greater the firms' labour market power to determine wages, given workers' lack of alternative employment opportunities. In some cases firms can cooperate to reduce wages even further.[79] Monopsony is more prevalent when the geographical mobility of labour is low, due either to laws such as residency requirements or to low skills of workers, which makes them easily substitutable.

Public policy can play a key role in such cases. Although opinions are split on whether minimum wages reduce employment in competitive markets, when labour market power

BOX 7.5

Gender equality in the labour market

Women's contribution to measured economic activity does not correspond to their share of the population: It is far below their full potential. This has important macroeconomic implications. The loss in GDP per capita that is attributable to gender gaps in the labour market is estimated to be as high as 27 percent in some regions.[1] Women's economic empowerment boosts positive development outcomes, such as productivity, and increases economic diversification and income equality.[2]

Policies that aim to mitigate gender biases and guarantee equal pay can promote economic growth and could be magnified through a stronger presence of skilled women in the labour market.[3] Barriers to women's participation act as brakes on the national economy, stifling its ability to grow. So implementing policies that remove labour market distortions and create a level playing field for all would boost the demand for women's labour—with action also on the supply side to allow women to exercise their free choice to participate.[4] These measures range from changes in discriminatory regulations and practices to ensuring gender equality in pay and fairer working conditions for women.

Modifying regulations could require employers to review their pay practices or to report gender gap calculations. Since 2001 both France and Sweden have asked employers to review their practices and develop an annual plan for gender equality. Australia, Germany, Japan, Sweden and the United Kingdom require organizations with 250 or more employees to publish their gender pay gap calculations.[5] Currently, equal pay for equal work is constitutionally guaranteed in only 21 percent of countries.[6]

Other examples to improve the quality of working conditions include defining identical criteria to promote men and women, having flexible working arrangements and increasing the supply of care options to broaden choices. In Belgium, France, Germany and New Zealand all employees in companies of a certain size are entitled to request flexible working arrangements. Japan and the Republic of Korea provide mothers and fathers one year of nontransferable paid parental leave each. And Nordic countries often reserve parts of the parental leave period for the exclusive use of each parent for a few months.[7]

It is not enough to adopt these policies if they are not accompanied by training or awareness campaigns to change gender social norms. For the workplace it is very important to change attitudes towards caregiving and taking leave from work to care for dependents by men so that fathers who take leave are not stigmatized. This can help balance workloads at home and change attitudes towards gender roles in households. As in other dimensions, it is critical to engage men. One way is by establishing male role models to drive changes in gender stereotypes. An alternative is to raise awareness through sensitivity training to recognize male privilege, discern signs of sexism and understand exclusion and "micromachismos."[8]

Notes

1. Cuberes and Teignier 2012. 2. IMF 2018. 3. Agenor, Ozdemir and Moreira 2018. 4. Elborgh-Woytek and others 2013. 5. Australian Government 2019; OECD 2017a. 6. Human Development Report Office calculations using data from the WORLD Policy Analysis Center's Gender Database 2019. 7. OECD 2016. 8. A series of strategies, gestures, comments and actions of daily life that are subtle, almost imperceptible, but perpetuate and transmit gender-based violence from one generation to another (Gómez 2014).

Source: Human Development Report Office.

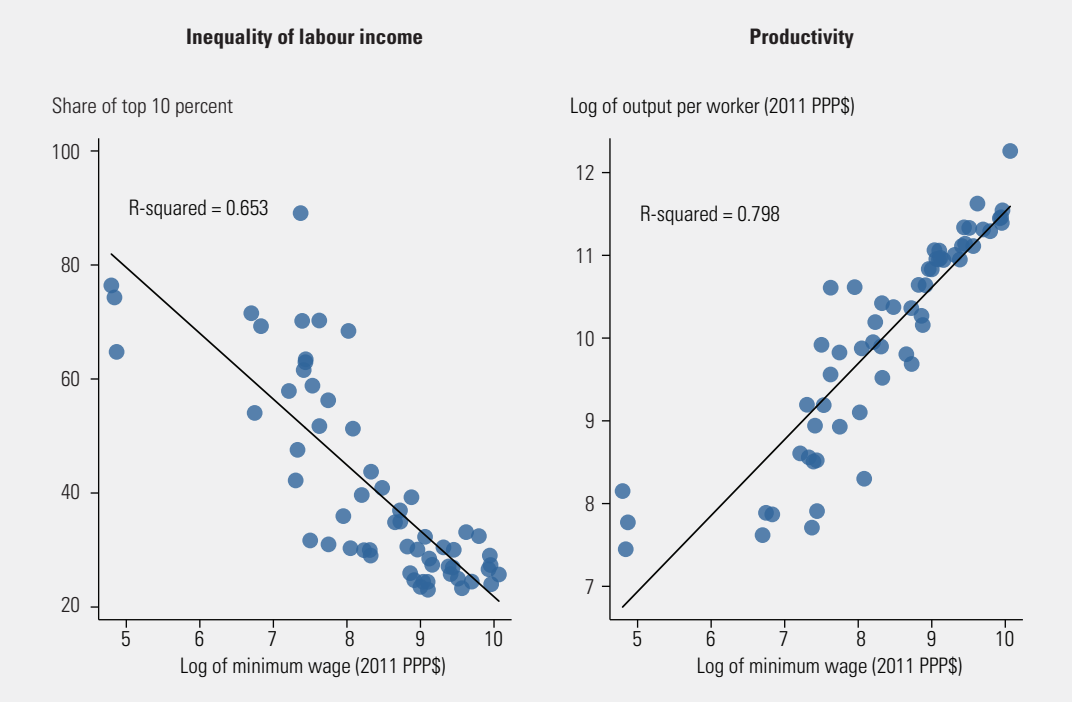
is concentrated by firms, minimum wages can actually increase employment, when the minimum wage acts as a price floor, preventing a profit-maximizing firm with monopsony power from reducing wages through lower hiring.[80] The positive effect on employment and wages at the bottom is expected to reduce inequalities.

Further efforts to reduce inequalities by checking the labour market power of firms are hampered by the dearth of research and data on the topic of monopsony, especially compared with research and data on monopoly. An internationally comparable indicator and dataset on labour market power would enable monitoring across countries and prompt action to reduce it. There is ample scope for policy, since in some cases workers' wages are marked down by 6 percent or more from their marginal product.[81]

Minimum wages can also be effective in the context of high informality. A common misconception is that the informal sector, since it has no formal barriers to entry, is more competitive than the formal sector. But the difficulty of enforcing contracts in the informal economy can create a holdup problem, where workers cannot be certain they will be paid once the work is done. If this happens, employers in informal markets have considerable power over their workers.[82] This would turn on its head the concern that labour market regulations, such as a minimum wage, could increase informality. When this mechanism holds, enforcing

FIGURE 7.4

Minimum wage: a tool to share the fruit of progress?



Note: Includes 60 countries with microdata and observed minimum wage. Data are for the most recent year available.
Source: Human Development Report Office based on data from the International Labour Organization's ILOSTAT database and ILO (2019a).

Platforms generate automatic digital records, so there is an opening for minimum wages under new forms of e-formalization

minimum wages can alleviate the holdup problem by providing a commitment device, which could increase both efficiency and equity.

In India, minimum wage laws had been largely ineffective because the overwhelming majority of the workforce has informal contracts and there is little monitoring or culpability for employers. But since the mid-2000s the laws have played an important role alongside right-to-work legislation. The Mahatma Gandhi National Rural Employment Guarantee Act promised 100 days of employment per rural household, at the official minimum wage, in public works generated by local administrations. Poor people self-select for the programme because it involves arduous physical work at the minimum wage. It has helped move market wages closer to the legal minimum, reduce exploitative working conditions and protect the rights of routinely discriminated groups such as women and workers from Scheduled Castes and Tribes.[83]

In Sub-Saharan Africa moderately higher minimum wages were correlated with higher economic growth, especially in poorer countries, with no major reduction of employment.[84] But minimum wages apply only to workers earning wages—often only in the formal sector in developing countries, thus covering a small share of all workers.

To sum up, minimum wages can be a vehicle of equity and efficiency if well calibrated to local conditions, including productivity growth and its distribution in the economy, the presence of monopsony and the level of informality. Technological change is affecting those parameters, often raising productivity in combination with monopsony power (see chapter 6). Platforms generate automatic digital records, so there is an opening for minimum wages under new forms of e-formalization.[85] As noted, whether work happens in the formal or informal sector can matter.

Informality's challenges

Around the world 61 percent of employed workers (2 million people) are in informal employment. The rate of informality is higher in developing countries and emerging countries

(70 percent) than in developed countries (18 percent).[86] On average, informal workers are poorer, are less educated, have lower productivity and lower salaries, and are more vulnerable to shocks.[87] They also contribute less to social protection schemes, which is an obstacle—both from the financial point of view and from the access point of view—to consolidating high-quality universal systems.[88]

While most informal workers in the world are men,[89] informal female workers are particularly vulnerable.[90] Unpaid family workers, industrial outworkers, home workers and casual workers are predominantly women with low earnings and a high risk of poverty, while employees and regular informal workers with higher wages and less risk of poverty are more often men (figure 7.5). This hierarchy intersects with other horizontal inequalities, such as the marginalization of ethnic groups. Groups with high rates of insecure work and poverty around the world are urban street vendors and people who work from home producing for global supply chains.

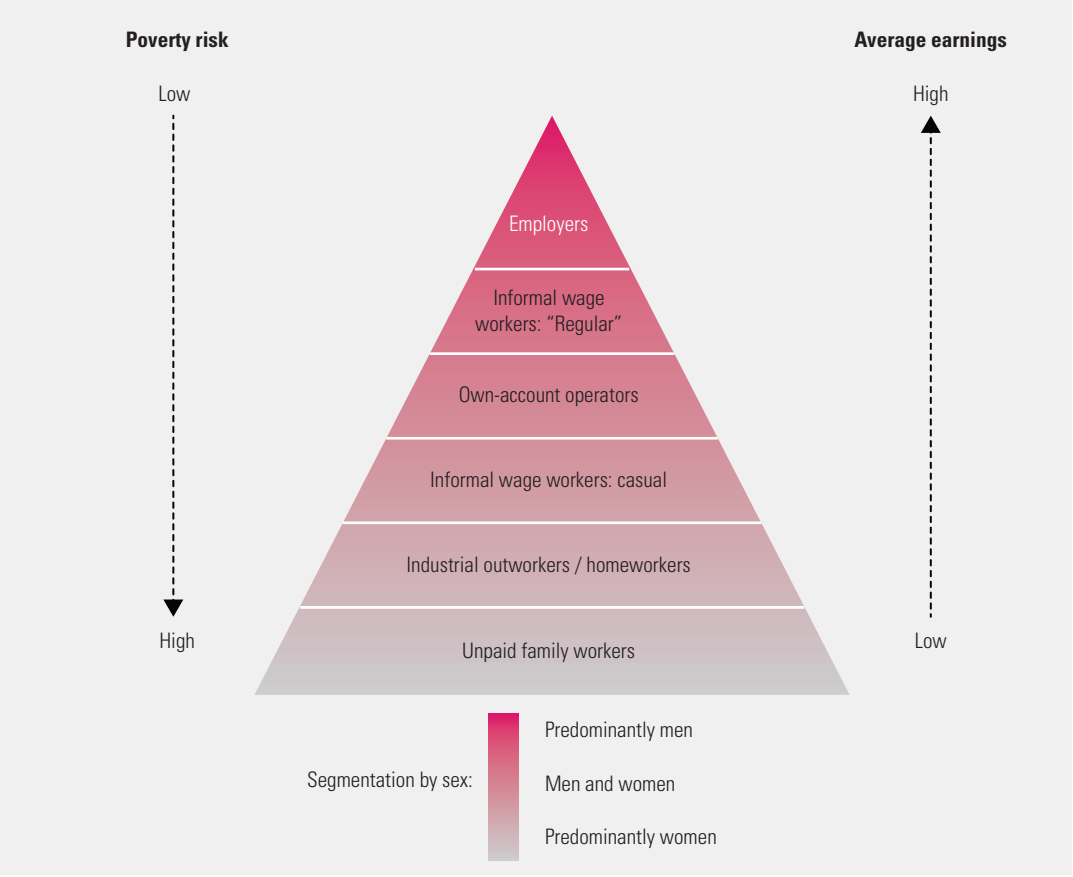
The challenge is to open a path to formality by tackling some of the structural causes—low education and health and low-productivity sectors—while also providing options for social protection, with a flexible mix that might combine contributory and noncontributory systems to ensure financial sustainability.[91]

There are different complementary strategies, given the heterogeneity of conditions facing informal workers. Some countries have a top-down approach, extending the protections and benefits enjoyed by formal workers to home workers and other subcontractors. Bottom-up strategies to protect informal workers are also possible. Organizing workers, especially poor women, into collectives enables them to pool assets and skills to produce larger quantities of

The challenge is to open a path to formality by tackling some of the structural causes—low education and health and low-productivity sectors—while also providing options for social protection, with a flexible mix that might combine contributory and noncontributory systems to ensure financial sustainability

FIGURE 7.5

Unpaid family workers, industrial outworkers, home workers and casual workers are predominantly women with low earnings and a high risk of poverty, while employees and regular informal workers with higher wages and less risk of poverty are more often men



Source: Chen 2019.

higher quality goods, acquire new technology and skills and enhance voice and agency, increasing their bargaining power and increasing political clout.

Technology can help in the move from informality towards better protection for workers. Many modern business models rely on the collection and use of large amounts of data on the actions of consumers and workers. Such data could improve conditions for informal workers. Apps and sensors can make it easier for companies and social partners to monitor working conditions and labour law compliance in supply chains. Governments can invest in incubating and testing digital technologies, including blockchain, that could support social security payments for those working on labour platforms.[92]

Rising market power of firms (measured by markups) in recent decades has gone along with the reduction in labour's share of income and, in many cases, increases in inequality

Making finance inclusive

Financial development can enhance economic development by reducing asymmetries of information, resolving problems of scale and reallocating capital efficiently.[93] Still, questions remain about whether too much finance increases inequality and, perhaps more important, what type of finance is most inclusive.[94]

Empirical evidence is mixed. Some studies find that financial development reduces inequality, especially in developing countries.[95] But others find that financial deepening increases inequality in both developing and developed countries.[96] Possible channels of increasing inequality, beyond the creation of rent by financial institutions, are the rising compensation of executives at the top of the distribution and the increased indebtedness at the bottom.[97] The Bank for International Settlements has revisited the question, focusing on financial structure and its relationship to inequality.[98] Looking at 97 countries (both developed and emerging economies), it found a nonlinear relationship, with financial development reducing inequality up to a point and increasing it afterwards.[99]

Analysing the composition of financial flows provides a more granular notion of finance than simply considering the amount. It also sheds light on mechanisms connecting financial growth and inequality besides those assuming that all credit goes to productive uses.[100] Dividends, rental income, and interest and financial fees deliver capital gains mainly to the wealthy. In some cases the key increase in financial gains has favoured the top 20 percent of the income distribution—the professional-managerial class—rather than the top 1 percent.[101] In the euro area, wealth inequality is closely linked to capital gains on equities (stocks), which benefit the top of the distribution.[102] In contrast, credit for productive activities leads to broader gains in income for most of the labour force.[103]

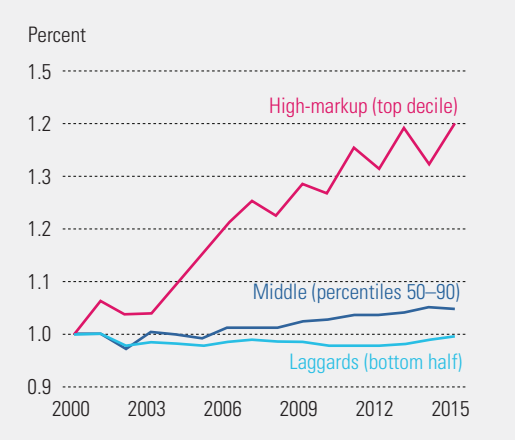
Productive credit had a positive effect on economic growth in 46 countries (both developed and developing, including some least developed countries).[104] Combined with the link between credit use and inequality, this evidence strengthens the case for policies that encourage financing for productive purposes.[105] An effective banking and financial sector regulatory framework is also important to the extent that it can prevent banking or financial crises—both of which can be very regressive, depending on the way the crises are resolved.

Antitrust policies for greater equity

Rising market power of firms (measured by markups) in recent decades has gone along with the reduction in labour's share of income and, in many cases, increases in inequality (chapter 6).[106] The increase has been led by firms at the top 10 percent of the markup distribution (figure 7.6), with information and

FIGURE 7.6

The rising market power of firms in recent decades has been led by firms at the top 10 percent of the markup distribution



Source: Diez, Fan and Villegas-Sánchez 2019.

communication technology–intensive firms increasing their markups significantly more than the rest (chapter 6).[107]

Greater market power for firms can increase inequality, when shareholders and executives accumulate more wealth than workers.[108] Some evidence suggests that antitrust policies could redistribute wealth without the indirect costs of taxation and have a positive effect on the economy as a whole.[109] Market concentration can affect poor households significantly (box 7.6). For those with fewer options to diversify expenditure, lower purchasing power as a result of anticompetitive practices, such as collusion and monopoly, translates into reduced capabilities.[110] But caution is needed when assessing concentration in various markets. An increasing concentration of revenues nationally does not necessarily imply more market power. In many cases geographic markets for products are local, but concentration is measured nationally, so it reflects a shift from local to national firms rather than market power. This requires looking at individual markets in more detail. Markups are also difficult to observe objectively, as different assumptions and measurement methods lead to different results for markup levels and trends.[111] There is also a difference between efficient concentration—due to intense price competition, investment in intangibles and rising productivity of leading firms—and inefficient concentration—when leading firms are entrenched with less competition, higher barriers to entry, lower investment and productivity growth, and higher prices.[112]

Where concentration is inefficient, several policies are available to reduce it and its negative impacts on inclusive growth. The most basic antitrust policy is the detection and sanctioning of collusion. In many countries cartels are already illegal, but more resources could be devoted to enforcement. Mergers are another route to market concentration, and stricter merger enforcement could help tackle rising market power by posing legal challenges to mergers that may stifle competition. Policy can also prevent dominant firms from using their position and network effect to exclude their competitors from markets, by investigating such cases more rigorously. Other policies include reducing the licencing requirements in certain occupations and the legal restrictions that protect the position of incumbent firms and regulating monopolies through prices or, for technology firms, through rules on data ownership, privacy and open interfaces.[113]

With the legal principles behind antitrust law varying by country, global firms face heterogeneous regulations. Over the last few years European regulators have been particularly active in scrutinizing potential anticompetitive practices of big tech companies—for example, the European Commission fined Google €8.25 billion in 2017–2019.[114]

Fiscal progressivity for sustainable development

Redistribution through taxation and public spending is a key determinant of inequality, not just of income inequality but also of capabilities affected by education, health care and other publicly provided services. Several of the policies discussed in the first half of this chapter would likely be making larger claims on public resources in many countries. Direct income tax and transfer schemes thus matter not only because they tend to reduce disposable income inequality. Spending on in-kind transfers such as education and health can also reduce inequalities in capabilities, in turn reducing income inequality. Importantly, reductions in inequalities in income and opportunity can also reinforce each other.

The effect of redistribution on income inequality can be seen by comparing inequality before and after taxes and transfers (direct and in kind). While the analysis of the impact of redistribution can be affected by differences in income concepts and definitions relating to "before" and "after" taxes and transfers (see spotlight 3.3 at the end of chapter 3), the effects can be sizable. There generally is evidence of larger effects of redistribution in developed countries than in developing countries (box 7.7).

Nora Lustig's fiscal incidence analysis has illuminated several features of the impact of fiscal redistribution in low-income and emerging economies.[115] Her analysis goes beyond direct taxes and transfers (and pensions), which dominate the literature, to add both indirect taxes and estimates of the monetized benefits accruing from the public provision of

Where concentration is inefficient, several policies are available to reduce it and its negative impacts on inclusive growth. The most basic antitrust policy is the detection and sanctioning of collusion

BOX 7.6

How market concentration can disproportionately affect poor people

A grasp of the distributive effects of competition is central to policymaking. Poorer households are typically the most affected by market concentration because they consume a more homogeneous set of goods, have less opportunity to substitute consumption and have limited access to markets.[1] Inducing more competition in concentrated markets could reduce poverty, increase household welfare[2] and boost growth and productivity.

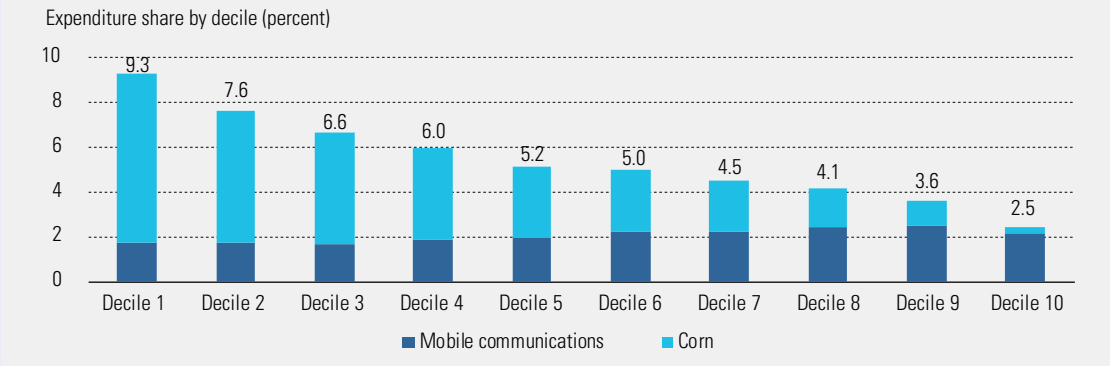
Mexico is well known for its history of monopolies, including Telmex for fixed-line communications (privatized in 1990) and an oligopoly in corn products, an important household staple. Plagued by low productivity and limited innovation that have resulted in high prices for consumers, these monopolies have become an integral part of Mexico's paradoxical growth, leading to an average 98 percent markup in goods across households, according to recent estimates.[3]

One study using the Welfare and Competition tool to simulate the distributional effects of a rise in competition in mobile telecommunications and corn products in Mexico found that increasing competition from 4 to 12 firms in the mobile telecommunications industry and reducing the market share of the oligopoly in corn products from 31.2 percent to 7.8 percent would reduce the poverty headcount by 0.8 percentage point and the Gini coefficient by 0.32 point (box figure 1).[4]

In mobile telecommunications relative gains are fairly evenly distributed across income groups. For corn products a decline in market concentration would benefit households at the bottom of the income distribution more (in relative terms), since they allocate a larger share of their consumption to these products. Corn is especially relevant in the diet for low-income groups in Mexico, therefore, for households in the four lowest deciles, moving from a concentrated market to perfect competition would increase their average income by 1.6–2.9 percent (box figure 2). By contrast, the increase among households in the three highest deciles would be only about 0.4 percent (though the absolute impacts increase in higher income deciles).

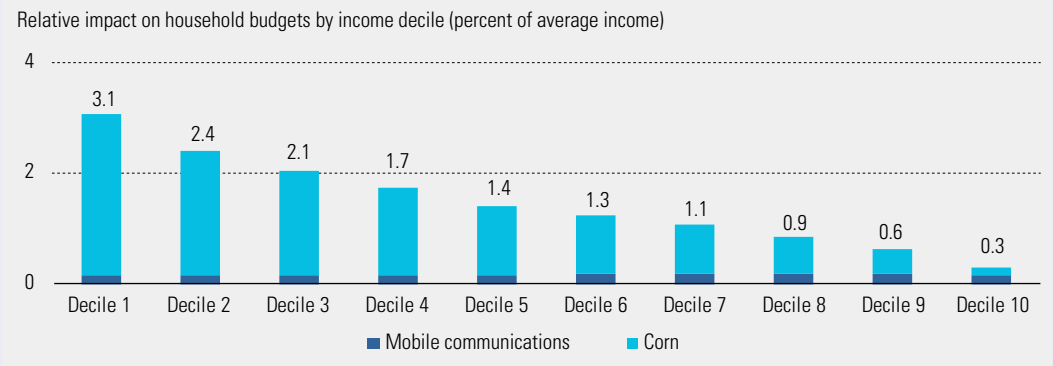
Competition-enhancing policies that reduce concentration in key markets can benefit households. The hypothetical case shows that market concentration in key sectors of the Mexican economy reduces welfare, especially among poor and vulnerable households. Moving towards competitive markets, among the main objectives of the Mexican government, requires removing market imperfections and economic distortions to enhance economic performance.

Box figure 1 Mexico: Expenditure share in mobile communications and corn, by income decile



Note: The simulation relies on the assumption that the mobile telecommunication market behaves as an oligopoly and that corn markets mimic a partial collusive oligopoly. The price elasticity of demand is estimated to be –0.476 for mobile communications and –0.876 for corn products.
Source: Rodríguez-Castelán and others 2019.

Box figure 2 Mexico: Relative impact on household budgets after moving from a concentrated market to perfect competition by income decile



Source: Rodríguez-Castelán and others 2019.

Notes
1. Creedy and Dixon 1998; Urzúa 2013. 2. Atkin, Faber and Gonzalez-Navarro 2018; Busso and Galiani 2019. 3. Aradillas 2018. 4. The reduction in Gini 0.32 point is on a 0–100 scale. See details in Rodríguez-Castelán and others (2019).
Source: Based on Rodríguez-Castelán and others (2019).

BOX 7.7

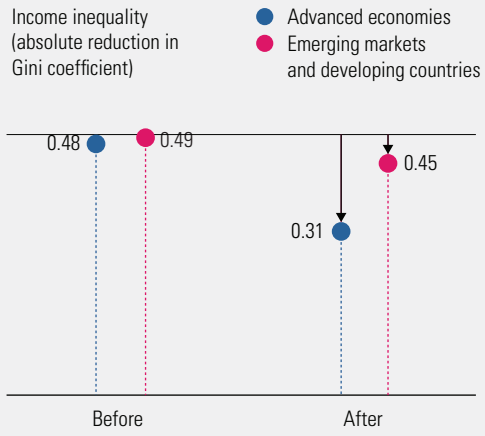
The power of fiscal redistribution

David Coady, Fiscal Affairs Department, International Monetary Fund

Fiscal policy can do much to address inequality in income and opportunity. A comparison of income inequality across advanced and emerging economies shows the redistributive role of direct tax and transfer systems (box figure 1). While direct taxes and transfers in advanced economies reduce the Gini coefficient by 0.17 point (from 0.48 to 0.31), they reduce it much less, by 0.04 (from 0.49 to 0.45), in emerging and developing economies, which include Latin American countries with some of the highest income inequality in the world. So, on average, the redistributive impact of direct income taxes and transfers explains nearly all the difference in disposable income inequality between advanced and emerging economies.

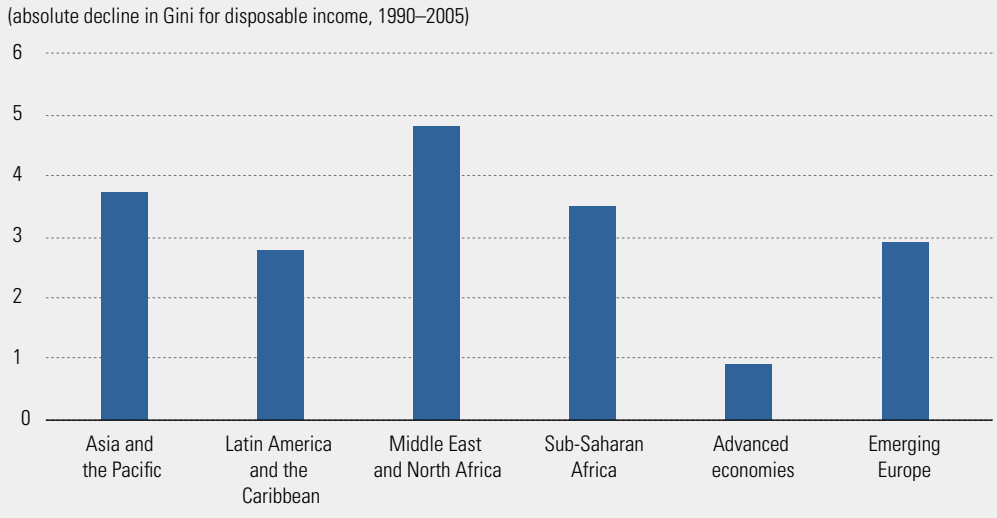
The redistributive reach of fiscal policy is greater when the analysis includes the impact of in-kind public spending on education and health. For instance, rising spending on education has been instrumental in increasing access to education and reducing inequality of education outcomes. As more educated cohorts enter the labour market, income inequality decreases as the inequality of education outcomes falls and the higher human capital stock leads to a reduction in returns to high skills. The decline in education outcome inequality reduced disposable income inequality in emerging and developing economies over 1990–2005 by an estimated 2–5 Gini points on average (box figure 2). In Latin America improved education outcomes have been the dominant factor in recent decreases in income inequality.[1] From an inclusive growth perspective, expanding access to human capital is a win–win prospect.

Box figure 1 Redistributive direct taxes and transfers explain nearly all the difference in disposable income inequality between advanced and emerging economies



Note: Emerging markets and developing economies are Argentina, Armenia, Plurinational State of Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Ethiopia, Georgia, Ghana, Guatemala, Honduras, Indonesia, Islamic Republic of Iran, Jordan, Mexico, Nicaragua, Peru, Russian Federation, South Africa, Sri Lanka, United Republic of Tanzania, Tunisia, Uganda, Uruguay and Bolivarian Republic of Venezuela.
Source: Based on IMF (2017a).

Box figure 2 Absolute decrease in Gini for disposable income due to reduced inequality in education outcomes



Source: Coady and Dizioli 2018.

Note

1. Azevedo, Inchauste and Sanfelice 2013.

health and education services (which consume much more government resources than either direct transfers or pensions). It confirms that fiscal redistribution is a powerful tool to redress income inequality.[116] Net direct taxes and government spending on health and education are always equalizing forces (measured as the marginal contribution to reduce inequality). Even indirect taxes equalize more often than not. The equalizing effect of health and education spending (including tertiary education in some countries) is particularly relevant: Not only are they a more powerful equalizing force, but they also bolster human development capabilities.[117]

The impact of fiscal policies varies considerably across countries. This variation can be explained by differences in the size of the taxes and transfers budget—that is, fiscal effort—and differences in the progressivity of taxes and transfers—that is, fiscal progressivity (see also spotlight 7.3 at the end of the chapter).

From the perspective of fiscal effort, many countries have the scope to increase redistribution by increasing tax revenues

From the perspective of fiscal effort, many countries have the scope to increase redistribution by increasing tax revenues. A recent study on whether (personal income) tax rates are optimal for maximizing revenues, which depends on how responsive revenues are to taxes, found that tax rates were significantly below optimal levels in all the countries examined, implying that they could raise tax rates and still increase revenue.[118] Some studies have also found that the decreasing progressivity of taxation in many countries was not associated with higher economic growth.[119] Hence, all the countries included in the study had room for more redistribution.[120]

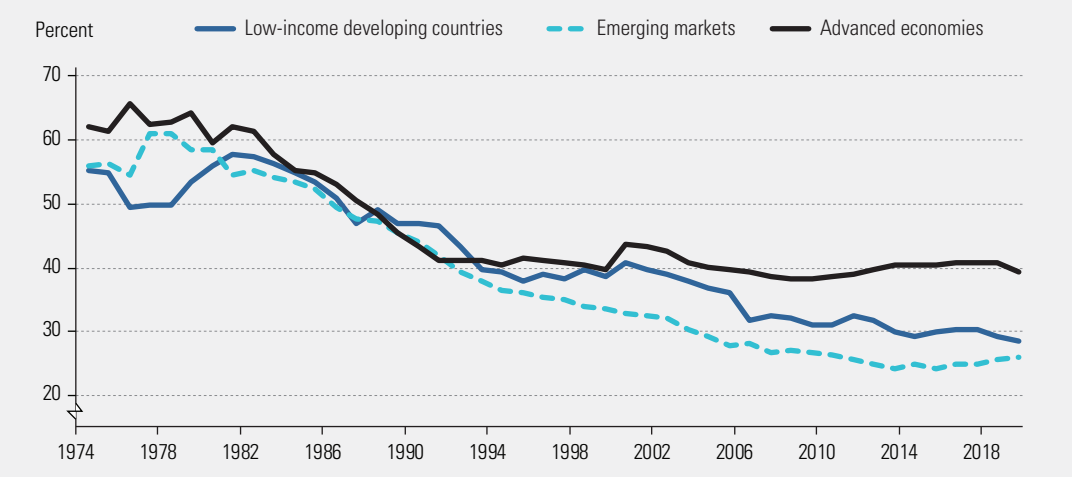
But tax rates have been declining. For example, the top marginal personal income tax rate has tended to decline in both developed and developing countries over the past few decades (figure 7.7). Corporate income taxes have also fallen since 1990, in both developed and developing countries.[121]

Several domestic factors might explain today's low tax rates (chapter 2).[122] And tax competition among countries may also have been a factor, especially for corporate income taxes, as discussed below.

Recent policy debates have returned to taxes on wealth, intended to both raise public revenue and lower inequality (by flattening the wealth gradient and by using the funds raised for public social services expenditure or infrastructure investment). The advantage of taxing wealth, especially real estate, is that it is harder to hide than income, to a point. Wealth taxation is also very progressive due to the very high concentration of wealth at the top. However, the reporting of wealth could fall by as much as an estimated 15 percent in response to such a tax. And of 12 countries with a wealth tax in the 1990s, only 3 (in Europe) still have the measure in place.[123] This is due partly to concerns about efficiency and potential distortive effects on the economy.[124] The OECD recommends a low tax rate targeted at the very wealthy, with few exemptions and the possibility of paying in instalments.[125]

FIGURE 7.7

Top personal income tax rates have declined around the world



Source: International Monetary Fund Fiscal Affairs Department's Tax Policy Reform Database.

However, analysis of progressivity must go beyond the progressivity of individual taxes—or even aggregate taxes. It is not enough to look solely at the progressivity of individual tax rates because fiscal systems are designed with both revenues and expenditures in mind. The progressivity of net transfers is more informative than the progressivity of the individual taxes and transfers. For example, even an efficient but regressive tax—such as a typical value added tax—can be equalizing if it is complemented by transfers that target poor people.[126]

Assessments of fiscal redistribution should thus consider both taxation and spending together.[127] Public policy can also maximize the impact of redistribution through deliberate design of how resources are allocated to different groups in society and to different areas of spending. Fiscal policy should tilt towards greater spending on the lower deciles, through more transfers (both direct and in kind) to the lower deciles or through greater spending on programmes to support disadvantaged groups and communities. Investments in public goods—including the education system, infrastructure, sanitation and security—could also disproportionately benefit people in lower deciles who would otherwise not have access to such services.

Regardless of the type of tax, support for redistribution has strengthened since 1980—at least in OECD countries. The OECD's new Risks that Matter survey asked more than 22,000 people in 21 countries about their perceptions of social and economic risks, how well they think their government addresses those risks and their desired policies and preferences for social protection. In almost all OECD countries more than half the respondents—especially older and low-income ones—think their government should do more for their economic and social security, though this does not necessarily imply support for higher tax rates.[128]

In sum, redistribution can be a powerful instrument to redress inequalities in both income and capabilities. Fiscal effort is one part of this tool. The other side of redistribution is fiscal progressivity, how net transfers are allocated—to whom they are transferred and how and on what public services they are spent on and for whose benefit. Decomposing these two aspects shows great variation—and thus suggests multiple options for countries to consider—in the mix of policies to pursue to redress inequality. What is clear is that the social value of redistribution increases where inequality is higher (see spotlight 7.3 at the end of the chapter).

New principles for international taxation

Globalization and the increased integration of countries have meant more than just increased flows of goods, services, finance and people. Decisions by corporations on how they structure their supply chains can shape investment, production, trade, migration and taxation around the world. Global value chains define modern manufacturing production especially and in recent decades have been accompanied by the distribution of research and development[129] and other segments of the value chain. Multinational corporations distribute activities in cities and countries to take advantage of differences in costs, availability of skills, innovation capabilities and logistical advantages.

A more integrated global economy also requires international cooperation and rules to ensure fair play and to avoid a race to the bottom in taxes

Evidence suggests that the domestic spillover of global value chains have contributed to significant gains in productivity and incomes in many economies.[130] There can also be an association with increasing inequality in some developing countries, through the skill premium, and in developed economies, if jobs are displaced.[131] So a more integrated global economy also requires international cooperation and rules to ensure fair play and to avoid a race to the bottom in taxes (particularly corporate income taxes), disclosure and regulations.[132]

Thus, international tax cooperation must ensure that transparency is maintained in order to detect and deter tax evasion; that multinational corporations are prevented from shifting profits to no- or low-tax jurisdictions; that countries can get their fair share of taxes, especially with the advent of new digitally intensive business models; and that countries, particularly developing countries, can develop capacities to deal with these challenges.[133]

Wealthy people can use offshore centres to hide their money and reduce their tax burdens. The wealth of individuals in offshore centres in 2014 was an estimated $7.6 trillion, more than the capitalization of the world's 20 largest companies or the accumulated assets of the wealthiest 1,645 people (figure 7.8). In April

FIGURE 7.8

Offshore wealth is bigger than the value of top corporations or of billionaires

Source: Based on Zucman (2015), Forbes and the FT 500.

2016 the Panama Papers offered a glimpse into the extent of the problem. The fiscal cost to national governments has been estimated at more than $190 billion a year.[134]

And because capital is mobile, large multinational corporations often have an advantage over national governments in determining how much and where they pay their taxes. In August 2016 the European Commission determined that the effective corporate tax rate Apple paid was 0.005 percent in fiscal year 2014, thanks to a special tax regime in Ireland, where profits from sales across Europe could be recorded.[135]

In 2015 an estimated 40 percent of the profits of multinational firms globally were attributed to no- or low-tax jurisdictions.[136] In some low-tax jurisdictions, too, government revenues have increased as tax rates have fallen.[137] Where the profits thus attributed are not generated by underlying economic activities, the practice is harmful. In such cases governments in the countries where the underlying economic activities are conducted lose tax revenue. Moreover, the firms are not shifting productive capital—which could raise wages and reduce inequality in the receiving countries—but shifting profits on paper. The benefits to such countries are typically narrowly concentrated.

Significant efforts have been made in the last decade to combat tax evasion[138] by wealthy individuals, most notably through the participation of more than 100 jurisdictions in the Global Forum on Transparency and Exchange of Information for Tax Purposes (Global Forum). Besides exchanges of information on request, a significant step towards tax transparency has been achieved through automatic exchange of information frameworks such as the Common Reporting Standard under the Global Forum and the US Foreign Account Tax Compliance Act. The first wave of automatic exchange of information reporting in 2017, and the bulk following in 2018, allowed information on 47 million offshore accounts—with a total value of around €4.9 trillion—to be exchanged for the first time.

Also stepping up is global coordination to combat base erosion and profit shifting by corporates, most notably through the Group of 20–OECD BEPS Project. The project addresses tax avoidance by establishing internationally agreed standards backed by peer review processes to root out harmful tax practices and ensure that profits are taxed where the economic activities giving rise to them are conducted.[139] It includes the review of preferential tax regimes by the Forum on Harmful Tax Practices. Where a regime is assessed by the forum as harmful, the jurisdiction is required to amend or abolish the regime or face being put on blacklists, which could come with punitive consequences. Many jurisdictions have since amended their tax laws in line with the internationally agreed standards under the project.

International collaboration and collective action have thus addressed harmful tax practices and enhanced tax transparency. But more needs to be done. Corporates and wealthy individuals bent on evading or avoiding taxes will continue to exploit loopholes in the current international tax framework. For example, individuals could use residence and citizenship by investment schemes, often referred to as "golden passports," to avoid disclosure of their offshore assets.[140] Potential tax evaders could also hide wealth in cryptocurrencies and physical assets, which the automatic exchange of information framework does not currently cover.[141] Information exchanges can also be asymmetrical, with jurisdictions collecting more information from overseas on its own taxpayers but sharing little the other way.[142]

International tax rules also need to be modified to capture new forms of value creation in the economy. With digitalization, firms today

International tax rules also need to be modified to capture new forms of value creation in the economy

no longer need to maintain a physical operating presence to sell their goods and services. Business models based on digital networks can also generate value through active and meaningful interactions with a vast consumer or user base. Some take the view that jurisdictions where users are located should be allowed to tax a proportion of those businesses' profits.[143] Discussions at the Group of 20 and OECD have also expanded beyond digitalized business to include broad-based changes to the entire economy to reallocate profits and taxing rights to market jurisdictions.[144]

Any major revisions to international rules on corporate taxation should be shaped by clear principles. A fair playing field is needed to tackle tax avoidance without reducing the incentive for countries to invest in their competitiveness and capabilities for value creation and without losing the substantial efficiency gains brought by global value chains.

Beyond tax rules aimed at new business models, a further option being debated is an across-the-board minimum tax rate.[145] Differential tax rates might also be used to stimulate investments to fight climate change.[146] Developing countries should have an active presence in these definitions. The Inclusive Framework on BEPS is an effort in that direction, but the United Nations remains a far more inclusive forum for these deliberations. The principles of efficiency and equity, from a global perspective this time, must be central in this debate.

Postscript: We have a choice

Big strides have been made in advancing human development and in enhancing capabilities over the past three decades. But progress has been uneven. Large gaps exist between and within countries in how long and how healthily people can expect to live, how much they can learn and how high their overall standard of living can be. Some of the gaps are shrinking, especially in basic capabilities such as life expectancy at birth, access to primary education and basic connectivity through technologies such as mobile phones. But not fast enough: The world in not on track to eradicate basic deprivations by 2030. And in the meantime, gaps in enhanced capabilities are growing—life expectancy at older ages, access to higher education, advanced skills and the use of frontier technologies.

It is possible to reduce inequalities in human development in a sustainable way. Because each country has its own specifics, there is no universal route. While the impacts of climate change and technology are universal, they also vary in how they affect countries. Thus, various elements are needed to design a country-specific path based on a diagnosis of the drivers of inequality along each of the dimensions considered in this Report (and others). Among the array of policies available in each dimension, countries need to choose ones that are most appropriate and politically feasible. Their choices should be driven by a pragmatic view of what could work given their context and institutions. Those at the bottom of the distribution of income or capabilities care about narrowing the difference with those at the top, not about the policy used. So countries need to measure, evaluate and, when needed, adjust.

Much can be done to reduce inequalities in human development. This Report intends to help policymakers and stakeholders everywhere understand the challenges they confront with long-standing and new inequalities in human development—and the options available to address them. There is nothing inevitable in how these inequalities will evolve in the 21st century.

This Report intends to help policymakers and stakeholders everywhere understand the challenges they confront with long-standing and new inequalities in human development—and the options available to address them

Spotlight 7.1

Addressing constraints in social choice

A full-fledged universal system is demanding. Even if resources are available, reducing inequalities in human development is a social choice. Politics and context matter. They have interests and identities. Elements conditioning choices include history and social norms, the prevalence of inequality, and the overall resources available and competing claims on their use.[147] Social norms, in particular, are hard to change.[148] Even with legislation setting equal rights, society might close and open doors selectively. This Report's analysis of gender inequality shows that reactions often become more intense in areas where more power is involved, potentially culminating with a backlash towards the very principles of gender equality (chapter 4). Explicit policies for destigmatization and recognition of low-status groups are relevant to reduce inequalities.[149]

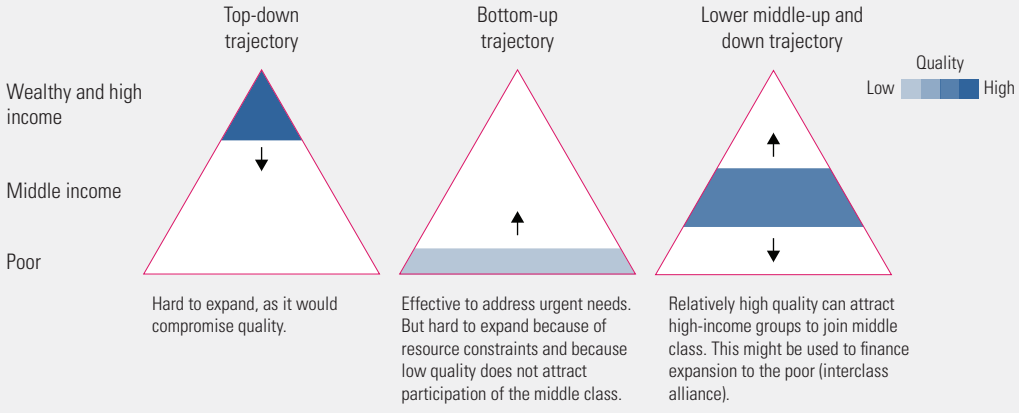
One challenge in several developing countries is how to enhance the existing coverage and quality of services already provided to those at the bottom. In many cases this challenge emerges after targeted programmes, such as conditional cash transfers, have already pushed forward advances in basic capabilities.[150] Those higher up the income ladder may have expanded their access to enhanced capabilities in the meantime. The middle class may be caught in between. What could be the next steps?

Figure S7.1.1 identifies three schematic trajectories for extending both the coverage and the quality of social services, describing some of the political challenges potentially associated with each:

- Top-down extensions of benefits associated with a small formal workforce may be difficult to implement because those already benefiting (at the top) have little incentive to extend services to those below them if they fear that it will reduce quality. Instead, they may press to expand the benefits they already have, even if this requires higher payroll contributions. They often have the resources to opt out.
- Starting from the bottom of the income ladder can also be challenging if the middle class avoids using services perceived as tailored for poor people, preferring to use market options instead. The upper middle class can also oppose financing services that benefit other groups.
- Starting with a unified system that initially covers nonpoor but vulnerable individuals such as formal workers with low wages, policies can then be expanded upward and downward, as long as there is an emphasis on quality (thus providing incentives for high-income individuals to participate, while

FIGURE S7.1.1

Strategies for practical universalism in (unequal) developing countries



Source: Human Development Report Office, based on the discussion in Martínez and Sánchez-Ancochea (2016).

allowing expansions to poor people). This approach, successful in Costa Rica, reduces the risk of creating different programmes for poor and nonpoor people.

In the end the road to universalism may depend on a combination of the three trajectories, specific to each context. For instance, countries where social insurance reaches less than 20 percent of the population require a very different policy trajectory from those where social insurance reaches more than 60 percent. Building broad support requires that revenues be generated from a diversity of sources, including copayments for those who can afford them, payroll contributions (depending on the proportion of formal workers) and general taxes. In countries with deep horizontal inequalities, it is also important to create stakeholders in different communities and to avoid the identification of services with specific groups.

In developed countries the challenge may be to keep social policies that provide enhanced capabilities to the broadest base. Those systems are sustainable to the extent that they work for most of the population, and particularly for the middle classes. That has been eroded recently in some OECD countries, where the middle class perceives itself as progressively left behind in real income, affordable access to quality education and health, and security.[151]

In developing countries the challenge is to solidify social policies for a still vulnerable middle class. In Latin America there is evidence that the middle class pays more than it receives in social services. That, coupled with perceptions of low-quality education and health services, feeds resistance to further expanding social policies.[152] One consequence is the preference for private providers: The share of students going to private school for primary education in Latin America rose from 12 percent in 1990 to 19 percent in 2014.[153] The larger the share of the private sector, the larger the segmentation in social services for different groups.[154] A natural response would be to add resources from those at the top. But those groups, while a minority, have often been an obstacle to expanding universal services, using their economic and political power through structural and instrumental mechanisms (figure S7.1.2).[155]

What to do about all this? Overcoming a narrative of tradeoffs between efficiency and redistribution would be a first important step because gains in equality in human development and productivity can march together under some policies. Strengthening the capacity and autonomy of the state to reduce the ability to turn economic power into political power could also help—through transparency, promotion of a free independent press and opening of space for a range of actors to act and engage in productive social dialogue.[156]

FIGURE S7.1.2

Power of the economic elite and action mechanisms

Note : "Structural power" comes from the elite's control of business decisions and its influence on investment—and economic growth. "Instrumental power" refers to the private sector's active engagement in the political process through lobbying, publicity, and other tools that many other members of society may not have.
Source: Adapted from Martinez and Sánchez-Ancochea (2019), based on Fairfield (2015) and Schiappacase (2019).

BOX S7.1.1

Being right is not enough: Reducing inequality needs a movement from below

Ben Phillips,
author of the forthcoming book
How to Fight Inequality *(Polity Press, October 2020)*

It is a remarkable achievement. Just a few years ago there was no consensus that inequality needed to be tackled. Now inequality is recognized as harmful and dangerous by mainstream economists, the International Monetary Fund, the Organisation for Economic Co-operation and Development and the World Bank. And all governments have, in adopting the Sustainable Development Goals, pledged to reduce inequality.

But winning on words has not meant winning on action. Inequalities continue to worsen, and the broad thrust of government action is at best insufficient to address them. The mainstream consensus has shifted to recognize the inequality crisis without a sufficient shift in action. The problem in beating inequality is not being unsure of what needs to be done; it is not gathering the collective power to overcome those stopping it.

Some leaders made commitments to tackle inequality without a determined intention to implement them, but even when leaders are more inclined to effect change, they cannot act without the wind at their back that ordinary people, when organized, can give them. Remember the story of US President Lyndon Johnson telling Martin Luther King, Jr., "I know what I have to do, but you have to make me do it." Politicians are under so much pressure from the ever more powerful 1 percent that even the best-intentioned ones need pressure.

Inequality is so hard to break because it is a vicious cycle. The power imbalance that comes with the concentration of wealth—and its interaction with politics, economics, society and narrative—enables the further concentration of wealth and a worsened power imbalance. The imbalance of power is what matters for fixing the injustice. As history shows—in the birth of the European welfare state, the US New Deal and Great Society, free education in Kenya, the National Rural Employment Guarantee Act in India, free HIV medicines in South Africa and the declines in inequality in Latin America in the early 21st century—the momentum for action to tackle inequality requires pressure from below.

How can inequality be beaten again? Three key lessons stand out from research and observation.

Overcome deference

The first lesson is to overcome deference. John Lewis, who helped lead the US civil rights movement, describes how, as a child, he was urged by his mother, "Don't get in the way; don't get in trouble." But as a teenager, inspired by activists fighting inequality, he realized that making change required him to "get in trouble, good trouble, necessary trouble." So too with South Africa's Treatment Action Campaign for access to antiretroviral medicines, the Gambia's Has Decided movement to ensure that the loser of the election there stood down as promised and Bolivia's landless workers, who demanded access to land. All were treated as troublemakers before they were recognized for prompting needed change. So too were the suffragettes, who struggled for women's right to vote. Resistance does not always work, but acceptance never works. And no one gets to initiate major social shifts without being criticized—that is part of the journey to greater equality.

Build collective power

The second lesson is to build collective power by organizing. As the saying goes, "There is no justice, just us." But "just us"—organized—is powerful. Jay Naidoo, who led the trade union movement that helped bring down apartheid in South Africa, emphasized that "power is built at the grassroots, village by village, street by street." Organizing is not just about marches. It is about the whole process, about what happens between the most visible moments. It is about people forming groups so they can be strong enough to act and be harder to ignore, suppress or exploit because they have collective power. In Nepal the Mahila Adhikar Manch, a grassroots women's movement, started as community- and district-level women's forums, organizing local campaigns on violence against women. After six years of grassroots actions, community leaders came together for two days' deliberations and formed a national secretariat. Since then Mahila Adhikar Manch has grown to be a membership-based organization that has spread to more than 30 districts with 50,000 members.

Old divides across groups need to be broken down to form a winning coalition. The Usawa ("equality") Festival in Nairobi deliberately brings together rural and urban, young and old of all communities in a common celebration and planning process, because only by breaking down barriers and building community can it build the unity needed for change. So too the dividing line between unions and social movements has never been wide when they have been at their most effective. The movement in El Salvador to protect water as a public good has been effective, its leaders note, only because it brought together such a broad range of the church, social movements, academics, resident groups and nongovernmental organizations—a narrower coalition would not have been strong enough to win. William Barber II calls these movements "fusion coalitions" because their power comes from bringing so many different groups together.

Build a new story

The third lesson is to build a new story of society. Previous victories against inequality built one, and a new one is needed again. Such a new story will not be built in policy papers. The Mexican social movement secured the passing of a labour law reform, ensuring domestic workers access to social security and the right to paid holidays, due in part to the popularity of the movie Roma, which has no explicit policy message but moved millions to understand with greater empathy the likes of domestic workers. Similarly, a new narrative is needed to shift from the old Millennium Development Goals to the new Sustainable Development Goals, which embody a new vision of mutuality. But it requires a new narrative to bring it alive. Possible parts of the story might assert that a good society is about the values we want to live by and the relationships we want to have, that we need a ceiling as well as a floor and that our society and economy are something we build together. In Laudato Si Pope Francis set out a vision of community over competition, dignity over materialism.

The shift in recognizing the problem of inequality and the formal commitment to tackle it have been necessary but insufficient conditions for tackling inequality. Likewise, analysis of the trends and impacts of inequality and policy advice on how to tackle it are vitally important but not enough. The one generalizable lesson of social change seems to be that no one saves others; people liberate themselves by standing together. Change can be slow, and it is always complicated and sometimes fails—but it is the only way it works. Change is not given; it is won. By overcoming deference, building collective power and building a new story, inequality can beat inequality.

Spotlight 7.2

Productivity and equity while ensuring environmental sustainability

The analysis in this chapter assumes room for economic growth along pathways that combine equity and increases in productivity. But over the next decades countries will face demands for different patterns of development to keep global warming below 2°C.[1]

So countries may need to recalibrate the tools used to promote both equity and productivity in a more sustainable way, and new opportunities may lay therein.[2] The question is how to make room for the expansion of productivity in a way that does not destroy the planet. The consensus expressed by the Intergovernmental Panel on Climate Change is that the world needs to decarbonize the economy, reaching net zero emissions by mid-century.[3] This requires a shift in patterns of consumption, employment and production and in the structure of government taxes and transfers, with significant implications for the distribution of income and human development.

Take, for instance, carbon prices—either through a carbon tax or a market-based emissions trading scheme. By raising the relative price of carbon-emitting activities to better reflect the social damages of carbon, incentives to produce less carbon would be in place. The United States pioneered successful market-based trading schemes for some pollutants, notably sulphur dioxide, nitrogen oxides and leaded gasoline.[4] The largest emissions trading scheme for carbon is the European Union Emission Trading Scheme, but other jurisdictions are either planning or considering carbon pricing as a way to meet their commitments under the Paris Agreement of the United Nations Framework Convention on Climate Change, which represents 55 percent of greenhouse gas emissions.[5] Still, only about 20 percent of global greenhouse gas emissions are covered by one of the 57 carbon pricing initiatives either in operation or scheduled for implementation.[6] Administered across 46 national and 28 subnational jurisdictions, these initiatives generated approximately $44 billion in 2018, up $11 billion from 2017.[7] Carbon prices vary widely, from less than $1 per tonne of carbon dioxide equivalent to $127.[8] Only 5 percent of greenhouse gas emissions are covered by a carbon price considered high enough to achieve the goals of the Paris Agreement.[9] About half of emissions covered by carbon pricing are priced at less than $10 per tonne of carbon dioxide equivalent, well below what is considered necessary to fight climate change.[10]

Raising the price of carbon, seen in isolation, may be considered regressive since poor people generally spend a greater share of their income on energy-intensive goods and services than rich people do.[11] Some research paints a more nuanced picture: an inverse U-shape relationship between energy expenditure share and income, leading to suggestions that carbon pricing can, on average, be regressive for countries with an income per capita above roughly $15,000 but progressive for poorer countries.[12] However, the inequality impact of fiscal redistribution measures should not be seen as piecemeal and isolated from how the collected funds are to be used and how the incidence of taxes is implemented, as discussed in chapter 7. Nothing mechanical determines that pricing carbon must be regressive.

Carbon pricing can, for instance, reduce inequality if the revenues from a carbon tax are returned to taxpayers according to a budget-neutral concept called revenue recycling. One study in the United States showed that if just 11 percent of revenues were returned to the bottom income quintile, those households would not be worse off on average.[13] The fiscal transfer could be increased, either through cash transfers or tax credits, to reduce inequality as carbon emissions fell. Reductions in energy subsidies function similarly to the introduction of a carbon tax because both increase the price of fossil fuels. A study in India showed that phasing out energy subsidies and returning the government savings to people in the form of a universal basic income would be progressive, significantly benefiting the poorest, who typically spend far less on energy than the richest do.[14]

Where ambitious emission reduction targets are set, carbon pricing can generate sustained

revenues over decades that could also be spent on other important areas, such as health and education.[15] And to the extent that those investments disproportionately benefit poor and vulnerable people, inequality in human development could also decline. Some revenue recycling options reduce inequalities more than others.[16] So carbon pricing using equity-promoting revenue recycling options could be a triple win: a way to reduce carbon emissions, reduce or avoid climate-related inequalities and reduce other inequalities in human development.

Where opportunities for equity-promoting revenue recycling face real-world constraints, some have argued for alternatives, such as establishing sector-specific carbon prices supplemented by regulation and public investments.[17] If higher carbon prices can be assigned to different sectors or to different products and uses where the rich tend to spend, lower carbon prices can be set in areas where poor people spend differentially. For a given emissions reductions target a portfolio of differentiated carbon prices, direct regulation and investment means those with higher incomes will ex ante bear more of the costs of compliance. Such approaches can alleviate some of the undesirable distributional impacts of a single carbon price, especially where the ability to address distributional concerns ex post are limited.

The other side of the adjustment is in production and employment. A drastic reduction in fossil fuels implies the progressive reduction of jobs in those sectors. An International Labour Organization study projected scenarios of decarbonization consistent with limiting global warming to 2°C (over preindustrial levels). It found that the net effect on employment by 2030 would be positive, with 24 million jobs created and 6 million jobs lost. Going beyond the averages also applies to policies: Even if the world is better off in employment, the gains and losses are not equally distributed, and some communities will be more affected than others. The management of that dynamic can be very consequential for human development and for the political sustainability of the process.[18]

Notes

1 Some even argue that economic growth objectives may not be consistent with keeping global warming below 2°C (Hickel 2019).
2 As proposed, for instance, by advocates of strategies such as "green new deals." See UNCTAD (2019) as well as the work of the New Economy Commission. See also Rodrik (2007).
3 IPCC 2018.
4 Newell and Rogers 2003.
5 World Bank 2019d.
6 World Bank 2019d.
7 World Bank 2019d.
8 World Bank 2019d.
9 World Bank 2019d.
10 World Bank 2019d.
11 Grainger and Kolstad 2010.
12 Dorband and others 2019.
13 Mathur and Morris 2012.
14 Coady and Prady 2018.
15 Jakob and others 2019.
16 Klenert and others 2018.
17 Stern and Stiglitz 2017; Stiglitz 2019a.
18 See discussion on the management of phasing out jobs in chapter 5 of UNDP (2015).

Spotlight 7.3

Variation in the redistributive impact of direct taxes and transfers in Europe

David Coady, Fiscal Affairs Department, International Monetary Fund

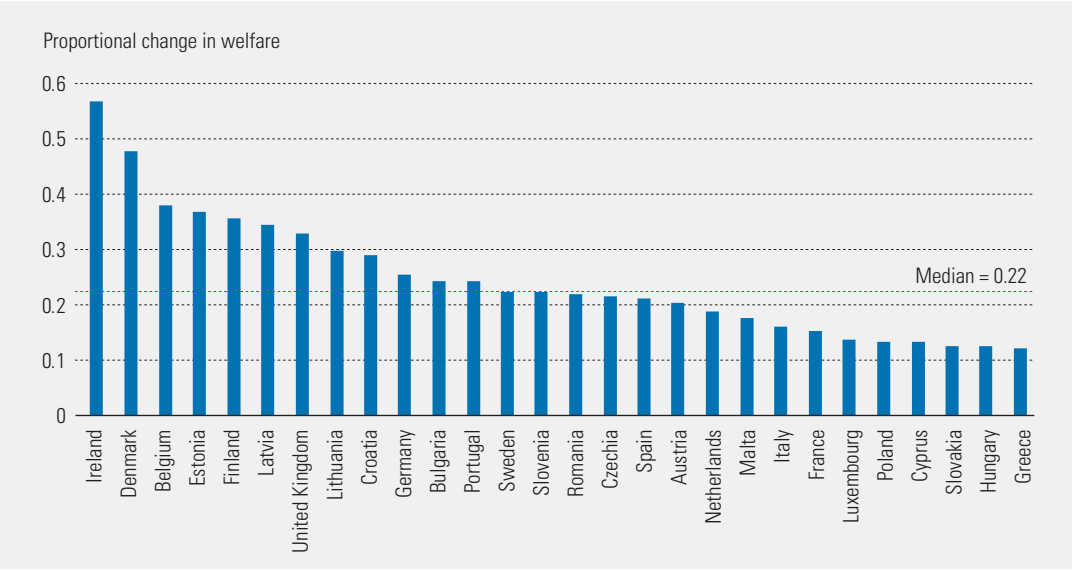
While the redistributive impact of direct income taxes and transfers in European countries is large, so is the variation in the extent of fiscal redistribution across countries. Euromod data for 28 EU countries in 2016 shows that the social welfare[1] impact of redistributive fiscal policy (the extent of fiscal redistribution) is highest (above 35 percent) in Ireland, Denmark, Belgium, Estonia and Finland and lowest (below 13 percent) in Greece, Hungary, Slovakia and Cyprus (figure 7.3.1).

This variation can be explained by differences in the size of the tax and transfer budget—fiscal effort—and difference in the progressivity of taxes and transfers—fiscal progressivity. On average, countries with higher fiscal effort have lower fiscal progressivity (figure 7.3.2). For instance, while Greece, Italy and Hungary have relatively high fiscal effort, this is offset by their relatively low fiscal progressivity, resulting in relatively low overall fiscal redistribution. By contrast, while Ireland, Denmark, Estonia and Latvia have relatively low fiscal effort, this is offset by relatively high fiscal progressivity, resulting in relatively high overall fiscal redistribution. The relatively low fiscal redistribution in Cyprus and Slovakia reflects the combination of low fiscal effort and low fiscal progressivity. The relatively high fiscal redistribution in Finland reflects the combination of high progressivity and fiscal effort.

High progressivity can reflect either of two factors, or a combination. First, high progressivity may reflect a high share of net transfers going to lower income deciles—high targeting performance. Second, high progressivity can reflect high market (pre–taxes and transfers) income inequality[2]—high targeting returns, that is, redistribution has a high social return where market income inequality is high. So even when countries have the exact same tax and transfer policies in terms of fiscal effort and targeting performance—for example, where every

FIGURE S7.3.1

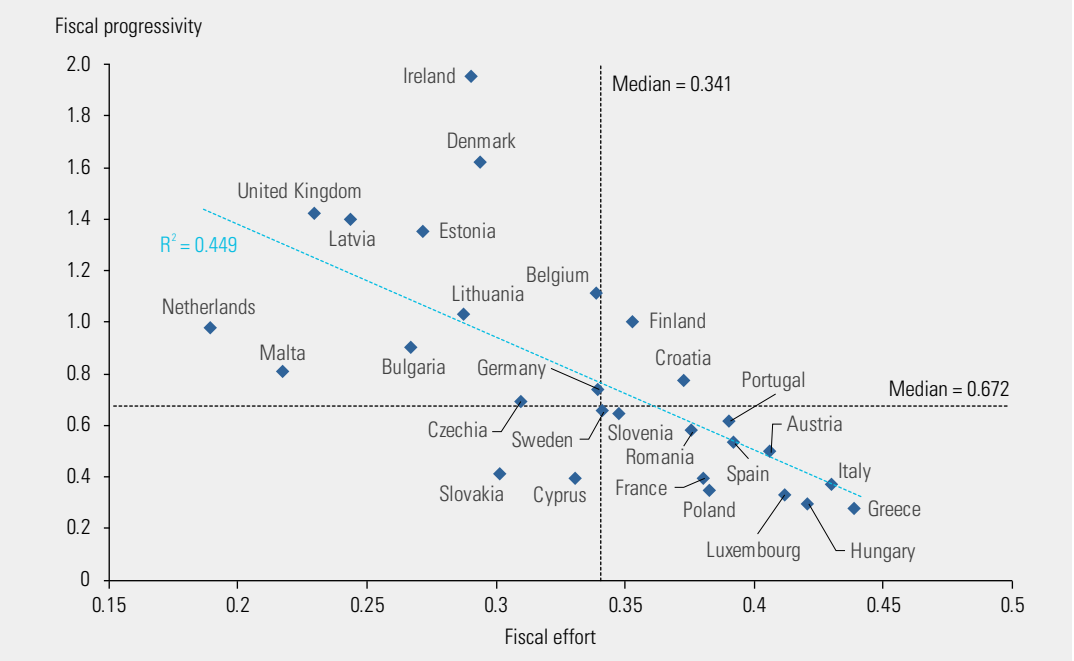
Fiscal redistribution in European countries, 2016



Note: The proportional change in social welfare is the product of fiscal progressivity and fiscal effort.
Source: Coady, D'Angelo and Evans 2019.

FIGURE S7.3.2

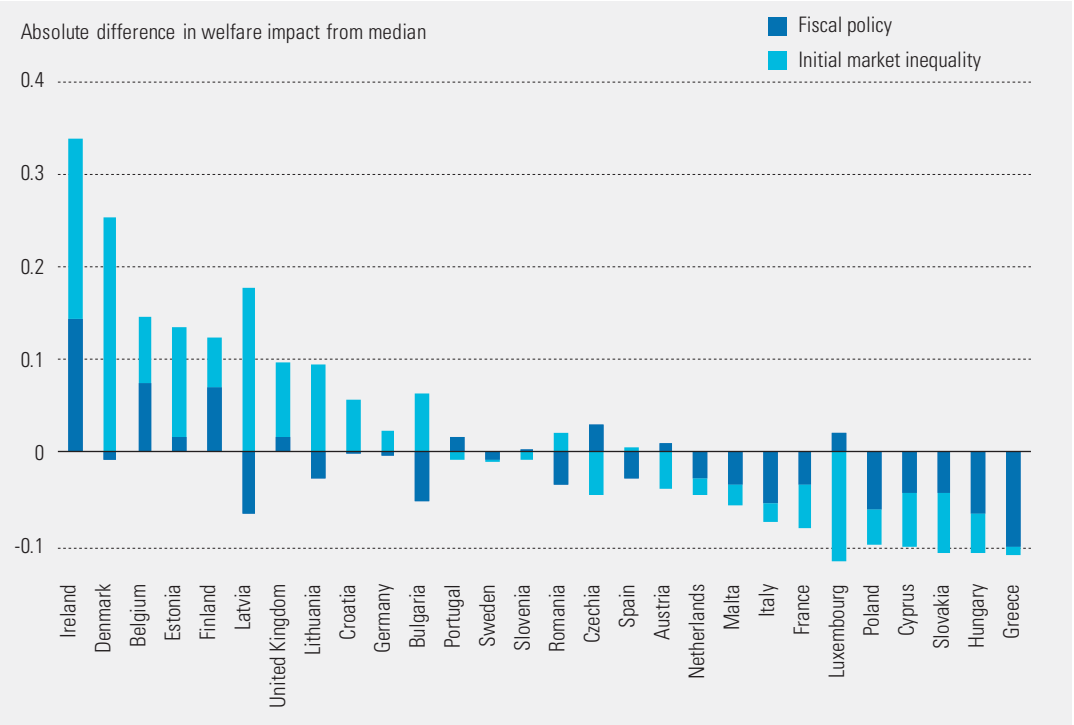
Fiscal progressivity and fiscal effort in European countries, 2016



Source: Coady, D'Angelo and Evans 2019.

FIGURE S7.3.3

Market income inequality and variation in fiscal redistribution



Note: Countries are ordered by extent of fiscal redistribution from figure S7.3.1. Fiscal policy is the combined impact of fiscal effort and targeting performance. Initial market inequality captures the impact of differences in targeting returns due to differences in pre–tax and transfer income inequality. Differences are relative to a reference country with median values for fiscal policy and targeting returns.
Source: Coady, D'Angelo and Evans 2019.

country has the same transfer budget used to finance a uniform transfer—there can still be substantial differences in fiscal redistribution across countries, reflecting solely differences in market income inequality. On average, 37 percent of the differences in fiscal redistribution across countries in figure S7.3.1 is due to differences in the inequality of market income. Overall, high fiscal redistribution—countries to the left in figure S7.3.3—is driven predominantly by high targeting returns, reflecting high market income inequality, rather than by differences in underlying fiscal policies. This is particularly so for Denmark, Estonia, Latvia and Lithuania.

Notes

1 Derived using constant elasticity social welfare functions in which an indicator of inequality can be interpreted as the social welfare cost of disparities in income distribution.

2 Since there is very little social benefit from redistributing income in countries where incomes before taxes and transfers (that is, market incomes) vary little across households, it is possible that a country with relatively high fiscal effort and targeting performance can still have low fiscal redistribution because it has low market income inequality. Conversely, is it also possible that a country with low fiscal effort and targeting performance can have high fiscal redistribution simply because it has high market income inequality.

Notes and references

Notes

Overview

1 Sources for most data and factual statements in this overview are included in the Report but are included here where precision or qualifications are important.
2 Estimates for the United States, based on Chetty and others (2016). Kreiner, Nielsen and Serena (2018) argue that these results overestimate life expectancy gaps across different income groups because they ignore income mobility (by their method, the overestimation could be as high as 50 percent), but they also find that these gaps have been increasing over time and that the overestimation is attenuated at higher ages (disappearing completely at age 80). Mackenbach and others (2018) note that health inequalities generally increased in Europe from the 1980s though the late 2000s, with some narrowing in several countries since then.
3 This is discussed in more detail in chapter 2.
4 As suggested in UN (2019b), which identified reducing inequalities and promoting capabilities as "entry points" to the transformations needed to achieve the Sustainable Development Goals. See also Lusseau and Mancini (2019), who found that inequalities are a key hurdle in achieving the Sustainable Development Goals across all countries and that reducing them would have compound positive effects on the entire set of Sustainable Development Goals.
5 Also a premise of the Deaton Review, a multiyear project examining inequalities in the United Kingdom (Joyce and Xu 2019).
6 Atkinson 2015.
7 Deaton (2017) has argued that governments often do more to increase inequality than to reduce it.
8 See, for instance, Saad (2019) on fear of climate change and Reinhart (2018) on artificial intelligence and jobs.
9 Sen 1980.
10 Expression used by Angus Deaton to place in perspective the evolution of inequalities (Belluz 2015).
11 To borrow the expression from Deaton (2013a).
12 UNDP and OPHI 2019.
13 Many developing countries lack complete vital registration systems, so the country-level estimates of life expectancy at older ages used in this Report, drawn from United Nations Population Division official statistics, are subject to significant measurement errors and should be interpreted with caution. Still, the dynamic of gaps in life expectancy opening up at older ages is robust to changes in age (it remains valid at age 60), and even though there is some heterogeneity across countries and over time, the same pattern is broadly confirmed within countries, as described in more detail in chapter 1.
14 Brown, Ravallion and Van de Walle 2017.
15 Stiglitz, Sen and Fitoussi 2009a.

Part I

1 Sen (1980), rephrasing the original question: "Equality of what?"
2 This despite the fact that formal decompositions of the contributions of income inequality to differences in social welfare aggregating utility using different social welfare functions—over time and across countries—show that while inequality matters, income levels and income growth matter much more, even when the degree of inequality aversion is high (Dollar, Kleineberg and Kraay 2015; Gaspar, Mauro and Poghosyan 2017). See also the discussion in chapter 2 on inequality and economic growth.
3 Based on Google's Ngram count of the expressions "global growth" and "global inequality" from 1950 to 2008; "global inequality" overtook "global growth" around 2002.
4 Including inequality reduction as a development priority was contentious during the negotiations for the SDGs, in part because of disagreements on what kind of inequality should be reflected in the SDGs. As Fukuda-Parr (2019) argues, the political compromises required to have aspirations to reduce inequalities reflected in the 2030 Agenda led to a dilution of the ambition of some, especially those in developing countries, who had advocated for stronger commitments, especially on inequality across countries. For a comprehensive review of the emergence of research and policy interest on global inequality, see Christiansen and Jensen (2019).
5 Deaton 2013a.
6 The optimistic view of development progress is not universally shared. For instance, Hickel (2017a, 2017b) argues that we are facing a "development delusion," given that global inequality increased and that those left behind are further apart from the better off. On the other hand, World Bank (2018a) shows that within-country inequality has fallen in most developing countries with data. Ravallion (2018a, 2018b) has clarified how these differing views emerge, often using exactly the same data. It depends partially on the measures of income and consumption inequality that are used (for instance, absolute versus relative), as well as the social welfare weight that is given to different segments of the population (the consumption of those who are living below the extreme poverty line, for example, has barely budged, even though many have been able to move above the line).
7 For example, gaps in life expectancy appear marked in the United States across socioeconomic groups, with those at the top of the income distribution pulling away from everyone else, while those at the bottom have different experiences, with lower achievements in less prosperous places, with the degree of prosperity assessed in terms of overall level of education, income and government expenditures. See Chetty and others (2016). See also Case and Deaton (2017).
8 Williams, Neighbors and Jackson 2003.
9 Kearl 2018.
10 The historical analysis should be considered along with the argument that in preindustrial societies the limited amount of resources may have determined a maximum level of inequality consistent with subsistence of those at the very bottom. See Milanovic, Lindert and Williamson (2010).
11 See, for instance, evidence of the effects of democracy on human development in Gerring, Thacker and Alfaro (2012). Evidence of the effect of democracy on economic growth is found to be positive and significant in Acemoglu and others (2019).
12 As suggested in UN (2019b), which identified reducing inequalities and promoting capabilities as entry points to the transformations needed to implement the SDGs. See also Lusseau and Mancini (2019), who found that inequalities are key hurdles in achieving the SDGs across all countries and that reducing them would have compound positive effects on the entire set of SDGs.

Chapter 1

1 These are estimates for people in higher education based on household surveys. Since questionnaires are different for different groups of countries, there might be heterogeneity and biases. Using fully harmonized gross enrolment rates (mostly from administrative data), the figure for "in tertiary education" would be 66 percent for very high human development countries and 7 percent for low human development countries.
2 Chetty and others 2016.
3 Acemoglu, Johnson and Robinson 2001.
4 UNDP 2016.
5 The discussion in these paragraphs draws from Basu and Lopez-Calva (2011) and from Sen (1993, 1999).
6 Basu and Lopez-Calva 2011, p. 153.
7 Rejecting, at the same time, a "grand mausoleum [of] one fixed and final list of capabilities," (Sen 2005, p. 160), especially if the list was derived primarily from theoretical considerations that did not take into consideration the real concerns and aspirations of the time. This is the approach also taken in this Report.
8 Article 19 of the Universal Declaration of Human Rights reads: "Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers" (www.un.org/en/universal-declaration-human-rights/).
9 See, for instance, the discussion in Basu and Lopez-Calva (2011).
10 The survival of a child during the first five years of life (historically the main variable determining the cross-section variation of life expectancy at birth) is an entry point to the prospect of having a long and healthy life. It is an achievement that does not depend on the agency of the child, but on social and family conditions. Instead, sequential survival—one year after the other—to become an old healthy adult represents the realization of that ideal. It is the result of social and family conditions, as before, but also of personal agency and empowerment.
11 Sen 1992, p. 45.
12 Moser 1989.
13 These two drivers of change are already a source of public concern. See, for instance, Saad (2019) on fear of climate change and Reinhart (2018) on artificial intelligence and jobs.
14 Crocker 2008, p. 16.
15 Crocker 2008, based on an analysis of Sen's work.
16 For instance, inequality in mean years of schooling is based on a simple sum that assumes that one year in primary education counts the same as one year in secondary or tertiary education, even if these achievements are qualitatively different. In particular,

it leads to a potential underestimation of the role of inequalities in tertiary education, typically amounting to fewer years than primary and secondary education.

17 Permanyer and Smits 2019.

18 Deaton (2007) warns about how conclusions about inequality can change depending on the definition of the indicator. In this chapter, unless explicitly stated—as in the Inequality-adjusted Human Development Index—comparisons of inequality in human development depart from summary measures. They compare the achievements across groups (countries, castes, quintiles based on living standards and so on). Comparisons are made with respect to the original base (typically, percentage of the population). This serves three purposes. First, it expresses progress with respect to an invariant base with intrinsic value—the base is linked to people across indicators. In the case of indicators based on ratios the base represents people with access. In the case of life expectancy the base represents years of human life. Life claims should be universal (Anand 2018). Second, in the context of bounded indicators this comparison satisfies the mirror axiom (Erreygers 2009), ensuring that conclusions are robust to changes in convention in the construction of the indicator going from achievement to shortfall and vice versa. Third, in practical terms, they avoid extreme sensitivity from variable bases of comparison.

19 World Bank 2018a.

20 The convergence in primary education is based on between-country and within-country comparisons over the last decade. UNESCO (2019b) presents similar results over that period but highlights that over the last few years there have been no evidence of convergence between countries.

21 Deaton 2013a.

22 This analysis is based on simple averages. In *Statistical table 1* the analysis is based on population-weighted averages and reveals a gap of 18.2 years.

23 UNDESA 2019.

24 UNDESA 2019.

25 UN 2015a.

26 Permanyer and Smits 2019.

27 Consistent results with this divergence in life expectancy at older ages are documented by Engelman, Canudas-Romo and Agree (2010) and Permanyer and Scholl (2019). Seligman, Greenberg and Tuljapurkar (2016) also find a disassociation between equity and length of lifespan.

28 Based on data from UNDESA (2019), the absolute gain in life expectancy at age 70 was higher in very high human development countries than in low human development countries during the second half of the 20th century. Between 1955 and 1995 the gain was 63 percent higher in very high human development countries than in low human development countries. In the 21st century there has been marked increase: Between 1995 and 2015 the increase was 223 percent higher in very high human development countries than in low human development. The contrast is even starker in relative terms.

29 The discussion is limited to people under age 80 because people rarely survive beyond age 100.

30 Bragg and others 2017; Di Cesare and others 2013; Gonzaga and others 2014; Oyebode and others 2015; Sommer and others 2015.

31 UNDESA 2019.

32 Estimates for the United States, based on Chetty and others (2016). These results might overestimate life expectancy gaps across different income groups because they ignore income mobility. Kreiner, Nielsen and Serena (2018) argue that overestimation could be as high as 50 percent. Using data for Denmark, they also find that gaps across socioeconomic groups have been increasing over time and that the overestimation is attenuated at higher ages (disappearing completely at age 80). Mackenbach and others (2018) note that health inequalities generally increased in Europe between the 1980s and the late 2000s, with some narrowing in several countries since then.

33 Chetty and others 2016. Also, Finkelstein, Gentzkow and Williams (2019) estimate that moving from a 10th percentile location to a 90th percentile location increases life expectancy at age 65 by 1.1 years in the United States.

34 Baker, Currie and Schwandt 2017.

35 Brønnum-Hansen 2017; Kreiner, Nielsen and Serena 2018.

36 van Raalte, Sasson and Martikainen 2018.

37 Suzuki and others 2012.

38 Buchan and others 2017.

39 Currie and Schwandt 2016.

40 Majer and others 2011. Murtin and others (2017) assess inequality in longevity across education and gender groups in 23 Organisation for Economic Co-operation and Development countries. Their estimates of expected longevity at ages 25 and 65 by education and gender show that the gap in life expectancy between highly educated and poorly educated people is 8 years for men and 5 years for women at age 25 and 3.5 years for men and 2.5 years for women at age 65. This implies that relative inequalities in longevity by education increase with age. For France, Currie, Schwandt and Thuilliez (2018) found no significant changes over time and little gradient.

41 Szwarcwald and others (2016) and Saikia, Bora and Luy (2019) are among the first attempt to examine the growing disparities in health and life expectancy for Brazil and India. Large-scale data, going beyond surveys and covering populationwide socioeconomic and health status information, are urgently needed to provide more convincing evidence on the socioeconomic health gradients and fill these knowledge gaps.

42 See, for instance, Auerbach and others (2017).

43 Education is often a variable used for direct measurement of social mobility. See for instance Narayan and others (2018) and OECD (2018a).

44 While there is endogeneity (enrolment ratios are linked to expected years of schooling, one of the four variables used to calculate the HDI), these relationships hold when using other development groupings in the analysis, including income.

45 Heckman 2011b.

46 Montenegro and Patrinos 2014.

47 See Goldin and Katz (2009) and Agarwal and Gaule (2018).

48 Akmal and Pritchett 2019; UNESCO 2019b.

49 Banerjee and Duflo 2011; Pritchett and Beatty 2015.

50 Bruns and Luque 2015; Filmer and Pritchett 1999.

51 Rözer and Van De Werfhorst 2017.

52 UN Inter-agency Group for Child Mortality Estimation 2018.

53 World Bank 2018a.

54 UNESCO 2019b.

55 UN Inter-agency Group for Child Mortality Estimation 2018.

56 UNESCO 2019b.

57 World Bank 2019c.

58 UNESCO 2018b.

59 UNESCO 2019b.

60 UNDP and OPHI 2019.

61 Dercon 2001.

62 Nussbaum 2011.

63 Sen 1999.

64 See the discussion of recognition and challenges for destigmatization in Lamont (2018).

65 UNDP Chile 2017.

66 See Hojman and Miranda (2018).

67 Stewart 2005, 2016a.

68 UN 2015c.

69 ECLAC 2018a.

70 Pew Research Center 2014.

71 Eurobarometer 2018.

72 Latinobarometro 2018.

73 Hauser and Norton 2017. Alesina, Stantcheva and Teso (2018) find that lower perceptions about social mobility tend to increase preferences for redistribution.

74 Cruces, Pérez-Truglia and Tetaz 2013.

75 See, for instance, Anand (2017), Anand, Roope and Peichl (2016) and Richardson and others (2019).

76 World Bank (2018a) provides an alternative interpretation.

77 Deaton 2013a, 2013b.

78 OECD 2019f.

79 This view seems plausible in many cases. Deaton (2013a) discusses how some forms of progress are likely to spread gradually.

80 Based on Kuznets's (1955) seminal paper. See a broader discussion in chapter 2.

81 Milanovic (2016) describes Kuznets's waves for income inequality but based on a wider set of mechanisms of malign forces and benign forces.

82 OECD 2019f.

83 Models of the complex relationship between aspirations and inequality can be found in Besley (2017) and Genicot and Ray (2017).

Chapter 2

1 Deaton 2018.

2 Sen 1999.

3 An analysis based on this year's Multidimensional Poverty Index (MPI) shows no correlation between MPI value and income inequality (measured by the Gini coefficient) but a strong correlation between MPI value and percentage loss in HDI value due to inequality in both health and education (Kovacevic 2019; UNDP and OPHI 2019).

4 Recent research has not only conceptually clarified causal mechanisms but also marshalled supporting empirical evidence. While much of the evidence is specific to countries with enough data, that the empirical work is tied to general hypotheses lends universal relevance to the analysis.

5 Deaton 2013b.

6 Persistently low mobility along with increasing income inequality compounds the disadvantages among people who are unable to move up. As Chetty and others (2014, p. 1) put it, "[…] the consequences of the "birth lottery"—the parents to whom a child is born—are larger today than in the past. A useful visual analogy is to envision the income distributions as a ladder, with each percentile representing a different rung. The rungs of the ladder have grown further apart (inequality has increased) but children's changes of climbing from lower to higher rungs have not changed."

7 Corak 2013. The curve was introduced in a 2012 speech by Alan Krueger (chairman of the Council of Economic Advisers; Krueger 2012) and in the President's Economic Report to Congress (US Government 2012) based on Corak's data.

8 See, for instance, the seminal discussion in Solon (1999) and the more comprehensive review in Black and Devereux (2011).
9 Corak 2013, p. 85.
10 Corak 2013, p. 98.
11 Brunori, Ferreira and Peragine 2013. This conclusion was drawn from two different measures of mobility: intergenerational persistence in income and intergenerational persistence in education.
12 For an earlier analysis on inequality of opportunity, see World Bank (2006). The report found that a quarter of all differences in earnings between workers can be attributed to similar circumstances as the ones mentioned above.
13 Narayan and others 2018. The measure for mobility is intergenerational persistence in education and the measure for inequality of opportunity is the inequality of economic opportunity index developed in Brunori, Ferreira and Peragine (2013).
14 Brunori, Ferreira and Peragine 2013. For a critical literature review on equality and inequality of opportunity focusing on the principles of compensation and reward, see Ferreira and Peragine (2016).
15 Even in rather equal societies there is evidence that children of wealthy parents are well off themselves. Recent evidence drawn from the wealth of adoptees in Norway (Fagereng, Mogstad and Ronning 2019) and Sweden (Black and others 2019) suggests that the wealth of the adoptive parents was a strong determinant of children's accumulation of wealth. An important caveat is that these findings pertain to the intergenerational transmission of wealth, which may be different from that of income, which is the focus of this section.
16 Roemer 1998.
17 There is consensus among many economic thinkers that final welfare is inappropriate for assessing distributive justice. Compare, for example, Dworkin (1981), Rawls (1971), Roemer (1998) and Sen (1985).
18 Narayan and others 2018.
19 Deaton 2013b, p. 265.
20 For a historical perspective on health gradients in the United Kingdom and the evolution of political and academic debates, see Macintyre (1997).
21 See Case and Paxson (2008).
22 Some evidence suggests that it is not only levels of income that matter; variation in incomes during childhood has adverse health effects (especially on mental health) later in life (Bjorkenstam and others 2017).
23 This behaviour does not need to reflect rational choices or individual preferences but may even be shaped by the dynamics of social structures, as argued in Xie, Cheng and Zhou (2015).
24 The contribution of assortative mating to levels and changes in income inequality varies in the literature. Blundell, Joyce, Keiller and Ziliak (2018) estimate that, for the United Kingdom and the United States, assortative mating contributed slightly more than half of the increase in household earnings for the group between the 5th and 95th percentiles in the period 1994–2015 (table 2, p. 58). Greenwood and others (2014) report a very large impact of assortative mating on inequality by simulating what would have happened to income inequality in the United States in 2005 if mating had been random; but they later corrected these findings as an overestimation (Greenwood and others 2015). The corrected estimates are in line with those of Eika, Mogstad and Zafar (forthcoming) for the United States and other developed countries, which show that assortative mating accounts for a non-negligible amount of income inequality, but with other factors playing a greater role. (Hryshko, Juhn and McCue 2017 also find a small effect for the United States). Hakak and Firpo (2017) find similar evidence for Brazil, showing that the counterfactual income Gini with assortative mating would have been slightly slower than it actually was over a period of 20 years (see also Torche 2010, who finds an isomorphism between assortative mating and inequality not only for Brazil but also for Chile and Mexico). Further, these studies show that the patterns of assortative mating across income groups and over time vary, and with several other factors driving inequality, it is difficult to attribute unambiguously the impact of assortative mating to inequality. Still, the evidence strongly suggests that assortative mating takes place across countries and makes a non-negligible contribution to income inequality.
25 For an argument and evidence showing how assortative mating is important for intergenerational mobility see Chadwick and Solon (2002).
26 Most of the analysis in this section considers what happens from one generation to the next, but even though the evidence is contentious in the literature, the persistence can carry even across multiple generations, with the effects dissipating over time (see Solon 2018 for a recent review).
27 Regression of respondents' years of schooling on their parents' highest years of schooling (EqualChances 2019). Data are for the 1980 cohort and for the most recent year available.
28 See, among others, Blossfeld and others (2017), Chevalier and Lanot (2001), Duncan, Brooks-Gunn and Klebanov (1994), Heckman and Carneiro (2003) and Phillips and Shonkoff (2000).
29 Black and others 2017.
30 Wilkinson and Pickett 2018.
31 Garcia and others 2016; Heckman 2017.
32 UNESCO 2018a.
33 Similar results have been found for Australia, Canada, the United Kingdom and the United States (Bradbury and others 2015; Heckman 2011a). Genes can usually explain only part of such divergences. See, for example, Rowe (1994). Environmental influences affect gene expression, as shown in an identical twin study. Raised apart, twins already differed by age 3 due to different exposure to stimuli in their living and learning environments (Fraga and others 2005; Lee and others 2018).
34 See, for example, Jensen and Nielsen (1997) and Khanam (2008).
35 Akmal and Pritchett 2019. For the definition of learning profiles, see Pritchett and Sandefur (2017).
36 Bernardi 2014; Bernardi and Boado 2013; Bernardi and Plavgo forthcoming; Blossfeld and others 2016; Hartlaub and Schneider 2012; Heckman and Krueger 2005; Yanowitch 1977.
37 Bernardi and Plavgo forthcoming. See also Yastrebov, Kosyakova and Kurakin (2018).
38 Heckman 2010.
39 OECD 2010.
40 Bernardi and Ballarino 2016; Bernardi and Plavgo forthcoming.
41 Bussolo, Checchi and Peragine 2019; Kramarz and Skans 2014.
42 Bussolo, Checchi and Peragine 2019.
43 Shanmugaratnam 2019.
44 Deaton 2013b.
45 Deaton 2003, 2013b; Galama and Van Kippersluis 2018; Lindahl and others 2016.
46 See for instance, Almond and Currie (2011), both on the impact of health before age 5 on adult health and on the potential to redress some of the negative impacts in an early age later in life.
47 For an example on how foetuses are affected by pollution, see Currie (2011).
48 Currie 2009.
49 Case and Paxson 2010; Currie 2009, 2011.
50 Skelton and others 2011.
51 Elgar and others 2016. The sample for this study consists of 1,371 adolescents in seven European countries. Measures used to assess socioeconomic status included parent-reported material assets and household income as well as youth-reported material assets and subjective social status (MacArthur scale of subjective social status). Health measures include general self-rated health and Cantril's self-anchoring measure of life satisfaction.
52 Babones 2008; Curran and Mahutga 2018; Kim and Saada 2013; Torre and Myrskylä 2014; Wilkinson and Pickett 2011. Multivariate regressions of income inequality and life expectancy as well as income inequality and infant mortality with recent data from countries at all levels of human development show that other variables—such as GDP per capita, education level, government health expenditure, ethnic diversity and, in the case of high and very high human development countries, democratization—better explain variations in these health indicators than income inequality (Bernardi and Plavgo forthcoming).
53 McEniry and others 2018. The article examines the relation between socioeconomic status and health conditions for people age 60 or older. Socioeconomic status is measured by education attainment.
54 Chen, Persson and Polyakova 2019.
55 Kuznets 1955. Lewis's dual model is similar in spirit to Kuznets's, but Lewis assumes that holders of capital in the modern sector can accumulate wealth while paying a constant wage to a "reserve army" of workers that are available in the agricultural sector, thus having very different implications on income distribution (Lewis 1954).
56 Kuznets 1955, p. 17. He also considered the implications of a higher savings rate, and thus accumulation of capital and assets, at the top of the income distribution, emphasizing the impact of policies and taxes in limiting the accumulation of wealth at the very top. The "unravelling" of these policies and tax structures in many market-based economies is documented by Piketty (2014), who argues that the mid-20th century, when inequality was low, was an exceptional period during which institutions curbed the tendency of returns to capital running ahead income growth and that the more normal course of capitalism is to have a high concentration of income and wealth at the top—which is the trend that has dominated in several advanced economies since the 1980s. This would thus be a rejection of Kuznets-like arguments grounded on structural change.
57 Kanbur 2017.
58 Milanovic 2016. Thus, the recent increase in inequality in many advanced economies can be interpreted as the transition to societies adjusting to the joint effects of globalization and technological change (Conceição and Galbraith 2001).
59 Tinbergen 1974, 1975.

60 In particular for the United States, see Goldin and Katz (2009).
61 OECD 2019f.
62 Acemoglu and Autor 2011; Autor, Levy and Murnane 2003; Goos, Manning and Salomons 2014.
63 One of the reasons for contesting this theory is the large dispersion in earnings within, as opposed to across, occupations. See Mishel, Schmitt and Shierholz (2013).
64 Jaumotte, Lall and Papageorgiou (2013) show that technology accounts for the increase in inequality in developing countries and that exposure to globalization does not reduce inequality, as one might expect if, through trade, production were to move from developed to developing countries. The reason is that countries are also exposed to financial globalization, which counters the equalizing effect of trade globalization in developing countries.
65 Bhorat and others 2019.
66 See Hunt and Nunn (2019) for the United States. For more evidence, including Organisation for Economic Co-operation and Development countries, see Autor (2014, 2019). For an extensive review, see Salverda and Checchi (2015).
67 For a sense of the evolution of the debate over time, see Aghion, Caroli and Garcia-Penalosa (1999), Baymul and Sen (2018), Eicher and Turnovsky (2003), Galbraith (2012), Milanovic (2005), Ostry, Loungani and Berg (2019), Piketty (2006), Stiglitz (2012) and World Bank (2006).
68 See, for instance, Banerjee and Duflo (2003). Kuznets (1955) starts with a lengthy discussion of the ideal data needed to investigate the relation between growth and inequality, recognizing that his requirements sounded like a statistician's pipe dream.
69 See Piketty (2006, 2014). Kuznets's arguments are not inconsistent with Piketty's assertion, given that Kuznets himself recognized several limitations of his article (for example, that it excludes government transfers).
70 Scheidel 2017.
71 Okun 1975.
72 Lucas 2004, p. 20.
73 Cingano 2014; Ostry and Berg 2011; Ostry, Loungani and Berg 2019. See also Alesina and Rodrik (1994), Assa (2012), Barro (2008) and Stiglitz (2016).
74 Neves, Afonso and Silva 2016.
75 See, for instance, Kraay (2015) and Bourguignon (2015b).
76 Furman 2019. In discussing Furman's arguments, Rodrik (2019) and Shanmugaratnam (2019) come to support the same basic argument.
77 López-Calva and Rodríguez-Castelán 2016.
78 Mendez Ramos 2019.
79 Chenery and others 1974; López-Calva and Rodríguez-Castelán 2016.
80 Bourguignon 2003.
81 Lakner and others 2019.
82 Aiyar and Ebeke 2019. Some empirical evidence suggests that high income inequality can reduce public school attendance because parents opt to send children either to work (low socioeconomic status families) or to private school (high socioeconomic status families), diminishing support for public education and expenditure per student, which could equalize opportunity. Gutiérrez and Tanaka 2009.
83 While Marrero, Gustavo and Juan Rodríguez (2013) and Aiyar and Ebeke (2019) find supporting evidence, Ferreira and others (2018) do not.
84 ECLAC 2018a.
85 Birdsall, Ross and Sabot 1995.
86 ECLAC 2018a.
87 Bowles and others 2012.
88 Alvaredo and others 2018.
89 Berger-Schmitt 2000.
90 Uslaner 2002.
91 Uslaner and Brown 2005.
92 Wilkinson and Pickett 2011 (data on trust are from the World Values Survey). When including countries with lower human development using data from the Gallup World Poll from 2010 (the year with most coverage), there is no significant correlation (Human Development Report Office calculation).
93 Paskov and Dewilde 2012.
94 Dinesen and Sønderskov 2015; Leigh 2006.
95 Buttrick and Oishi 2017.
96 Van Zomeren 2019.
97 Connolly, Corak and Haeck 2019, p. 35.
98 Connolly, Corak and Haeck 2019.
99 European Commission, Directorate-General for Research and Innovation 2014.
100 See Ramos and others (2019) for a study on religious diversity.
101 OECD 2010.
102 Lancee and Van de Werfhorst 2012; Solt 2008.
103 On the influence of the upper middle class in political processes in the United States, see Reeves (2018). See also Gilens and Page (2014), Igan and Mishra (2011) and Karabarbounis (2011). Clientelism can be defined as "a political strategy characterized by an exchange of material goods in return for electoral support" (World Bank 2017b, p. 10, based on Stokes 2009).
104 For a more comprehensive discussion on this, see UNDP (2016).
105 World Bank 2017b.
106 Chadwick 2017, p. 4.
107 Kennedy and Prat 2019. Data are from the Reuters Digital News Report survey, which covers more than 72,000 individuals in 36 countries. For a discussion on the data's limitation, see Kennedy and Prat (2019). Around 80 percent of individuals in the sample watch news on television, 40 percent read newspapers and only 30 percent use pure internet sources. Internet sources are consumed more widely when they are associated with a traditional platform, especially newspaper websites.
108 Prat 2015.
109 Kennedy and Prat 2019.
110 Fake news is defined as "intentionally false or misleading stories" (Clayton and others forthcoming, p. 1).
111 Rodrik 2018.
112 For a case study of Latin America, see Piñeiro, Rhodes-Purdy and Rosenblatt 2016.
113 Rodrik 2018.
114 This paragraph draws on the analysis in World Bank (2017b).
115 Bernardi and Plavgo forthcoming. Due to a few cases of extreme outliers, for the multivariate analysis in the background papers for this Report, homicide rates were transferred into their natural logarithmic form. See also Kawachi, Kennedy and Wilkinson (1999), Pickett, Mookherjee and Wilkinson (2005) and Wilkinson and Pickett (2011).
116 This was determined through an interaction effect between the Gini coefficient and mean years of schooling. There is no such moderating effect for low and medium human development countries.
117 Enamorado and others 2016.
118 Gilligan (1996), as cited by Pickett, Mookherjee and Wilkinson (2005).
119 Kawachi, Kennedy and Wilkinson 1999.
120 Alesina and Perotti 1996.
121 Collier and Hoeffler 1998; Fearon and Laitin 2003.
122 Stewart 2005, 2009, 2016a, 2016b.
123 Cederman, Gleditsch and Buhaug 2013. See also Stewart (2005). One of the mechanisms behind this was explained a long time ago by Horowitz's (2001) comprehensive study Ethnic Groups in Conflict. Ethnicity is equivalent to the family concept, generating solidarity and a strong sense of belonging that can transform into intense emotional outbursts and sometimes even hatred (Cederman, Gleditsch and Buhaug 2013). Another explanation is that groups protest when they perceive inequalities as unfair and try to cope with them collectively instead of individually (Van Zomeren 2019). Sen (2008b, p. 5) suggests that the "coupling between cultural identities and poverty" makes inequality more important and may thus contribute to violence.
124 Langer 2005.
125 Stewart 2009.
126 UN and World Bank 2018.
127 Kelley and others 2015.
128 Schleussner and others 2016.
129 Von Uexkull and others 2016.
130 Hillesund 2019.
131 Langer and Stewart 2015; Miodownik and Nir 2016.
132 Scheidel 2017
133 Bircan, Brück and Vothknecht 2017. The authors use cross-country panel data (annual observations from 161 countries) for 1960–2014.
134 Gates and others 2012. For infant mortality, see Dahlum and others (forthcoming).
135 Bircan, Brück and Vothknecht 2017.
136 UN and World Bank 2018.
137 Stewart 2016b.

Part II

1 This also limits understanding of whether people at the bottom are getting closer to moving out of poverty. In fact, some evidence suggests that people who remain below the poverty line have seen little movement towards the line (Ravallion 2016), while many who have made it over the line remain poor when using other metrics (Brown, Ravallion and Van de Walle 2017), vulnerable to falling back (Lopez-Calva and Ortíz-Juarez 2014).
2 Rose (2016) describes many of the pitfalls of relying on averages to design and implement policy, going as far as suggesting that policies that promote equal access, if guided by the ideal of what would be needed on average, are bound to not fully create opportunity for everyone.
3 Borrowing from Ravallion (2001).
4 Ferreira (2012) made a similar point, arguing for the importance of using growth incidence curves.
5 Criado-Perez 2019.
6 Atkinson 1970, p. 261–262.
7 Ravallion 2018a.
8 Anand 2018.
9 Coyle 2015.
10 Rockoff 2019, p. 147.
11 See Deaton (2005) as well as Ferreira and Lustig (2015).
12 Smith and others 2019.
13 See, for instance, Galbraith (2018). The objections include the observation that income tax data are sparse and patchy. When there are large gaps in the data, assumptions have to be made that are very significant and open to scrutiny (Galbraith and others 2016).
14 Criado-Perez 2019.

Chapter 3

1 See, for instance, Zucman (2013, 2015). Also discussed in Alvaredo and others (2018).
2 See also chapter 5 and Chancel (2017).

3 Zucman 2014.
4 See UN (2009).
5 See Alvaredo and others (2016).
6 See Zucman (2019).
7 See Zucman (2014).
8 In India the government stopped publishing data between 2000 and 2010 (see Chancel and Piketty 2017).
9 This section is based in part in Ferreira, Lustig and Teles (2015).
10 Formerly known as the Luxembourg Income Study (www.lisdatacenter.org). See Ravallion (2015).
11 Gasparini and Tornarolli2015.
12 Galbraith 2016.
13 See Lustig (2018a).
14 See www.wider.unu.edu/project/wiid-world-income-inequality-database.
15 See Bourguignon (2015a).
16 See, for instance, ECLAC (2018b).
17 European Union Statistics on Income and Living Conditions website (https://ec.europa.eu/eurostat/web/microdata/european-union-statistics-on-income-and-living-conditions, accessed 10 October 2019.
18 See, for example, Galbraith and others 2015; Ravallion 2018b.
19 Alvaredo and others 2018; Morgan 2017.
20 Kuznets 1953; Atkinson and Harrison (1978).
21 See Piketty (2001, 2003).
22 See Piketty and Saez (2003).
23 See Alvaredo and others (2013).
24 See Alvaredo and others (2016, 2018).
25 See Alvaredo and others (2016).
26 See Alvaredo and others (2018).
27 See Piketty (2014).
28 See https://wid.world/. Methodological details can be found in Blanchet and Chancel (2016).
29 UN 2009.
30 See results in Stiglitz, Sen and Fitoussi (2009b).
31 The research here on the levels and evolution of global income inequality draws heavily on Alvaredo and others (2018), which provides full details on methods and sources.
32 Here, Europe corresponds to Western Europe. Western Europe is built by merging the income distributions of France, Germany and the United Kingdom and an aggregate merging other Western European countries (28 countries in total) to cover 420 million people. See Chancel, Clarke and Gethin (2017). The Middle East is defined as the region from Egypt to Iran and from Turkey to the Gulf countries and covers 410 million people. See Alvaredo, Assouad and Piketty (2018).
33 United States–Canada is built as follows. Canadian growth is distributed to the Canadian population assuming the same distribution as the one observed in the United States. The simplification seems acceptable given the similar trajectories of top income shares observed in the two countries and is justified by the relatively small size of Canada as compared with the United States (implying that different assumptions on the distribution of national income in Canada only have a marginal impact on the distribution of growth in the United States and Canada combined). The two countries are merged into a single aggregate. This allows a simple estimate of inequality in a region that is broadly comparable in size to Western Europe, while taking into consideration the main differences in national income levels and growth trajectories between the United States and Canada. See Chancel, Clarke and Gethin (2017).
34 Sub-Saharan Africa is the merged distribution of Sub-Saharan African countries for which survey data are available from the World Bank's PovcalNet. Survey data are corrected with available tax data estimates (which are available at this stage for the recent period only for Côte d'Ivoire and South Africa; the gap between surveys and tax data in those countries is used to correct survey estimates in other African countries). See Chancel, Clarke and Gethin (2017) and Chancel and Czajka (2017).
35 Here pensions and unemployment benefits are considered deferred income and are therefore counted as part of pretax and government transfers income; see spotlight 3.1 at the end of the chapter.
36 Blundell, Joyce, Norris and Ziliak 2018.
37 Although it should be emphasized that the top 1 percent and bottom 50 percent of the population are not necessarily composed of the same individuals in 1980 and 2016.
38 The "elephant curve" was popularized by Lakner and Milanovic (2016).
39 This is discussed in Alvaredo and others (2018).
40 Ravallion 2018a.
41 The share of the population living on less than $1.90 a day decreased from 46 percent in 1993 to 21.2 percent in 2011 (World Bank 2012a).
42 In particular, Lakner and Milanovic (2016) and Anand and Segal (2014). See also other attempts to measure global income inequality: Bourguignon and Morrisson (2002), Niño-Zarazúa, Roope and Tarp (2017) and Ortiz and Cummings (2011). Indeed, when measured in absolute terms the elephant curve looks more like a hockey stick (Ravallion 2018a). This fact is illustrated by focusing on shares of total growth captured and not only on the growth rates of each income group.
43 See Alvaredo and others (2018) for a more detailed discussion of national trajectories.
44 See also Milanovic (2005).
45 Indeed, the two scenarios are not additive, in the sense that global inequality is not the sum of the two curves.
46 Theil values are obtained from http://WID.world/gpinter, using the global inequality dataset constructed for Alvaredo and others (2018); see http://wir2018.wid.world).
47 Gathered by the World Bank and available on PovcalNet.
48 The values for Africa are based on interpolation of PovcalNet data (see Chancel and others 2019, which includes technical details for this section). The values presented for the Americas, Asia and Europe are based on distributional national accounts.
49 For full details on methods and sources in this section on Africa, see Chancel and others (2019).
50 The incomes of the bottom 10 percent of the distribution are reduced 25–50 percent, while the incomes of the top 1 percent are increased by the same proportion, when moving from consumption to income inequality (Chancel and others 2019).
51 See Morgan (2017) on Brazil, Assouad (2017) on Lebanon and Czajka (2017) on Côte d'Ivoire, among others.
52 Chancel and others 2019, p. 11. See also Alvaredo and Atkinson (2010) for an analysis of South Africa in historical perspective.
53 See also Odusola and others (2017).
54 The extreme poverty rate went from 36.6 percent in 1996 to 16.9 percent in 2008 and to 18.9 percent in 2014. See http://povertydata.worldbank.org/poverty/country/ZAF (accessed 6 November 2019).
55 See Alvaredo and others (2018).
56 Parts of this section draw on Alvaredo and others (2018) and Blanchet, Chancel and Gethin (2019).
57 Blanchet, Chancel and Gethin 2019; Piketty, Saez and Zucman 2018.
58 See details in Blanchet, Chancel and Gethin (2019).
59 It is important to stress that the focus here is solely on monetary income inequality, which was unusually low in the Russian Federation and Eastern Europe under communism. Other forms of inequality prevalent at the time, in terms of access to public services or consumption of other forms of in-kind benefits, may have enabled local elites to enjoy much higher standards of living than their income levels suggest.
60 The percentage of the population at risk of poverty is defined as the share of adults living on less than 60 percent of the national median income.
61 See https://data.oecd.org/socialexp/social-spending.htm.
62 For comparisons of the United States and Europe, see OECDStats (https://stats.oecd.org/Index.aspx?DataSetCode=MIN2AVE#).
63 Parts of this section draw on Alvaredo and others (2018).
64 Piketty and Zucman 2014.
65 Atkinson and Harrison 1978.
66 Alstadsæter, Johannesen and Zucman 2018; Zucman 2014.
67 "Capital" and "wealth" are used interchangeably in this chapter.
68 More details are in Alvaredo and others (2018).
69 As for income inequality data, the set of countries with available wealth–income ratios is constantly growing.
70 Alvaredo and others 2018; Garbinti, Goupille-Lebret and Piketty 2016; Saez and Zucman 2016.
71 See Alvaredo and others (2018, section 4) for a longer discussion of the underlying data.
72 See Piketty, Yang and Zucman. 2019

Chapter 4

1 UNDP 2018a; UN Women 2019; WEF 2018; World Bank 2012b.
2 UNDP 2018a; UN Women 2019; WEF 2018; World Bank 2012b.
3 UN Women 1995.
4 WEF 2018.
5 UNDP 2018a.
6 Giraldo-Luque and others 2018.
7 Fletcher, Pande and Moore 2017.
8 Butler 2019; McDonald and White 2018; UN News 2019.
9 Nussbaum 2001, p. 1.
10 UNDP 1995, p. 1.
11 UNDP 1995, p. 29.
12 UN 2015a.
13 UN Women and IPU 2019.
14 UNICEF 2018b.
15 Keleher and Franklin 2008; Marcus 2018; Marcus and Harper 2014; Munoz Boudet and others 2012; Sen, Ostlin and George 2007.
16 Marcus and Harper 2014.
17 Bicchieri 2006; Fehr, Fischbacher and Gächter 2002; Ostrom 2000.
18 Galvan and Garcia-Peñalosa 2018.
19 OECD 2017a; UNDP and UN Women 2019; UN Women 2015b; WEF 2017.
20 Mackie and others 2015.
21 Charles 2012.
22 Chamorro-Premuzic 2013.
23 Marcus and Harper 2015.
24 Green 2016.
25 Gintis 2007.
26 Cislaghi, Manji and Heise 2018; Cooper and Fletcher 2013; Marcus and Harper 2014.
27 Bandura 2003; Mackie and others 2015; Munoz Boudet and others 2012; Sood, Menard and Witte 2009.
28 Bian, Leslie and Cimpian 2017; Cunningham 2001.
29 OECD 2017a.
30 Borrell-Porta, Costa-Font and Philipp 2018.
31 Borrell-Porta, Costa-Font and Philipp 2018.
32 Amin and others 2018.
33 Kågesten and others 2016.
34 Mackie and Le Jeune 2009; Mackie and others 2015; UNICEF Innocenti Research Centre 2010.
35 UN Women 2015b.

36 Mackie and Le Jeune 2009; Marcus and Harper 2014; UNICEF 2013.
37 Cialdini, Kallgren and Reno 1991; Etzioni 2000; Jacobs and Campbell 1961.
38 Nussbaum 2003.
39 Addati and others 2018.
40 The term was coined by Amartya Sen to capture the fact that the proportion of women is lower than what would be expected if girls and women throughout the developing world were born and died at the same rate, relative to boys and men (Sen 1990).
41 UNDP 2016.
42 UNDP 2016.
43 OECD 2017a; UNESCO 2019a.
44 Bill & Melinda Gates Foundation 2019.
45 UNICEF 2019a.
46 Kishor and Johnson 2004.
47 Loaiza and Wong 2012.
48 Chandra-Mouli, Camacho and Michaud 2013.
49 Blum and Gates 2015.
50 Statistics for contraceptive prevalence focus on married women because in developing countries most sexually active adolescent girls are married, while in some it is claimed that sexual activity happens only within marriage. As a result, household surveys do not collect data on unmarried women. Still, unmarried women need to be considered when designing policies and interventions for reproductive health.
51 UNFPA 2019.
52 Kumar and Rahman 2018.
53 UNDP 2016.
54 UNIFEM 2000.
55 ILO 2017a.
56 Alonso and others 2019.
57 Hegewisch and Gornick 2011.
58 The global average gap for the same job is 77 percent (UN Women 2017).
59 Munoz Boudet and others 2018.
60 World Bank 2017a.
61 Schmidt and Sevak 2006; Sierminska, Frick and Grabska 2010.
62 Demirgüç-Kunt, Klapper and Singer 2013.
63 Munoz Boudet and others 2018.
64 See UN Women (2019).
65 See UN Women (2015a).
66 ILO 2017a; UNDP 2016; UN Women 2015b; World Bank 2012b.
67 Deschamps 2018.

Chapter 5

1 This framing is adapted from Berthe and Elie (2015).
2 This may seem to exclude production, but it is possible to consider not only direct emissions from consumption (such as driving a car) but also the indirect emissions related to production of a good or service (for instance, the steel processing, manufacturing and transportation activities required to make a chair available for someone to sit on).
3 Because fewer consumers have the purchasing power to afford "green" goods and services, keeping prices up and generating less demand for further technological change (Vona and Patriarca 2011).
4 There is evidence supporting this hypothesis for the case of states in the United States, with analysis showing that there is no impact of the Gini index on emissions by state (thus, confirming that the first mechanism is either absent or weak) but that there is a positive relationship between state-level emissions and the concentration of income among the top 10 percent, consistent with "approaches that focus on political economy dynamics […] which highlight the potential political and economic power […] of the wealthy" (Jorgenson, Schor and Huang 2017, p. 40). Market concentration was key in the history of the development of the Montreal Protocol in 1987 to combat ozone-destroying chlorofluorocarbons. For years, dominant firms opposed regulatory action until they saw how they could benefit economically from regulation that would create a profitable market for chemical substitutes (Hamann and others 2018; Maxwell and Briscoe 1998).
5 Much of the evidence applies to common pool resources, as opposed to a global public good such as climate stability, but the broader mechanism showing how inequality makes collective action more challenging remains valid. See, for instance, Alesina and La Ferrara (2000); Anderson, Mellor and Milyo (2008); Bardhan (2000); Costa and Kahn (2003); and Varughese and Ostrom (2001).
6 For both the impact of inequality in reducing cooperation and the value of communication in enabling it, see Tavoni and others (2011).
7 Berger and others 2011.
8 And how inequality exacerbates social status competition and could encourage growth policies at the expense of environmental ones (Baland, Bardhan and Bowles 2007; Berthe and Elie 2015; Chaigneau and Brown 2016; Franzen and Vogl 2013; Magnani 2000).
9 Cohen and others 2018 p. 1.
10 Some evidence suggests that decoupling is associated with reductions in income inequality—more specifically, that it is negatively associated with increasing the income share of the top 20 percent and positively associated with increasing the income share of the bottom 20 percent (McGee and Greiner 2018).
11 Cumming and von Cramon-Taubadel 2018.
12 See Moser and Kleinhückelkotten (2017) for an exploration of the complexities of environmental identity, intentions and impacts, combining intent- and impact-oriented perspectives that have been motivating questions in the environmental psychology literature.
13 For instance, the trend (that is, removing cyclical changes in income) elasticity between income and emissions for a typical developed country has been estimated to be essentially zero for production-based emissions (effectively meaning that emissions are decoupled from growth), while jumping to 0.5 for consumption-based emissions (implying still quite strong coupling); the elasticities estimated for developing countries are about 0.7 for both production-based emissions and consumption-based emissions (Cohen and others 2018).
14 A related concept—and narrower one, in certain formulations—discussed at length in the literature is the pollution haven hypothesis, first postulated by Copeland and Taylor (1994) in the context of the North American Free Trade Agreement. In its most general formulation, the pollution haven hypothesis posits that trade liberalization encourages more polluting firms and industries to move some of their operations to countries with laxer environmental standards, thereby increasing pollution in receiving countries. Evidence for the hypothesis is mixed; see Gill, Viswanathan and Abdul Karim (2018) for a comprehensive review. A conceptual sticking point is causality—that is, whether firms relocate because of the laxer environmental standards or for some other reason that also happens to correlate with weaker standards. Some compelling evidence exists for the hypothesis for carbon dioxide emissions, including recently in Itzhak, Kleimeier and Viehs (2018), which used innovative micro data. Environmental burden shifting as presented in this chapter is broader than under the pollution haven hypothesis and is not preconditioned on differences in environmental regulation. It can occur between countries—in the form of net flows of virtual pollution or resource use (such as freshwater use) bundled in traded goods—or within them—for example, in the siting of waste disposal facilities. Kolcava, Nguyen and Bernauer (2019) show only partial support for a link between trade liberalization via preferential trade agreements and environmental burden shifting, as measured by aggregate ecological footprints. Still, that study has tested a narrower hypothesis (trade liberalization via preferential trade agreements) than what this chapter asserts has to do with trade generally, regardless of the extent of liberalization, as well as to do with non-trade-related burden shifting. See also Roca (2003).
15 Given that the negative effects of climate change fall disproportionally on those with lower incomes and fewer capabilities (UNDP 2007).
16 Based on simulations of the evolution in income inequality across countries from 1961 to 2010, measured by the 90:10 ratio of population-weighted GDP per capita (Diffenbaugh and Burke 2019a). These results have been contested as an overestimation (Rosen 2019), but the authors stand by their findings (Diffenbaugh and Burke 2019b).
17 Burke and Tanutama 2019; Randell and Gray 2019. Although a lot depends on how impact is assessed (for example, economic damages or causalities) and on the nature of hazards linked to climate change. For instance, there is evidence that extreme temperature events have increased mortality in both developed and developing countries, deaths linked to extreme drought have gone down in both groups of countries and there is increasing polarization between developed and developing countries in deaths associated with extreme storms increasing in developing countries (Coronese and others 2019).
18 Pershing and others (2019) provide a conceptual overview of the impact of climate change on "surprise" events and empirical analysis in 65 large marine ecosystems.
19 World Bank 2019d.
20 Klein 2019.
21 Le Quéré and others 2018.
22 Brulle 2018; Dunlap and McCright 2011; Van den Hove, Le Menestrel and De Bettignies 2002.
23 Ritchie and Roser 2018.
24 Some have argued that the unconditional pledges under the Paris Agreement worsen existing inequalities in carbon emissions and that an emissions trading scheme across a subset of major signatories shows that although emissions trading reduces the costs of meeting emissions reductions targets, most of the gains would go to richer countries, implying additional inequality. See Rose, Wei and Bento (2019).
25 Chancel and Piketty 2015.
26 Cardona and others 2012.
27 Even though growth in the economic damages associated with extreme hazards in temperate regions has accelerated (Coronese and others 2019).
28 The only stronger hurricane ever recorded in the Atlantic was Hurricane Allen in 1980, but it weakened before

making landfall (Le Page 2019). See also Rice (2019).
29 Semple 2019.
30 Burke, Davis and Diffenbaugh 2018; Kahn and others 2019; Kompas, Pham and Che 2018; Pretis and others 2018; Tol 2018.
31 Burke and Tanutama 2019; Carleton and Hsiang 2016.
32 Cooper 2019.
33 Weitzman 2012, p. 234.
34 Some of the most widely used models rely on smooth damage functions as a "best fit" for the underlying data rather than on damage functions with nonlinearities (that is, thresholds, tipping points), which may be more characteristic of potential catastrophic events under climate change. Smooth functions are a "best fit" precisely because the underlying data themselves have made minimizing assumptions about catastrophic events. To help remedy this and other shortcomings in the underlying data from other models, a "fudge factor" of 25 percent is added to the DICE damage function (Cooper 2019; Nordhaus and Moffat 2017).
35 Cai, Judd and Lontzek 2013; Cai and others 2015; Lemoine and Traeger 2014.
36 Burke, Davis and Diffenbaugh 2018; Kahn and others 2019; Kompas, Pham and Che 2018; Pretis and others 2018; Tol 2018.
37 Daniel, Litterman and 2019. Forceful action in this context means pricing carbon based on probabilistic assumptions of climate damages. The price of carbon in this model would be high, and increasing, over a few years, but would come progressively down as the insurance value decreases and technology makes emissions cuts cheaper.
38 WHO 2018.
39 Hoegh-Gulberg and others 2018.
40 Global Panel on Agriculture and Food Systems for Nutrition 2016; US CDC 2014.
41 An individual can be exposed once or multiple times during a year. Each time a person is exposed counts as an exposure event. Watts and others 2015.
42 WHO and World Bank 2017.
43 Watts, Amann, Arnell and others 2018.
44 Mejia and others 2019.
45 Kahn and others 2019.
46 Watts, Amann, Arnell and others 2018.
47 Watts, Amann, Ayeb-Karlsson and others 2018.
48 "Vectorial capacity is a measure of the capacity for vectors to transmit a pathogen to a host and is influenced by vector, pathogen, and environmental factors" (Watts, Amann, Ayeb-Karlsson and others 2018, p. 2487).
49 Watts, Amann, Arnell and others 2018.
50 Randell and Gray 2019.
51 Kim, Lee and Rossin-Slater 2019.
52 Other, related frameworks have been proposed for the channels by which climate change affects inequality. See Islam and Winkel (2017), which proposes three channels: exposure, susceptibility and ability to cope and recover. With the discussion on resilience, this chapter broadly encompasses this framework.
53 See Winsemius and others 2018. The authors also highlight a potential pathway going in other direction: the impact of hazard-prone areas on poverty.
54 Demaria 2010.
55 Boillat and others 2018; Hart 2014; Jones 2009.
56 Martinez-Alier and others 2016; Sobotta, Campbell and Owens 2007.
57 Wenz 2007.
58 Asseng and others 2015; Battisti and Naylor 2009; Challinor and others 2016; Porter and others 2014; Zhao, Liu and others 2017.
59 King and Harrington 2018; King and others 2015; Mora and others 2013.
60 Schiermeier 2018.
61 For the general mechanisms through which a weather shock can lead to devastating food insecurity, see, for instance, Devereux (2009).
62 Dingel, Meng and Hsiang 2019.
63 Woodard, Davis and Randerson 2019.
64 Burke and Tanutama 2019.
65 Randell and Gray 2019.
66 Mejia and others 2019.
67 European Environment Agency 2018; Parry and Terton 2016.
68 Devex n.d.; Parry and Terton 2016; UK Space Agency 2018.
69 Nakatani 2019.
70 Global Commission on Adaptation 2019.
71 Vörösmarty and others 2000.
72 Hallegatte and Rozenberg 2017; Rozenberg and Hallegatte 2015.
73 UNDP 2011.
74 Liu and others 2007.
75 As documented by Scheidel (2017). And the response to a shock can be equalizing, even when the impact is not. For instance, Hurricane Mitch hit the poorest households the hardest in Honduras, but the response generated an opportunity to address longstanding inequalities (McSweeney and Coomes 2011).
76 Coronese and others 2019.
77 Clarke and Dercon 2016.
78 See, for instance, Hallegatte and others (2017).
79 Hallegatte and others 2017.
80 UNDRR 2019.
81 As an example, consider the reduction in vulnerability to floods (Jongman and others 2015).
82 IPCC 2014, p. 8.
83 IPCC 2014, p. 13. For food security, see FAO (2018).
84 IPCC 2014.
85 Dang, Lanjouw and Swinkels 2014.
86 Fuentes-Nieva and Seck 2010.
87 Kim 2010.
88 IDMC 2018.
89 For instance, when an ocean heat wave in the North Atlantic in 2012 led the lobster capture to peak one month earlier than normal, this led to a glut in supply and drop in prices. After this "surprise" shock, investments in marketing and processing capacity enabled the industry to respond to sharp increases in temperature—such as the one that occurred in 2016, in which the industry hit record value (Pershing and others 2019).
90 Examples of environmental justice activism include the mobilization against the siting of toxic dumping sites in the 1980s (Bullard 1983, 1990; Margai 2001; Taylor 2000).
91 Milman 2018; US EPA 2015.
92 Thus, some environmental justice literature is focused on procedural justice questions rather than on distributive outcomes (Curran 2018).
93 In this chapter "waste" refers to solid waste.
94 Kaza and others 2018.
95 Eriksen and others 2014
96 US NOAA 2018.
97 Lebreton and others 2018.
98 US NOAA 2018.
99 Choy and others 2019; Woodall and others 2014.
100 Allen and others 2019; Gasperi and others 2018.
101 Kaza and others 2018.
102 This paragraph is based on Kaza and others (2018).
103 Bullard 1983, 1990; Margai 2001; Taylor 2000. For a literature review, see Martuzzi, Mitis and Forastiere (2010). See also Elliott and others (2001); Harper, Steger and Filčak (2009); Johnson, Lora-Wainwright and Lu 2018; Laurian (2008); McLaren, Cottray and Taylor (1999); Steger and others 2007; Varga, Kiss and Ember (2002); Varró, Gombköto and Szeremi (2001); Walker and others (2003).
104 Thornton and others (2006), as cited in FAO (2018).
105 Data in this paragraph are from FAO (2018).
106 FAO 2014; Poore and Nemecek 2018.
107 "Agriculture uses approximately 70 percent of the available freshwater supply, and roughly 30 percent of global agricultural water goes on livestock production" (FAO 2018, p. 51). Calculation based on 30 percent of 70 percent = 21 percent.
108 Godfray and others 2010; Rask and Rask 2011.
109 Gerbens-Leenes and Nonhebel 2002; Pimentel and Pimentel 2003; Wirsenius, Azar and Berndes 2010.
110 FAO 2006, 2017; Gerber and others 2013; Tubiello and others 2014.
111 Processing, distribution and retail matter, too, with losses often accounting for the greatest share of emissions at these stages. Poore and Nemecek 2018.
112 FAO 2017; Science Daily 2014.
113 Beef refers to beef obtained from beef herders and dairy herders. Poore and Nemecek 2018.
114 Poore and Nemecek 2018.
115 OECD and FAO 2018.
116 FAO 2018.
117 OECD and FAO 2017, 2018.
118 Bennett 1941; Block and others 2004; Bouis, Eozenou and Rahman 2011.
119 Because income elasticities for meat consumption are higher for lower income groups. Humphries and others 2014.
120 Burton 2019.
121 A.T. Kearney 2019.
122 Giupponi and Paz 2015; Government of Ecuador 2008; State of California 2012; Takacs 2016; UN General Assembly 2010; United Nations Human Rights Council 2010.
123 Data in this paragraph are from UNICEF and WHO (2019).
124 FAO 2016.
125 FAO 2016.
126 Gerten and others 2015; Jaramillo and Destouni 2015; Rockström and others 2009; Steffen and others 2015.
127 Gleeson and others forthcoming.
128 Mekonnen and Hoekstra 2016.
129 Mekonnen and Hoekstra 2016.
130 Richey and others 2015.
131 UNDP 2006, p. v.
132 Hoekstra and Mekonnen 2012.
133 Mekonnen and Hoekstra 2011.
134 Hoekstra and Mekonnen 2012.
135 In other words, more water is used to produce the meat and cereals that are consumed rather than consuming more meats and cereals overall.
136 Hoekstra and Mekonnen 2012.
137 UNICEF and WHO 2019.
138 Cole and others 2018.
139 Republic of South Africa 1996; South Africa Department of Water and Sanitation 2016.
140 Gleick 2018.
141 Gleick 2018.
142 The cost of transitioning to a carbon-free electricity system in the United States has dropped markedly, driven by declines in the cost of renewable energy technologies, such as wind and solar, as well as energy storage systems (Heal 2019). See Haegel and others (2019) and Veers and others (2019) for reviews of global cost and capacity trends for photovoltaic and wind technologies, respectively, as well as a discussion of challenges and opportunities for further scaling up. Davis and others (2018) explore challenges and opportunities in decarbonizing energy services and industrial processes, such as long-distance

freight transport and air travel, that are difficult to provide without emitting carbon dioxide. Despite increasingly favourable conditions for renewable energy and associated technologies, global energy growth is still outpacing decarbonization (Jackson and others 2018).

Chapter 6

1 The expression became widely used by economic historians after Kenneth Pomeranz's (2000) book The Great Divergence, even though the book presented what was at the time an original thesis on how and why the Industrial Revolution happened (claiming that it was happenstance that it originated in Europe, given that East Asia had very similar conditions in the late 17th century and, further, that Europe's advantage was due largely to the large natural resources extracted from the "New World" colonies). This view is contested, with a recent review of the debate on the causes of the Great Divergence and multiple hypothesis being put forward, included in Vries (2016). For a recent economic perspective, see O'Rourke, Rahman and Taylor (2019).

2 The aspiration to "develop" in much of the second half of the 20th century was almost synonymous with "industrialization." And, indeed, over the second half of the 20th century, manufacturing moved to several developed countries—though not to all and not at the same time—leading to some convergence in incomes across countries. A testimony of the enduring appeal of industrialization is reflected in the fact that industrializing remains one of the goals of the 2030 Agenda for Sustainable Development.

3 Until the mid-19th century the largest ratio of real income per capita between the richest and the poorest society was 5 to 1 (Vries 2016). Human Development Report Office calculations based on country estimates in the Maddison Project Database of income per person (Bolt and others 2018) show that the ratio had grown to 50 to 1 by the middle of the 20th century. These estimates are contested but still provide a useful reference point. On inequality within countries, Milanovic, Lindert and Williamson (2010) show that the Gini coefficient for income was, on average, as high in preindustrial as in industrial economies, with similar variation across economies.

4 The intensive use of coal as a source of energy continued throughout the 20th century and was exacerbated by the widespread use of the internal combustion engine. For a historical account of the environmental dimensions of these technological innovations and their significance, see McNeill (2001).

5 The report also considered the importance of balancing incentives for investments in new technology with its diffusion and discussed the many barriers that developing countries face in benefiting from that diffusion (UNDP 2001).

6 Silver and others 2018.

7 LeCun, Bengio and Hinton 2015. Moreover, it is conceivable that machines will learn not only by themselves, but also from other machines, so that what is learned by one can be shared with all the others. This can be done much faster than the sharing of information by humans, who communicate at rates of 10 bits per second, 100 million times slower than machines (Pratt 2015).

8 And beyond the impact on labour markets, artificial intelligence is also starting to raise very deep philosophical questions. As of now, and in the near future, artificial intelligence simply implements tasks that are defined by humans, but it is conceivable that machines might eventually be able to set their own objectives—raising profound questions about the human species and how people interact with technology. See Russell (2018).

9 As shown in the extensive discussion of possible channels and impacts of artificial intelligence on employment and earnings by Frank and others (2019).

10 The literature on this transformation is vast, but recent works touching on it include Goldin and Katarna (2016), Iversen and Soskice (2019), Unger (2019) and the more speculative analysis in Harari (2016).

11 World Bank 2019a.

12 Russell 2018.

13 In the United States in 1995, only 2 percent of heterosexual couples had met online, while about half met through family and friends. By 2017, close to 40 percent had met online, compared with less than a third who met through family and friends (Rosenfeld, Thomas and Hausen 2019).

14 Frost and others 2019.

15 Fintech News Hong Kong 2019.

16 People's Bank of China 2019.

17 Butera 2019.

18 The Neolithic, or agricultural, Revolution that happened more than 10,000 years ago is often invoked as another instance of a technological transformation on the scale of the Industrial Revolution. But while the historical consequences of the shift from hunter-gatherers living in small nomadic groups to more sedentary and larger segments cultivating plants and tending after livestock is beyond dispute, recent scholarship shows that these transformations were not related to the availability of technology per se (Scott 2017). In fact, humans' ability to domesticate plants and animals already existed almost 4,000 years before. But the technology became consequential only when institutional innovations such as the creation of the state enabled small settlements to grow into the early civilizations of the Fertile Crescent and the Nile Delta.

19 As articulated, for instance, in Kuznets's Nobel Prize lecture (Kuznets 1971). As Mokyr (2016, p. 339) put it: "In only one case did such an accumulation of knowledge become sustained and self-propelling to the point of becoming explosive and changing the material basis of human existence more thoroughly and more rapidly than anything before in the history of human on this planet. That one instance occurred […] during and after the Industrial Revolution." Mokyr's central thesis is that the European Enlightenment, itself a construction that took several hundred years to build and that was far from preordained, provided the fertile ground for a "market for ideas" to flourish, as well as the conviction that humans could understand "natural regularities and exploit them to their advantage" (p. 7).

20 See Vries (2016). As Nobel laureate Paul Romer (1990) argued, since we live on a planet where our resources and abilities to produce things are bounded, it is ideas and abilities to combine things in ever more efficient ways that have driven economic growth. Perhaps the best way to fully leverage technology is through sustaining what Stiglitz and Greenwald (2014) called a "learning society."

21 Basu, Caspi and Hockett (2019) show that the new technology underlying the platform economy, while expanding the world's production possibility frontier, can leave vast segments of the population marooned and without bargaining power.

22 Mokyr 2002.

23 Vickers and Zierbarth 2019.

24 Atkinson 2015.

25 Acemoglu and Restrepo 2019.

26 See, for instance, Acemoglu and others (2012) for a treatment of directed technical change to address environmental challenges.

27 For instance, the full impact of electricity on manufacturing productivity did not fully materialize until factories evolved to become single story and to have multiple electrical motors tied to different pieces of equipment (David 1990).

28 For instance, in the context of Japan's Society 5.0 (Government of Japan 2017).

29 Mazzucato 2013.

30 Lee 2018.

31 UNESCO n.d.

32 UNDESA 2018.

33 GSMA 2017.

34 GSMA 2018.

35 ITU 2019.

36 OECD 2019b.

37 See, for instance, Gonzales (2016) and Rosenberg (2019).

38 Hilbert 2019.

39 For projections on the gains from artificial intelligence, see PwC (2017). For the growth of artificial intelligence in North America and East Asia, and particularly in China, see Lee (2018).

40 See, for instance, Utterback and Abernathy (1975).

41 Hilbert 2011.

42 This section draws in part from Conceição (2019a).

43 So much so that a constant labour share of income has been one of the features that economic growth models were expected to account for, since Kaldor (1961) identified this as an empirical regularity characterizing economic growth. On the constant labour share of income, see Giovannoni (2014).

44 Autor and Salomons (2017) quoted Keynes as stating that this regularity was a bit of a miracle.

45 As argued, for instance, by Rodrik (2015). Avent (2016) goes a step further and argues that in the digital age a new kind of institution will be needed. Since the promise of the digital revolution is an end to work, what will also be needed is institutions that provide for people who do not work because their work is not necessary to generate economic growth.

46 Karabarbounis and Neiman 2013. For the global dimension of the decline in the labour share, see Dao and others (2017).

47 The erosion of demand for routine tasks linked to technological change can account for about half of the decline in the labour share in developed countries (IMF 2017b). For evidence on Europe, see Dimova (2019). The decrease in intensity in trade unions has also been an important factor in some countries, including the United States (see Farber and others 2018).

48 In developed countries falling labour shares reflect a significant substitution of capital for labour, but the explanation for the trend in developing countries is different. Firms in advanced countries automate the routine tasks. Therefore, tasks with lower factor substitutability are more likely to be offshored. In developing countries the decline in labour share is explained mainly by global integration, particularly the expansion of global value chains, which contributed to raising the overall capital intensity

of production in developing countries (Dao and others 2017).

49 For a description of how the decline in the relative price of investment goods interacts with technology and globalization to decrease the labour share, see Lian (2019). For the decline in the relative prices of investment goods, see Lian and others (2019).

50 Measured as the decline in the median developing country (Lian and others 2019).

51 Karabarbounis and Neiman 2013; Lian and others 2019.

52 Chen, Karabarbounis and Neiman 2017. Corporate savings are profits that are not paid to taxes, labour, or debt or equity holders.

53 Furman 2014.

54 ILO 2018b.

55 Autor and others 2017; De Loecker and Eeckjout 2017; Furman and Orszag 2015.

56 Diez, Fan and Villegas-Sánchez 2019.

57 The importance of these network externalities has long been recognized as a key feature of all platforms, not only technological ones. See Rochet and Tirole (2003).

58 Moazed and Johnson 2016.

59 Khan 2017.

60 Dellinger 2019.

61 Wu and Thompson 2019.

62 Naidu, Posner and Weyl 2018.

63 Chau and Kanbur 2018.

64 Dube and others 2018.

65 ILO 2018a.

66 See, for example, Atkinson (2014) and Kanbur (2018).

67 See, for example, Basu (2019b) and Stiglitz (2019b).

68 Furman and Seamans 2019.

69 Wu 2018.

70 Basu 2019b; Stiglitz 2019b; Sunstein 2018.

71 More broadly, it is possible to consider how to steer artificial intelligence in a way that integrates ethical values and economic value (see Korinek 2019).

72 Acemoglu and Restrepo 2018.

73 This can have varied geographic impacts. For instance, there is evidence that in the United States smaller cities faced a greater negative impact from automation, while larger cities faced a much smaller impact, given the abundance of occupations and professions with tasks not easily automatable (Frank and others 2018).

74 ILO 2019c.

75 The Economist 2019.

76 The Economist 2019; Maulia 2018.

77 Bruckner, LaFleur and Pitterle 2017.

78 Brynjolfsson, Mitchell and Rock 2018.

79 Wrzesniewski and Dutton 2001.

80 Brynjolfsson, Mitchell and Rock 2018.

81 As discussed in chapter 2. See also Acemoglu and Autor (2011); Autor, Katz and Kearney (2006); Bhorat and others (2019); Bruckner, LaFleur and Pitterle (2017); Goos, Manning and Salomons (2014); and World Bank (2016).

82 ILO 2019c.

83 Consider Voyager, an interactive system for exploratory analysis that combines manual and automated chart specification. Given a dataset, Voyager spots potential quality or coverage issues. As users interact, Voyager recommends views. Users report that Voyager helped promote data quality assessment and combat confirmation bias (Heer 2019).

84 Agarwal, Gans and Goldfarb 2019.

85 Cheng, Chauhan and Chintala 2019; IWPR 2019.

86 Brussevich, Dabla-Norris and Khalid 2019.

87 It has been documented that boys outnumber girls in computer science Advanced Placement exams, and in 2013 only 26 percent of computer professionals were women (AAUW 2015; IDRC 2018).

88 WEF 2018.

89 Metz 2019.

90 Metz 2019.

91 ILO 2018a.

92 The US state of California recently declared all drivers on ride sharing platforms to be employees of the companies (Szymkowski 2019). This ensures that labour laws apply to these jobs. The New York City Taxi and Limousine Commission has approved new rules designed to provide a minimum hourly wage of $17.22 (after expenses) for drivers who work with app-based services such as Uber, Lyft, Via and Juno (Ha 2018).

93 ILO (2019c) indicates that the Maritime Labour Convention of 2006—in effect a global labour code for seafarers—was a source of inspiration in addressing the challenges of workers, employers, platforms and clients operating in different jurisdictions.

94 Korinek and Stiglitz 2017.

95 Freeman and Perez 1990.

96 Moreover, technology in itself could also provide opportunities for developing countries to reimage prevailing industrial era policies in updated social protection systems, offering more effective risk sharing (Rutkowski 2018).

97 Individual savings can be a voluntary option to supplement stable, equitable and adequate mandatory social insurance benefits (ILO 2019c).

98 For universal basic income, see, for example, Francese and Prady (2018). See also Hanna, Khan and Olken (2018).

99 For example, overly generous unemployment benefits can disincentivize labour market participation. See Farber and Valletta (2015).

100 Such as for health, education and other spending areas. Fiscal sustainability of programmes is another key consideration (Coady 2018).

101 Berger and Frey 2016.

102 OECD 2019c.

103 In fact, one reason why businesses deploy so many robots, despite their sometimes questionable contribution to the bottom line, is that automation is often subsidized. Subsidies induce firms to substitute capital for labour even when the substitution does not socially save costs, though it privately benefits the firm (Acemoglu and Restrepo 2018; Guerreiro, Rebelo and Teles 2018).

104 The Republic of Korea, the most robotized country in the world, reduced the tax deduction on business investments in automation, which is, in effect, a robot tax (Porter 2019). By contrast, the European Parliament rejected a motion to emphasize that "consideration should be given to the possible need to introduce corporate reporting requirements on the extent and proportion of the contribution of robotics and AI to the economic results of a company for the purpose of taxation and social security contributions" (European Parliament 2016, p. 10).

105 One proposal is a tax on revenues from sales of targeted digital ads, the key to the operation of platforms such as Facebook and Google (Romer 2019).

106 Tankersley and Rappeport 2019.

107 The Group of 20, under the Presidentship of Japan in 2019, has proposed expanding the World Trade Organization rules to include trade in data (Bradsher and Bennhold 2019).

108 The General Data Protection Regulation requires companies to, among other things, obtain a person's freely given consent before collecting personal information, sharing it among applications and using it in any way (Wolford n.d.). The European Commission is also bringing legislation that will give EU citizens explicit rights over the use of their facial recognition data (Khan 2019).

109 Arrieta-Ibarra and others 2018.

110 Banerjee and Duflo 2011; Pritchett and Beatty 2015.

111 Muralidharan, Singh and Ganimian 2018.

112 Digital technology can also help with ageing workers, opening opportunities in training, including by overcoming time and resource constraints through flexible and shorter learning options.

113 O'Connor 2019; PwC n.d.

114 O'Connor 2019.

115 Sanyal 2018.

116 A 15 percent reduction in prematurity is expected, which would save about 80,000 lives a year in Africa (Shankland 2019).

117 World Wide Web Foundation 2017.

118 IDRC 2018.

119 IDRC 2018.

120 World Bank 2019b.

121 Consider the American Community Survey. Automated systems for monitoring demographics could become an increasingly practical supplement to the survey. Some of the characteristics relevant to the survey—such as income, race, education and voting patterns by postal code and precinct—can be accurately estimated by applying artificial intelligence to images gathered by Google Street View (Gebru and others 2017).

122 Pokhriyal and Jacques 2017.

123 Rains, Krishna and Wibbels 2019.

124 Tödtling and Trippl 2005.

125 Cariboni 2014.

126 Pla-Castells and others 2015.

127 Employing inspection of pipes that have already been replaced by evaluating soil dynamics and electromagnetic forces coming from power lines (Terdiman 2017).

128 Mann and Hilbert 2018.

129 Goodfellow, Bengio and Courville 2016.

130 Mann and Hilbert 2018.

131 Atkinson 2014; Conceição 2019b.

132 Mazzucato 2011.

133 Many efforts are ongoing, under the umbrella of the United Nations and others, to accelerate technology transfer in order to achieve the Sustainable Development Goals. For example, the Technology Bank for Least Developed Countries, established in 2018, following the call in the Istanbul Programme of Action for the Least Developed Countries and the 2030 Agenda for Sustainable Development, is working to make science, technology and innovation resources available to institutions and individuals in least developed countries and to strengthen the science, technology and innovation ecosystem in least developed countries. See www.un.org/technologybank/.

134 Conceição and Heitor 2007.

135 Freeman 1987; Nelson 1993; UNDESA 2018.

136 López-Calva and Rodríguez-Castelán 2016.

137 Schwellnus, Kappeler and Pionnier 2017.

138 ECLAC 2018a.

139 See, for instance, the case of China (Zhao, Zhang and Shao 2016).

Chapter 7

1 Expansion and convergence because if the objective were to be convergence alone, that could conceivably be achieved by diminishing the capabilities of those that already have them—whereas the goal, clearly, has to be to move those that are lagging behind to the higher achievements of

others. For brevity, the chapter will refer to convergence only, but it should be understood to mean by expanding the capabilities of those at the bottom.

2 Which, in turn, are shaped both by history and by political economy considerations—each of which is also not independent from the level of inequality in society (Piketty 1995, 2014).

3 The policies included higher and more progressive income taxes, earned income discounts at low income levels, taxable benefits paid for each child and a minimum income for all individuals. See Scheidel (2018), based on Atkinson (2015).

4 For instance, the Report does not deal with the trends linked to migration, ageing, urbanization, trade and others.

5 "Everyone, as a member of society, has the right to social security and is entitled to realization, through national effort and international co-operation and in accordance with the organization and resources of each State, of the economic, social and cultural rights indispensable for his dignity and the free development of his personality" (Universal Declaration of Human Rights, article 22).

6 UNESCO 2019b.

7 The figure for the world in 2014 was 80.1 percent. Based on data from the World Development Indicators database (http://datatopics.worldbank.org/world-development-indicators/) accessed 10 October 2019.

8 See UN (2019b).

9 See, for instance, Ritchie (2019).

10 UNDP 2016.

11 This is consistent with the categories of coverage, generosity and equity discussed in Martínez and Sánchez-Ancochea (2018, 2019a, 2019b).

12 For important frameworks and guides on operationalizing the pledge to leave no one behind, see UNSDG (2019) and UNDP (2018b). For a more conceptual analysis, see Klasen and Fleurbaey (2018).

13 For instance, in a cohort of socioeconomically disadvantaged minority children in Michigan followed from age 3 to age 55, children in the treatment group received 2.5 hours of education a day and a weekly home visit to help parents engage with them. The effects of combined education and parent engagement at an early age were significant. When the boys grew up, they spent on average 8 percent fewer days in jail between ages 20 and 50 than those who did not participate in the programme. Only 7 percent of the boys in the treatment group were convicted of a violent felony at least once, compared with 30 percent in the control group. Between the ages of 26 and 40, they experienced a 20 percentage point increase in their time in employment and more than $180,000 in additional cumulative income. The benefits of early childhood education extended to health at later ages. Boys from the treatment group were less likely to have excessive cholesterol and arterial inflammation. Girls who received the education support had less long-term stress and a lower chance of having diabetes or experiencing substance abuse. The early intervention boosted the well-being and capabilities of not only the children as they grew up but also of their children and siblings. Participants' children had higher levels of employment and education than nonparticipants' children. They were suspended less often from school and had less criminal activity, especially children of fathers who had early childhood education (Heckman and Karapakula 2019b).

14 For instance, in the United States such policies since 1960 included school desegregation, equalizing funding across school districts, compensatory resources for schools with many low-income students and additional early childhood education support for poor families. But achievement gaps between the bottom and the top of the socioeconomic distribution have been large and persistent for nearly half a century (Hanushek and others 2019).

15 Akmal and Pritchett 2019.

16 Akmal and Pritchett 2019.

17 Akmal and Pritchett 2019.

18 Malouf Bous and Farr 2019.

19 Shanmugaratnam 2019.

20 ILO 2019c.

21 See also Braveman and Gottlieb (2014).

22 George 2016.

23 Chemouni 2018.

24 Reich and others 2016.

25 Reich and others 2016.

26 Stewart 2006.

27 UNDESA 2009.

28 Stewart 2016a.

29 Langer and Stewart 2015; Stewart 2016a.

30 UN CEB 2017.

31 Silcoff 2018.

32 Patnaik 2019.

33 OECD 2017a.

34 Barker and others 2016.

35 Human Development Report Office calculations based on data from the WORLD Policy Analysis Center's Gender Database 2019.

36 Park 2015.

37 OECD 2017a.

38 OECD 2017a.

39 Del Boca 2015; Jaumotte 2003; Olivetti and Petrongolo 2017; Thévenon 2013. Québec introduced a low-fee universal child care programme in 1997 for children up to age 4, increasing the participation of young women in the labour force. This incentive to join the labour force or to work more also yielded substantial lifecycle labour supply effects (Lefebvre, Merrigan and Verstraete 2009). And when Québec introduced universal access to low-fee child care in 2008, nearly 70,000 more mothers took jobs than if no such programme had existed, for an increase of 3.8 percent in women's employment and 1.7 percent increase in Quebec's GDP (Fortin, Godbout and St-Cerny 2012; Herrera 2019.).

40 UN Women 2018.

41 Shackelford 2018.

42 OECD 2017a.

43 Baird, McIntosh and B. Özler 2013; Baird and others 2013; Hagen-Zanker and others 2017.

44 The programme recruited volunteer community health workers who administered injectable contraceptives, charging a small fee, or provided counselling and referrals for other methods. The option to have community meetings and provide contraceptives door to door took the cultural and social conditions into account in increasing the awareness, acceptability and use of modern contraceptives (Bixby Center for Population Health and Sustainability 2014).

45 As well as family planning services, to provide the community with a platform for dialogue on sexual education and sexual and reproductive rights. Information about sexual and reproductive health is disseminated through youth peer networks, many of which are affiliated with school, community, religious and youth associations. The government has received United Nations Population Fund support to develop the school club model and two manuals for teachers and students (UNFPA 2019).

46 The word "sasa", which means "now" in Kiswahili, serves as an acronym for the four phases of the approach: Start, Awareness, Support, Action. The programme begins by partnering with a local organization, which selects an equal number of female and male community activists—regular people interested in issues of violence, power and rights, as well as institutional activists working for the police and in health care, local government and faith-based groups. The activists receive training in new concepts and ways to approach power imbalances. They then take the lead in organizing informal activities with their community networks to encourage open discussions and critical thinking. Combined, the strategies ensure that different community members are exposed and receive information from people they trust (Raising Voices, London School of Hygiene & Tropical Medicine and Center for Domestic Violence Prevention 2015).

47 UN 2015b.

48 Surminsky, Bouwer and Linnerooth-Bayer 2016; UNFCCC 2015.

49 Surminsky, Bouwer and Linnerooth-Bayer 2016.

50 Tigchelaar and others 2018. Future warming increases the probability of globally synchronized maize production shocks.

51 Betkowski 2018.

52 Roy and others 2019.

53 Roy and others 2019.

54 Riahi and others 2017. Other ways include providing scenarios with high regional resolution (Fujimori and others 2017), representing institutional and governance changes associated with shared socioeconomic pathways more explicitly (Zimm, Spurling and Busch 2018) and calling up local and spatially explicit estimates of vulnerability, poverty and inequality, which have emerged in recent publications based on the shared socioeconomic pathways and are essential to investigate equity dimensions (Byers and others 2018; Klinsky and Winkler 2018.

55 Broadband Commission for Sustainable Development 2019.

56 Broadband Commission for Sustainable Development 2019.

57 Broadband Commission for Sustainable Development 2019.

58 Broadband Commission for Sustainable Development 2019.

59 UN General Assembly 2016.

60 The relationship between income inequality and economic growth has often been presented as a tradeoff (chapter 2). This framing has led to polar policy approaches. At one extreme overemphasizing pro-equality policies can neglect economic incentives to innovate and produce. At the other extreme pro-growth policies can neglect inclusion and sustainability. Choosing one or the other side of this tradeoff often ends up in poor performance on both growth and equality. To fix ideas, the experience of Latin America—maybe the most unequal region in the world, with waves of policy experimentation—offers some illustrative examples of these two approaches: populist experiences in the 1970s and 1980s, followed by conservative policies in the 1990s consistent with the so-called Washington Consensus. Some populist experiences in Latin America are analysed in Dornbusch and Edwards (1991). The reforms in Latin America during the 1990s are discussed in Ffrench-Davis (2000). An analysis of long-term inequality in Latin America is found in Gasparini and Lustig (2011).

61 See similar analysis in ECLAC (2018a), figure I.1, using overall inequality measured with the Gini coefficient.
62 This negative relationship is statistically significant. There is a decoupling between the two variables for the Group of 7 economies. The weakening of policies that jointly support growth and equity has been suggested as a leading factor in the case of the United States (Furman and Orszag 2018).
63 López-Calva and Rodríguez-Castelán 2016.
64 López-Calva and Rodríguez-Castelán 2016.
65 Lustig, Lopez-Calva and Ortiz-Juarez 2013.
66 The authors are grateful to Angus Deaton for emphasizing this point to them.
67 Polanyi 1944.
68 Kus 2012.
69 One estimate suggests that, for the United States, the decline in unions may have accounted for as much as half of the increase in the income share of the top 10 percent from 1980 to 2010 (Jaumotte and Osorio 2015; Marx, Soares and Van Acker 2015).
70 National policies towards unions range widely, from outright resistance, to tripartite cooperation with workers and employers, to actively promoting collective bargaining as part of a broader wage policy (Hayter 2015).
71 A recent meta-analysis of 42 studies and 269 estimates concluded that there is no significant effect of unions on productivity growth, even though there are differences across sectors (Doucouliagos, Freeman and Laroche 2017).
72 See UNDP (2015).
73 ILO 2016a.
74 ILO 2016b.
75 Data on minimum wages are heterogeneous but have been harmonized by the International Labour Organization to express monthly minimum wages in 2011 purchasing power parity dollars, subject to problems in price conversions. As data validation, cases where the minimum wage resulted in larger output per capita and cases where the monthly minimum wage was lower than $10 were excluded.
76 See the literature review in section I.5 of ILO (2016b).
77 Riley and Bondibene 2017.
78 See discussion of recent evidence in Nolan, Richiardi and Valenzuela (2018). Felix and Portugal (2017) provide evidence of the link monopsony-wage dispersion in Portugal. Webber (2015) uses US data to document monopsony power on wages, which is strongest in the lower half of the earnings distribution. There is also evidence of monopsony power in China and India, even though the degree of monopsony fell over time in both countries (Brooks and others 2019). If firms in China had no labour market power, labour's share of income would have been 10 percentage points higher in 1999 and 5 percentage points higher in 2007. If firms in India had no labour market power, labour's share would have been 13 percentage points higher in 1999 and 6 percentage points higher in 2011.
79 Brooks and others 2019.
80 Bhaskar, Manning and To 2002.
81 Falch 2010; Ridder and van den Berg 2003; Staiger, Spetz and Phibbs 2010.
82 Basu, Chau and Kanbur 2015.
83 See Ghosh (2016, 2019).
84 Bhorat, Kanbur and Stanwix 2017.
85 See Chacaltana, Leung and Lee (2018).
86 ILO 2018.
87 ILO 2018.
88 OECD and ILO 2019.
89 ILO 2018.
90 OECD and ILO 2019.
91 OECD and ILO 2019.
92 This paragraph is based on ILO (2019c).
93 Levine 2005.
94 Arcand, Berkes and Panizza 2015. There is no conceptual consensus. Some suggest that financial development can reduce income inequality (by, say, increasing access to credit or other financial services, such as insurance; Banerjee and Newman 1998; Galor and Zeira 1993). Others predict a nonlinear relationship where inequality first increases as access to finance is restricted to a minority and then decreases as access to credit spreads across society Greenwood and Jovanovic 1990. See also Bolton, Santos, and Scheinkman (2016); Gennaioli, Shleifer, and Vishny (2012); Korinek and Kreamer (2014); and Thakor (2012).
95 Beck, Demirgüç-Kunt and Levine 2007; Clarke, Xu and Zou 2006; Demirgüç-Kunt and Levine 2009.
96 De Haan and Sturm 2017; Jauch and Watzka 2016; Jaumotte, Lall and Papageorgiou 2013.
97 Rajan 2011.
98 Brei, Ferri and Gambacorta 2018.
99 In contrast to the prediction of some theoretical models.
100 Favara and Imbs 2015.
101 Mitnik, Cumberworth and Grusky 2016.
102 Adam and Tzamourani 2016.
103 Bezemer and Samarina 2016.
104 Bezemer, Grydaki and Zhang 2016.
105 Bezemer and others 2018; Mazzucato and Semieniuk 2017.
106 Barkai 2016; De Loecker and Eeckhout 2017; Eggertsson, Robbins and Wold 2018; Gutiérrez and Philippon 2019.
107 Diez, Fan and Villegas-Sánchez 2019.
108 Ennis, Gonzaga and Pike 2017; Gans and others 2018.
109 Gans and others 2018.
110 See Atkinson (1995).
111 Basu 2019a.
112 Covarrubias, Gutiérrez and Philippon 2019.
113 Shapiro 2018.
114 European Commission 2019.
115 See Lustig (2018a).
116 For the cash portion—redistribution aside from the in-kind benefits of publicly provided health care and education—taxes can sometimes increase the number of people living in poverty or reduce their income. In Armenia, Bolivia, Brazil, Ethiopia, Ghana, Guatemala, Honduras, Sri Lanka and Tanzania income redistribution increased the number of people below the $2.50 a day poverty line. In Indonesia, Mexico, the Russian Federation and Tunisia redistribution also reduced the income of about half the poor population (Lustig 2018b, 2018c). Some countries may simply have too few people above the poverty line with incomes high enough to tax (Bolch, Ceriani and Lopez-Calva 2017).
117 This paragraph is based mainly on Lustig (2018b).
118 Klemm and others 2018.
119 Ostry, Berg and Tsangarides 2014.
120 Grigoli and Robles 2017.
121 Average statutory corporate income tax rates fell from 1990 to 2015, from about 45 percent to 25 percent in advanced economies and from just under 40 percent in emerging economies and about 35 percent in low-income countries to just over 20 percent in both cases (IMF 2017a). There is evidence that effective corporate income tax rates have also declined significantly since the 1980s (FitzGerald and Ocampo 2019).
122 See also Ardanaz and Scartascini (2011) and Martínez and Sánchez-Ancochea (2019a).
123 OECD 2018c.
124 Saez and Zucman 2019.
125 OECD 2018c.
126 This paragraph is based on Lustig (2018b).
127 Aaberge and others (2018) do this for Nordic countries, showing that, on the whole, the impact has been less progressive than in the past.
128 OECD 2019e.
129 See, for example, Branstetter, Glennon and Jensen 2019
130 World Bank 2020.
131 Timmer and others 2014 .
132 FitzGerald and Ocampo 2019.
133 A response in this direction is the Platform for Collaboration on Tax launched by the International Monetary Fund, the OECD, the United Nations and the World Bank Group. The objectives of the platform, launched in 2016, are domestic resource mobilization and the state; the role of taxes in supporting sustainable economic growth, investment and trade; the social dimensions of taxes (poverty, inequality and human development); tax capacity development; and tax cooperation (see PCT 2019).
134 Zucman 2015.
135 European Commission 2016.
136 Tørsløv, Wier and Zucman 2018.
137 Tørsløv, Wier and Zucman 2018.
138 The OECD defines tax evasion as generally referring to illegal arrangements where liability to tax is hidden or ignored—that is, the taxpayer pays less tax than legally obligated by hiding income or information from the tax authorities.
139 The BEPS Project provides 15 action plans that equip governments with the domestic and international instruments needed to tackle tax avoidance. The OECD defines tax avoidance as generally describing the arrangement of a taxpayer's affairs that is intended to reduce tax liability; although the arrangement could be strictly legal, it is usually in contradiction with the intent of the law it purports to follow.
140 OECD 2018b.
141 Noked 2018.
142 Shaxton 2019.
143 OECD 2018d.
144 OECD 2019a.
145 OECD 2019d. Several small or developing countries have used lower corporate tax rates or preferential tax rates for specified activities as part of a package of measures to attract investment and stimulate growth, rather than compete by holding wages low indefinitely.
146 FitzGerald and Ocampo 2019.
147 Piketty 2014.
148 UNDP 2016.
149 Lamont (2018) calls for a new research agenda on policies in the area, defining some policy principles.
150 Well implemented conditional cash transfers programmes appear to be effective and to have positive long-term effects. See Bouguen and others (2019).
151 OECD 2019f.
152 Daude and others (2017) examine nine Latin American countries.
153 Martínez and Sánchez-Ancochea 2019a; Verget and others 2017.
154 Murillo and Martínez-Garrido 2017.
155 Martínez and Sánchez-Ancochea 2019a, based on Fairfield (2015) and Schiappacasse (2019).
156 Martínez and Sánchez-Ancochea 2019a.

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Statistical annex

Readers guide

The 20 statistical tables in this annex provide an overview of key aspects of human development. The first six tables contain the family of composite human development indices and their components estimated by the Human Development Report Office (HDRO). The sixth table is produced in partnership with the Oxford Poverty and Human Development Initiative (OPHI). The remaining tables present a broader set of indicators related to human development. The five dashboards use colour coding to visualize partial groupings of countries according to performance on each indicator.

Tables 1–6 and dashboards 1–5 are part of the printed version of the 2019 Human Development Report. The full set of 20 statistical tables is part of the digital version of the report and is posted at http://hdr.undp.org/en/human-development-report-2019.

Unless otherwise noted, tables use data available to the HDRO as of 15 July 2019. All indices and indicators, along with technical notes on the calculation of composite indices and additional source information, are available at http://hdr.undp.org/en/data.

Countries and territories are ranked by 2018 Human Development Index (HDI) value. Robustness and reliability analysis has shown that for most countries differences in HDI are not statistically significant at the fourth decimal place. For this reason countries with the same HDI value at three decimal places are listed with tied ranks.

Sources and definitions

Unless otherwise noted, the HDRO uses data from international data agencies with the mandate, resources and expertise to collect national data on specific indicators.

Definitions of indicators and sources for original data components are given at the end of each table, with full source details in *Statistical references*.

Methodology updates

The 2019 Report retains all the composite indices from the family of human development indices—the HDI, the Inequality-adjusted Human Development Index (IHDI), the Gender Development Index (GDI), the Gender Inequality Index (GII) and the Multidimensional Poverty Index (MPI). The methodology used to compute the indices is the same as the one used in the 2018 Statistical Update. For details, see *Technical notes 1–5* at http://hdr.undp.org/sites/default/files/hdr2019_technical_notes.pdf.

The 2019 Report has five colour-coded dashboards (quality of human development, life-course gender gap, women's empowerment, environmental sustainability and socioeconomic sustainability). For details on the methodology used to create them, see *Technical note 6* at http://hdr.undp.org/sites/default/files/hdr2019_technical_notes.pdf.

Comparisons over time and across editions

Because national and international agencies continually improve their data series, the data—including the HDI values and ranks—presented in this report are not comparable to those published in earlier editions. For HDI comparability across years and countries, see table 2, which presents trends using consistent data, or http://hdr.undp.org/en/data, which presents interpolated consistent data.

Discrepancies between national and international estimates

National and international data can differ because international agencies harmonize national data using a consistent methodology and occasionally produce estimates of missing data to allow comparability across countries. In other cases international agencies might not have access to the most recent national data. When HDRO becomes aware of discrepancies, it brings them to the attention of national and international data authorities.

Country groupings and aggregates

The tables present weighted aggregates for several country groupings. In general, an aggregate is shown only when data are available for at least half the countries and represent at least two-thirds of the population in that grouping. Aggregates for each grouping cover only the countries for which data are available.

Human development classification

HDI classifications are based on HDI fixed cutoff points, which are derived from the quartiles of distributions of the component indicators. The cutoff points are HDI of less than 0.550 for low human development, 0.550–0.699 for medium human development, 0.700–0.799 for high human development and 0.800 or greater for very high human development.

Regional groupings

Regional groupings are based on United Nations Development Programme regional classifications. Least Developed Countries and Small Island Developing States are defined according to UN classifications (see www.unohrlls.org).

Developing countries

The developing countries aggregates include all countries that are included in a regional grouping.

Organisation for Economic Co-operation and Development

Of the 36 Organisation for Economic Co-operation and Development members, 33 are considered developed countries and 3 (Chile, Mexico and Turkey) are considered developing countries. Aggregates refer to all countries from the group for which data are available.

Country notes

Data for China do not include Hong Kong Special Administrative Region of China, Macao Special Administrative Region of China or Taiwan Province of China.

As of 2 May 2016, Czechia is the short name to be used for the Czech Republic.

As of 1 June 2018, the Kingdom of Eswatini is the name of the country formerly known as Swaziland.

As of 14 February 2019, the Republic of North Macedonia (short form: North Macedonia) is the name of the country formerly known as the former Yugoslav Republic of Macedonia.

Symbols

A dash between two years, as in 2012–2018, indicates that the data are from the most recent year available during the period specified. A slash between years, as in 2013/2018, indicates that the data are the average for the years shown. Growth rates are usually average annual rates of growth between the first and last years of the period shown.

The following symbols are used in the tables:

..	Not available
0 or 0.0	Nil or negligible
—	Not applicable

Statistical acknowledgements

The Report's composite indices and other statistical resources draw on a wide variety of the most respected international data providers in their specialized fields. HDRO is particularly grateful to the Centre for Research on the Epidemiology of Disasters; Economic Commission for Latin America and the Caribbean; Eurostat; Food and Agriculture Organization; Gallup; ICF Macro; Internal Displacement Monitoring Centre; International Labour Organization; International Monetary Fund; International Telecommunication Union; Inter-Parliamentary Union; Luxembourg Income Study; Office of the United Nations High Commissioner for Human Rights; Office of the United Nations High Commissioner for Refugees; Organisation for Economic Co-operation and Development; Socio-Economic Database for Latin America and the Caribbean; Syrian Center for Policy Research; United Nations Children's Fund; United Nations Conference on Trade and Development; United Nations Department of Economic and Social Affairs; United Nations Economic and Social Commission for West Asia; United Nations Educational, Scientific and Cultural Organization Institute for Statistics; United Nations Entity for Gender Equality and the Empowerment of Women; United Nations Office on Drugs and Crime; World Bank; and World Health Organization. The international education database maintained by Robert Barro (Harvard University) and Jong-Wha Lee (Korea University) was another invaluable source for the calculation of the Report's indices.

Statistical tables

The first six tables relate to the five composite human development indices and their components. Since the 2010 Human Development Report, four composite human development indices—the HDI, the IHDI, the GII and the MPI for developing countries—have been calculated. The 2014 Report introduced the GDI, which compares the HDI calculated separately for women and men.

The remaining tables present a broader set of human development indicators and provide a more comprehensive picture of a country's human development.

For indicators that are global Sustainable Development Goals indicators or can be used in monitoring progress towards specific goals, the table headers include the relevant goals and targets.

Table 1, Human Development Index and its components, ranks countries by 2018 HDI value and details the values of the three HDI components: longevity, education (with two indicators) and income per capita. The table also presents the difference in rankings by HDI value and gross national income per capita, as well as the rank on the 2017 HDI, calculated using the most recently revised historical data available in 2019.

Table 2, Human Development Index trends, 1990–2018, provides a time series of HDI values allowing 2018 HDI values to be compared with those for previous years. The table uses the most recently revised historical data available in 2019 and the same methodology applied to compute 2018 HDI values. The table also includes the change in HDI rank over the last five years and the average annual HDI growth rate across four time intervals: 1990–2000, 2000–2010, 2010–2018 and 1990–2018

Table 3, Inequality-adjusted Human Development Index, contains two related measures of inequality—the IHDI and the loss in HDI due to inequality. The IHDI looks beyond the

average achievements of a country in longevity, education and income to show how these achievements are distributed among its residents. The IHDI value can be interpreted as the level of human development when inequality is accounted for. The relative difference between IHDI and HDI values is the loss due to inequality in distribution of the HDI within the country. The table presents the coefficient of human inequality, which is the unweighted average of inequalities in the three dimensions. In addition, the table shows each country's difference in rank on the HDI and the IHDI. A negative value means that taking inequality into account lowers a country's rank on the HDI. The table also presents the income shares of the poorest 40 percent, the richest 10 percent and the richest 1 percent of the population, as well as the Gini coefficient.

Table 4, Gender Development Index, measures disparities on the HDI by gender. The table contains HDI values estimated separately for women and men; the ratio of which is the GDI value. The closer the ratio is to 1, the smaller the gap between women and men. Values for the three HDI components—longevity, education (with two indicators) and income per capita—are also presented by gender. The table includes five country groupings by absolute deviation from gender parity in HDI values.

Table 5, Gender Inequality Index, presents a composite measure of gender inequality using three dimensions: reproductive health, empowerment and the labour market. The reproductive health indicators are the maternal mortality ratio and the adolescent birth rate. The empowerment indicators are the share of parliamentary seats held by women and the share of population with at least some secondary education by gender. The labour market indicator is participation in the labour force by gender. A low GII value indicates low inequality between women and men, and vice-versa.

Table 6, Multidimensional Poverty Index, captures the multiple deprivations that people in developing countries face in their health, education and standard of living. The MPI shows both the incidence of nonincome multidimensional poverty (a headcount of those in multidimensional poverty) and its intensity (the average deprivation score experienced by poor people). Based on deprivation score thresholds, people are classified as vulnerable to multidimensional poverty, multidimensionally poor or in severe multidimensional poverty. The table includes the contribution of deprivation in each dimension to overall multidimensional poverty. It also presents measures of income poverty—population living below the national poverty line and population living on less than $1.90 in purchasing power parity terms per day. MPI values are based on a revised methodology developed in partnership with OPHI. For details, see *Technical note 5* at http://hdr.undp.org/sites/default/files/hdr2019_technical_notes.pdf and OPHI's website (http://ophi.org.uk/multidimensional-poverty-index/).

Table 7, Population trends, contains major population indicators, including total population, median age, dependency ratios and total fertility rates, which can help assess the burden of support that falls on the labour force in a country.

Table 8, Health outcomes, presents indicators of infant health (percentage of infants who are exclusively breastfed in the 24 hours prior to the survey, percentage of infants who lack immunization for DPT and measles and infant mortality rate) and of child health (percentage of children under age 5 who are stunted and under-five mortality rates). The table also contains indicators of adult health (adult mortality rates by gender, mortality rates due to noncommunicable diseases by gender incidence of malaria and tuberculosis and HIV prevalence rates). Finally, it includes healthy life expectancy at birth and current health expenditure as a percentage of GDP.

Table 9, Education achievements, presents standard education indicators. The table provides indicators of educational attainment—adult and youth literacy rates and the share of the adult population with at least some secondary education. Gross enrolment ratios at each level of education are complemented by primary school dropout rate and survival rate to the last grade of lower secondary general education. The table also presents government expenditure on education as a percentage of GDP.

Table 10, National income and composition of resources, covers several macroeconomic indicators such as gross domestic product (GDP), labour share of GDP (which includes wages and social protection transfers), gross fixed capital formation, and taxes on income, profit and capital gains as a percentage of total tax revenue. Gross fixed capital formation is a rough indicator of national income that is invested rather than consumed. In times of economic uncertainty or recession, gross fixed capital formation typically declines. General government final consumption expenditure (presented as a share of GDP and as average annual growth) is an indicator of public spending. In addition, the table presents two indicators of debt—domestic credit provided by the financial sector and total debt service, both measured as a percentage of GDP or GNI. The consumer price index, a measure of inflation, is also presented.

Table 11, Work and employment, contains indicators on four topics: employment, unemployment, work that is a risk to human development and employment-related social security. The employment indicators are the employment to population ratio, the labour force participation rate, employment in agriculture and employment in services. The unemployment indicators are total unemployment, youth unemployment and youth not in school or employment. The indicators on work that is a risk to human development are child labour, the working poor and the proportion of informal employment in nonagricultural employment. A new indicator on skill-level employment—high-skill to low-skill employment ratio—has been added. The indicator on employment-related social security is the percentage of the eligible population that receives an old-age pension.

Table 12, Human security, reflects the extent to which the population is secure. The table begins with the percentage of births

that are registered, followed by the number of refugees by country of origin and the number of internally displaced people. It then shows the size of the homeless population due to natural disasters, the number of deaths and missing people attributed to disasters, the population of orphaned children and the prison population. It also provides homicide and suicide rates (by gender), an indicator on justification of wife beating and an indicator on the depth of food deficit (average dietary energy supply adequacy).

Table 13, Human and capital mobility, provides indicators of several aspects of globalization. International trade is captured by measuring exports and imports as a share of GDP. Financial flows are represented by net inflows of foreign direct investment and flows of private capital, net official development assistance and inflows of remittances. Human mobility is captured by the net migration rate, the stock of immigrants, the net number of tertiary students from abroad (expressed as a percentage of total tertiary enrolment in the country) and the number of international inbound tourists. International communication is represented by the percentages of the total and female populations that use the Internet, the number of mobile phone subscriptions per 100 people and the percentage change in mobile phone subscriptions between 2010 and 2017.

Table 14, Supplementary indicators: perceptions of well-being, includes indicators that reflect individuals' perceptions of relevant dimensions of human development—education quality, health care quality, standard of living, personal safety, freedom of choice and overall life satisfaction. The table also presents indicators reflecting perceptions about community and government.

Table 15, Status of fundamental human rights treaties, shows when countries ratified key human rights conventions. The 11 selected conventions cover basic human rights and freedoms related to elimination of all forms of racial and gender discrimination and violence, protection of children's rights, rights of migrant workers and persons with disabilities. They also cover torture and other cruel, inhuman and degrading treatment as well as protection from enforced disappearance.

Dashboard 1, Quality of human development, contains a selection of indicators associated with the quality of health, education and standard of living. The indicators on quality of health are lost health expectancy, number of physicians and number of hospital beds. The indicators on quality of education are pupil–teacher ratio in primary schools; primary school teachers trained to teach; proportion of primary and secondary schools with access to the Internet; and Programme for International Student Assessment (PISA) scores in mathematics, reading and science. The indicators on quality of standard of living are the proportion of employment that is in vulnerable employment, the proportion of rural population with access to electricity, the proportion of population using at least basic drinking-water services and the proportion of population using at least basic sanitation facilities. A country in the top third of an indicator distribution has performed better than at least two-thirds of countries globally. A country that is in the top third group on all indicators can be considered a country with the highest quality of human development. The dashboard shows that not all countries in the very high human development group have the highest quality of human development across all quality indicators and that many countries in the low human development group are in the bottom third of all quality indicators in the table.

Dashboard 2, Life-course gender gap, contains a selection of indicators that indicate gender gaps in choices and opportunities over the life course—childhood and youth, adulthood and older age. The indicators refer to health, education, labour market and work, seats in parliament, time use and social protection. Most indicators are presented as a ratio of female to male values. Sex ratio at birth is an exception to grouping by tercile—countries are divided into two groups: the natural group (countries with a value of 1.04–1.07, inclusive) and the gender-biased group (all other countries). Deviations from the natural sex ratio at birth have implications for population replacement levels; they can suggest possible future social and economic problems and may indicate gender bias. Countries with values of a parity index concentrated around 1 form the group with the best achievements in that indicator. Deviations from parity are treated equally regardless of which gender is overachieving.

Dashboard 3, Women's empowerment, contains a selection of woman-specific empowerment indicators that allows empowerment to be compared across three dimensions: reproductive health and family planning, violence against girls and women and socioeconomic empowerment. Most countries have at least one indicator in each tercile, which implies that women's empowerment is unequal across indicators and countries.

Dashboard 4, Environmental sustainability, contains a selection of indicators that cover environmental sustainability and environmental threats. The environmental sustainability indicators present levels of or changes in energy consumption, carbon dioxide emissions, forest area, fresh water withdrawals and natural resource depletion. The environmental threats indicators are mortality rates attributed to household and ambient air pollution and to unsafe water, sanitation and hygiene services, proportion of land that is degraded mostly by human activities and practices, and the International Union for Conservation of Nature Red List Index value, which measures aggregate extinction risk across groups of species.

Dashboard 5, Socioeconomic sustainability, contains a selection of indicators that cover economic and social sustainability. The economic sustainability indicators are adjusted net savings, total debt service, gross capital formation, skilled labour force, diversity of exports and expenditure on research and development. The social sustainability indicators are the old age dependency ratio projected to 2030, the ratio of education and health expenditure to military expenditure, change in overall loss in HDI value due to inequality and changes in gender and income inequality.

Human development composite indices

TABLE 1

Human Development Index and its components

HDI rank	Human Development Index (HDI) Value 2018	SDG 3 Life expectancy at birth (years) 2018	SDG 4.3 Expected years of schooling (years) 2018[a]	SDG 4.6 Mean years of schooling (years) 2018[a]	SDG 8.5 Gross national income (GNI) per capita (2011 PPP $) 2018	GNI per capita rank minus HDI rank 2018	HDI rank 2017
VERY HIGH HUMAN DEVELOPMENT							
1 Norway	0.954	82.3	18.1[b]	12.6	68,059	5	1
2 Switzerland	0.946	83.6	16.2	13.4	59,375	8	2
3 Ireland	0.942	82.1	18.8[b]	12.5[c]	55,660	9	3
4 Germany	0.939	81.2	17.1	14.1	46,946	15	4
4 Hong Kong, China (SAR)	0.939	84.7	16.5	12.0	60,221	5	6
6 Australia	0.938	83.3	22.1[b]	12.7[c]	44,097	15	5
6 Iceland	0.938	82.9	19.2[b]	12.5[c]	47,566	12	7
8 Sweden	0.937	82.7	18.8[b]	12.4	47,955	9	7
9 Singapore	0.935	83.5	16.3	11.5	83,793[d]	–6	9
10 Netherlands	0.933	82.1	18.0[b]	12.2	50,013	3	10
11 Denmark	0.930	80.8	19.1[b]	12.6	48,836	4	11
12 Finland	0.925	81.7	19.3[b]	12.4	41,779	12	12
13 Canada	0.922	82.3	16.1	13.3[c]	43,602	10	13
14 New Zealand	0.921	82.1	18.8[b]	12.7[c]	35,108	18	14
15 United Kingdom	0.920	81.2	17.4	13.0[e]	39,507	13	15
15 United States	0.920	78.9	16.3	13.4	56,140	–4	15
17 Belgium	0.919	81.5	19.7[b]	11.8	43,821	5	17
18 Liechtenstein	0.917	80.5[f]	14.7	12.5[g]	99,732[d,h]	–16	18
19 Japan	0.915	84.5	15.2	12.8[i]	40,799	6	19
20 Austria	0.914	81.4	16.3	12.6	46,231	0	20
21 Luxembourg	0.909	82.1	14.2	12.2[e]	65,543	–13	21
22 Israel	0.906	82.8	16.0	13.0	33,650	13	22
22 Korea (Republic of)	0.906	82.8	16.4	12.2	36,757	8	22
24 Slovenia	0.902	81.2	17.4	12.3	32,143	13	24
25 Spain	0.893	83.4	17.9	9.8	35,041	8	25
26 Czechia	0.891	79.2	16.8	12.7	31,597	12	27
26 France	0.891	82.5	15.5	11.4	40,511	0	26
28 Malta	0.885	82.4	15.9	11.3	34,795	6	28
29 Italy	0.883	83.4	16.2	10.2[e]	36,141	2	29
30 Estonia	0.882	78.6	16.1	13.0[c]	30,379	10	30
31 Cyprus	0.873	80.8	14.7	12.1	33,100	5	31
32 Greece	0.872	82.1	17.3	10.5	24,909	20	31
32 Poland	0.872	78.5	16.4	12.3	27,626	13	33
34 Lithuania	0.869	75.7	16.5	13.0	29,775	7	34
35 United Arab Emirates	0.866	77.8	13.6	11.0	66,912	–28	35
36 Andorra	0.857	81.8[f]	13.3[j]	10.2	48,641[k]	–20	38
36 Saudi Arabia	0.857	75.0	17.0[e]	9.7[e]	49,338	–22	36
36 Slovakia	0.857	77.4	14.5	12.6[c]	30,672	3	37
39 Latvia	0.854	75.2	16.0	12.8[c]	26,301	10	39
40 Portugal	0.850	81.9	16.3	9.2	27,935	4	40
41 Qatar	0.848	80.1	12.2	9.7	110,489[d]	–40	40
42 Chile	0.847	80.0	16.5	10.4	21,972	17	42
43 Brunei Darussalam	0.845	75.7	14.4	9.1[i]	76,389[d]	–39	43
43 Hungary	0.845	76.7	15.1	11.9	27,144	4	44
45 Bahrain	0.838	77.2	15.3	9.4[e]	40,399	–18	45
46 Croatia	0.837	78.3	15.0	11.4[e]	23,061	9	46
47 Oman	0.834	77.6	14.7	9.7	37,039	–18	47
48 Argentina	0.830	76.5	17.6	10.6[c]	17,611	18	48
49 Russian Federation	0.824	72.4	15.5	12.0[e]	25,036	2	49
50 Belarus	0.817	74.6	15.4	12.3[l]	17,039	18	50
50 Kazakhstan	0.817	73.2	15.3	11.8[i]	22,168	8	51
52 Bulgaria	0.816	74.9	14.8	11.8	19,646	9	51
52 Montenegro	0.816	76.8	15.0	11.4[e]	17,511	15	51
52 Romania	0.816	75.9	14.3	11.0	23,906	2	51
55 Palau	0.814	73.7[f]	15.6[e]	12.4[e]	16,720	14	56
56 Barbados	0.813	79.1	15.2[e]	10.6[m]	15,912	18	51
57 Kuwait	0.808	75.4	13.8	7.3	71,164	–52	57
57 Uruguay	0.808	77.8	16.3	8.7	19,435	5	58
59 Turkey	0.806	77.4	16.4[e]	7.7	24,905	–6	59
60 Bahamas	0.805	73.8	12.8[n]	11.5[e]	28,395	–17	60
61 Malaysia	0.804	76.0	13.5	10.2	27,227	–15	61
62 Seychelles	0.801	73.3	15.5	9.7[j]	25,077	–12	62

TABLE 1

HDI rank	Human Development Index (HDI) Value 2018	SDG 3 Life expectancy at birth (years) 2018	SDG 4.3 Expected years of schooling (years) 2018[a]	SDG 4.6 Mean years of schooling (years) 2018[a]	SDG 8.5 Gross national income (GNI) per capita (2011 PPP $) 2018	GNI per capita rank minus HDI rank 2018	HDI rank 2017
HIGH HUMAN DEVELOPMENT							
63 Serbia	0.799	75.8	14.8	11.2	15,218	15	65
63 Trinidad and Tobago	0.799	73.4	13.0[e]	11.0[l]	28,497	–21	63
65 Iran (Islamic Republic of)	0.797	76.5	14.7	10.0	18,166	–2	63
66 Mauritius	0.796	74.9	15.0	9.4[i]	22,724	–10	66
67 Panama	0.795	78.3	12.9	10.2[i]	20,455	–7	66
68 Costa Rica	0.794	80.1	15.4	8.7	14,790	12	68
69 Albania	0.791	78.5	15.2	10.1[m]	12,300	20	69
70 Georgia	0.786	73.6	15.4	12.8	9,570	34	70
71 Sri Lanka	0.780	76.8	14.0	11.1[e]	11,611	24	72
72 Cuba	0.778	78.7	14.4	11.8[e]	7,811[o]	43	71
73 Saint Kitts and Nevis	0.777	74.6[f]	13.6[e]	8.5[n]	26,770	–25	73
74 Antigua and Barbuda	0.776	76.9	12.5[e]	9.3[j]	22,201	–17	73
75 Bosnia and Herzegovina	0.769	77.3	13.8[j]	9.7	12,690	10	75
76 Mexico	0.767	75.0	14.3	8.6	17,628	–11	76
77 Thailand	0.765	76.9	14.7[e]	7.7	16,129	–6	77
78 Grenada	0.763	72.4	16.6	8.8[n]	12,684	8	78
79 Brazil	0.761	75.7	15.4	7.8[e]	14,068	2	78
79 Colombia	0.761	77.1	14.6	8.3	12,896	4	78
81 Armenia	0.760	74.9	13.2[e]	11.8	9,277	26	81
82 Algeria	0.759	76.7	14.7[e]	8.0[l]	13,639	0	81
82 North Macedonia	0.759	75.7	13.5	9.7[l]	12,874	2	81
82 Peru	0.759	76.5	13.8	9.2	12,323	6	85
85 China	0.758	76.7	13.9[e]	7.9[m]	16,127	–13	86
85 Ecuador	0.758	76.8	14.9[e]	9.0	10,141	17	84
87 Azerbaijan	0.754	72.9	12.4[e]	10.5	15,240	–10	87
88 Ukraine	0.750	72.0	15.1[e]	11.3[m]	7,994	25	88
89 Dominican Republic	0.745	73.9	14.1	7.9	15,074	–10	90
89 Saint Lucia	0.745	76.1	13.9[e]	8.5	11,528	7	89
91 Tunisia	0.739	76.5	15.1	7.2[e]	10,677	10	91
92 Mongolia	0.735	69.7	14.2[e]	10.2[e]	10,784	7	94
93 Lebanon	0.730	78.9	11.3	8.7[n]	11,136	5	93
94 Botswana	0.728	69.3	12.7[e]	9.3[m]	15,951	–21	97
94 Saint Vincent and the Grenadines	0.728	72.4	13.6[e]	8.6[n]	11,746	–2	95
96 Jamaica	0.726	74.4	13.1[e]	9.8[e]	7,932	18	96
96 Venezuela (Bolivarian Republic of)	0.726	72.1	12.8[e]	10.3	9,070[p]	14	92
98 Dominica	0.724	78.1[f]	13.0[e]	7.8[j]	9,245	10	98
98 Fiji	0.724	67.3	14.4[e]	10.9[i]	9,110	11	102
98 Paraguay	0.724	74.1	12.7[e]	8.5	11,720	–5	99
98 Suriname	0.724	71.6	12.9[e]	9.1	11,933	–8	99
102 Jordan	0.723	74.4	11.9[e]	10.5[i]	8,268	10	99
103 Belize	0.720	74.5	13.1	9.8[l]	7,136	17	103
104 Maldives	0.719	78.6	12.1[q]	6.8[q]	12,549	–17	105
105 Tonga	0.717	70.8	14.3[e]	11.2[i]	5,783	26	104
106 Philippines	0.712	71.1	12.7[e]	9.4[e]	9,540	–1	106
107 Moldova (Republic of)	0.711	71.8	11.6	11.6	6,833	16	106
108 Turkmenistan	0.710	68.1	10.9[e]	9.8[q]	16,407	–38	108
108 Uzbekistan	0.710	71.6	12.0	11.5	6,462	18	109
110 Libya	0.708	72.7	12.8[n]	7.6[m]	11,685[r]	–16	111
111 Indonesia	0.707	71.5	12.9	8.0	11,256	–14	111
111 Samoa	0.707	73.2	12.5[e]	10.6[j]	5,885	18	110
113 South Africa	0.705	63.9	13.7	10.2	11,756	–22	111
114 Bolivia (Plurinational State of)	0.703	71.2	14.0[s]	9.0	6,849	8	114
115 Gabon	0.702	66.2	12.9[n]	8.3[q]	15,794	–40	114
116 Egypt	0.700	71.8	13.1	7.3[i]	10,744	–16	116
MEDIUM HUMAN DEVELOPMENT							
117 Marshall Islands	0.698	73.9[f]	12.4[e]	10.9[e]	4,633	21	116
118 Viet Nam	0.693	75.3	12.7[l]	8.2[i]	6,220	10	118
119 Palestine, State of	0.690	73.9	12.8	9.1	5,314	15	119
120 Iraq	0.689	70.5	11.1[q]	7.3[e]	15,365	–44	120
121 Morocco	0.676	76.5	13.1[e]	5.5[i]	7,480	–3	121
122 Kyrgyzstan	0.674	71.3	13.4	10.9[l]	3,317	30	122
123 Guyana	0.670	69.8	11.5[e]	8.5[l]	7,615	–7	123

TABLE 1 HUMAN DEVELOPMENT INDEX AND ITS COMPONENTS

TABLE 1

HDI rank	Human Development Index (HDI) Value 2018	SDG 3 Life expectancy at birth (years) 2018	SDG 4.3 Expected years of schooling (years) 2018[a]	SDG 4.6 Mean years of schooling (years) 2018[a]	SDG 8.5 Gross national income (GNI) per capita (2011 PPP $) 2018	GNI per capita rank minus HDI rank 2018	HDI rank 2017
124 El Salvador	0.667	73.1	12.0	6.9	6,973	–3	124
125 Tajikistan	0.656	70.9	11.4[e]	10.7[q]	3,482	26	126
126 Cabo Verde	0.651	72.8	11.9	6.2	6,513	–1	128
126 Guatemala	0.651	74.1	10.6	6.5	7,378	–7	127
126 Nicaragua	0.651	74.3	12.2[s]	6.8[i]	4,790	11	125
129 India	0.647	69.4	12.3	6.5[e]	6,829	–5	129
130 Namibia	0.645	63.4	12.6[q]	6.9[i]	9,683	–27	129
131 Timor-Leste	0.626	69.3	12.4[e]	4.5[q]	7,527	–14	131
132 Honduras	0.623	75.1	10.2	6.6	4,258	7	133
132 Kiribati	0.623	68.1	11.8[e]	7.9[j]	3,917	11	132
134 Bhutan	0.617	71.5	12.1[e]	3.1[e]	8,609	–23	134
135 Bangladesh	0.614	72.3	11.2	6.1	4,057	6	136
135 Micronesia (Federated States of)	0.614	67.8	11.5[j]	7.7[j]	3,700	10	135
137 Sao Tome and Principe	0.609	70.2	12.7[e]	6.4[e]	3,024	20	138
138 Congo	0.608	64.3	11.6[n]	6.5[m]	5,804	–8	136
138 Eswatini (Kingdom of)	0.608	59.4	11.4[e]	6.7[l]	9,359	–32	138
140 Lao People's Democratic Republic	0.604	67.6	11.1	5.2[i]	6,317	–13	140
141 Vanuatu	0.597	70.3	11.4[e]	6.8[l]	2,808	17	141
142 Ghana	0.596	63.8	11.5	7.2[i]	4,099	–2	142
143 Zambia	0.591	63.5	12.1[q]	7.1[q]	3,582	7	144
144 Equatorial Guinea	0.588	58.4	9.2[n]	5.6[i]	17,796	–80	143
145 Myanmar	0.584	66.9	10.3	5.0[q]	5,764	–13	146
146 Cambodia	0.581	69.6	11.3[e]	4.8[i]	3,597	2	145
147 Kenya	0.579	66.3	11.1[e]	6.6[i]	3,052	9	148
147 Nepal	0.579	70.5	12.2	4.9[i]	2,748	13	148
149 Angola	0.574	60.8	11.8[q]	5.1[q]	5,555	–16	147
150 Cameroon	0.563	58.9	12.7	6.3[l]	3,291	3	150
150 Zimbabwe	0.563	61.2	10.5	8.3[e]	2,661	12	153
152 Pakistan	0.560	67.1	8.5	5.2	5,190	–17	151
153 Solomon Islands	0.557	72.8	10.2[e]	5.5[q]	2,027	13	152
LOW HUMAN DEVELOPMENT							
154 Syrian Arab Republic	0.549	71.8	8.9[e]	5.1[t]	2,725[r]	7	154
155 Papua New Guinea	0.543	64.3	10.0[e]	4.6[i]	3,686	–9	155
156 Comoros	0.538	64.1	11.2[e]	4.9[q]	2,426	7	156
157 Rwanda	0.536	68.7	11.2	4.4[e]	1,959	11	158
158 Nigeria	0.534	54.3	9.7[l]	6.5[q]	5,086	–22	157
159 Tanzania (United Republic of)	0.528	65.0	8.0	6.0[i]	2,805	0	160
159 Uganda	0.528	63.0	11.2[e]	6.1[q]	1,752	11	160
161 Mauritania	0.527	64.7	8.5	4.6[i]	3,746	–17	159
162 Madagascar	0.521	66.7	10.4	6.1[n]	1,404	19	162
163 Benin	0.520	61.5	12.6	3.8[m]	2,135	2	163
164 Lesotho	0.518	53.7	10.7	6.3[i]	3,244	–9	164
165 Côte d'Ivoire	0.516	57.4	9.6	5.2[i]	3,589	–16	165
166 Senegal	0.514	67.7	9.0	3.1[e]	3,256	–12	166
167 Togo	0.513	60.8	12.6	4.9[q]	1,593	10	166
168 Sudan	0.507	65.1	7.7[e]	3.7[i]	3,962	–26	168
169 Haiti	0.503	63.7	9.5[n]	5.4[q]	1,665	6	169
170 Afghanistan	0.496	64.5	10.1	3.9[i]	1,746	1	170
171 Djibouti	0.495	66.6	6.5[e]	4.0[j]	3,601[u]	–24	171
172 Malawi	0.485	63.8	11.0[q]	4.6[i]	1,159	11	172
173 Ethiopia	0.470	66.2	8.7[e]	2.8[q]	1,782	–4	173
174 Gambia	0.466	61.7	9.5[e]	3.7[q]	1,490	4	178
174 Guinea	0.466	61.2	9.0[e]	2.7[q]	2,211	–10	175
176 Liberia	0.465	63.7	9.6[e]	4.7[i]	1,040	9	173
177 Yemen	0.463	66.1	8.7[e]	3.2[m]	1,433[r]	3	175
178 Guinea-Bissau	0.461	58.0	10.5[n]	3.3[l]	1,593	–2	177
179 Congo (Democratic Republic of the)	0.459	60.4	9.7[e]	6.8	800	8	179
180 Mozambique	0.446	60.2	9.7	3.5[e]	1,154	4	180
181 Sierra Leone	0.438	54.3	10.2[e]	3.6[i]	1,381	1	181
182 Burkina Faso	0.434	61.2	8.9	1.6[q]	1,705	–8	183
182 Eritrea	0.434	65.9	5.0	3.9[n]	1,708[u]	–9	182
184 Mali	0.427	58.9	7.6	2.4[l]	1,965	–17	184
185 Burundi	0.423	61.2	11.3	3.1[q]	660	4	185

TABLE 1

HDI rank		Human Development Index (HDI) Value 2018	SDG 3 Life expectancy at birth (years) 2018	SDG 4.3 Expected years of schooling (years) 2018[a]	SDG 4.6 Mean years of schooling (years) 2018[a]	SDG 8.5 Gross national income (GNI) per capita (2011 PPP $) 2018	GNI per capita rank minus HDI rank 2018	HDI rank 2017
186	South Sudan	0.413	57.6	5.0 [e]	4.8	1,455 [u]	–7	186
187	Chad	0.401	54.0	7.5 [e]	2.4 [q]	1,716	–15	187
188	Central African Republic	0.381	52.8	7.6 [e]	4.3 [i]	777	0	188
189	Niger	0.377	62.0	6.5	2.0 [e]	912	–3	189
OTHER COUNTRIES OR TERRITORIES								
..	Korea (Democratic People's Rep. of)	..	72.1	10.8 [e]	..	..	..	..
..	Monaco	..	..	..	..	..	..	..
..	Nauru	..	..	11.3 [e]	..	17,313	..	..
..	San Marino	..	..	15.1	..	..	..	..
..	Somalia	..	57.1	..	..	..	..	..
..	Tuvalu	..	..	12.3	..	5,409	..	..
Human development groups								
	Very high human development	0.892	79.5	16.4	12.0	40,112	—	—
	High human development	0.750	75.1	13.8	8.3	14,403	—	—
	Medium human development	0.634	69.3	11.7	6.4	6,240	—	—
	Low human development	0.507	61.3	9.3	4.8	2,581	—	—
Developing countries		0.686	71.1	12.2	7.4	10,476	—	—
Regions								
	Arab States	0.703	71.9	12.0	7.1	15,721	—	—
	East Asia and the Pacific	0.741	75.3	13.4	7.9	14,611	—	—
	Europe and Central Asia	0.779	74.2	14.6	10.2	15,498	—	—
	Latin America and the Caribbean	0.759	75.4	14.5	8.6	13,857	—	—
	South Asia	0.642	69.7	11.8	6.5	6,794	—	—
	Sub-Saharan Africa	0.541	61.2	10.0	5.7	3,443	—	—
Least developed countries		0.528	65.0	9.8	4.8	2,630	—	—
Small island developing states		0.723	71.8	12.2	8.6	15,553	—	—
Organisation for Economic Co-operation and Development		0.895	80.4	16.3	12.0	40,615	—	—
World		**0.731**	**72.6**	**12.7**	**8.4**	**15,745**	**—**	**—**

NOTES

a Data refer to 2018 or the most recent year available.

b In calculating the HDI value, expected years of schooling is capped at 18 years.

c Based on data from OECD (2018).

d In calculating the HDI value, GNI per capita is capped at $75,000.

e Updated by HDRO based on data from UNESCO Institute for Statistics (2019).

f Value from UNDESA (2011).

g Imputed mean years of schooling for Austria.

h Estimated using the purchasing power parity (PPP) rate and projected growth rate of Switzerland.

i Based on Barro and Lee (2018).

j Based on data from the national statistical office.

k Estimated using the PPP rate and projected growth rate of Spain.

l Updated by HDRO based on data from United Nations Children's Fund (UNICEF) Multiple Indicator Cluster Surveys for 2006–2018.

m Updated by HDRO using Barro and Lee (2018) estimates.

n Based on cross-country regression.

o Based on a cross-country regression and the projected growth rate from UNECLAC (2019).

p HDRO estimate based on data from World Bank (2019a), United Nations Statistics Division (2019b) and UNECLAC (2019).

q Updated by HDRO based on data from ICF Macro Demographic and Health Surveys for 2006–2018.

r HDRO estimate based on data from World Bank (2019a), United Nations Statistics Division (2019b) and projected growth rates from UNESCWA (2018).

s Updated by HDRO based on data from CEDLAS and World Bank (2018).

t Updated by HDRO based on Syrian Center for Policy Research (2017).

u HDRO estimate based on data from World Bank (2019a), United Nations Statistics Division (2019b) and IMF (2019).

DEFINITIONS

Human Development Index (HDI): A composite index measuring average achievement in three basic dimensions of human development—a long and healthy life, knowledge and a decent standard of living. See *Technical note 1* at http://hdr.undp.org/sites/default/files/hdr2019_technical_notes.pdf for details on how the HDI is calculated.

Life expectancy at birth: Number of years a newborn infant could expect to live if prevailing patterns of age-specific mortality rates at the time of birth stay the same throughout the infant's life.

Expected years of schooling: Number of years of schooling that a child of school entrance age can expect to receive if prevailing patterns of age-specific enrolment rates persist throughout the child's life.

Mean years of schooling: Average number of years of education received by people ages 25 and older, converted from education attainment levels using official durations of each level.

Gross national income (GNI) per capita: Aggregate income of an economy generated by its production and its ownership of factors of production, less the incomes paid for the use of factors of production owned by the rest of the world, converted to international dollars using PPP rates, divided by midyear population.

GNI per capita rank minus HDI rank: Difference in ranking by GNI per capita and by HDI value. A negative value means that the country is better ranked by GNI than by HDI value.

HDI rank for 2017: Ranking by HDI value for 2017, which was calculated using the same most recently revised data available in 2019 that were used to calculate HDI values for 2018.

MAIN DATA SOURCES

Columns 1 and 7: HDRO calculations based on data from UNDESA (2019b), UNESCO Institute for Statistics (2019), United Nations Statistics Division (2019b), World Bank (2019a), Barro and Lee (2018) and IMF (2019).

Column 2: UNDESA (2019b).

Column 3: UNESCO Institute for Statistics (2019), ICF Macro Demographic and Health Surveys, UNICEF Multiple Indicator Cluster Surveys and OECD (2018).

Column 4: UNESCO Institute for Statistics (2019), Barro and Lee (2018), ICF Macro Demographic and Health Surveys, UNICEF Multiple Indicator Cluster Surveys and OECD (2018).

Column 5: World Bank (2019a), IMF (2019) and United Nations Statistics Division (2019b).

Column 6: Calculated based on data in columns 1 and 5.

TABLE 2

Human Development Index trends, 1990–2018

HDI rank	Human Development Index (HDI) Value 1990	2000	2010	2013	2015	2016	2017	2018	Change in HDI rank 2013–2018[a]	Average annual HDI growth (%) 1990–2000	2000–2010	2010–2018	1990–2018
VERY HIGH HUMAN DEVELOPMENT													
1 Norway	0.850	0.917	0.942	0.946	0.948	0.951	0.953	0.954	0	0.76	0.27	0.16	0.41
2 Switzerland	0.832	0.889	0.932	0.938	0.943	0.943	0.943	0.946	0	0.67	0.47	0.18	0.46
3 Ireland	0.764	0.857	0.890	0.908	0.926	0.936	0.939	0.942	13	1.16	0.38	0.71	0.75
4 Germany	0.801	0.869	0.920	0.927	0.933	0.936	0.938	0.939	0	0.82	0.57	0.25	0.57
4 Hong Kong, China (SAR)	0.781	0.827	0.901	0.916	0.927	0.931	0.936	0.939	6	0.58	0.86	0.51	0.66
6 Australia	0.866	0.898	0.926	0.926	0.933	0.935	0.937	0.938	0	0.37	0.30	0.17	0.29
6 Iceland	0.804	0.861	0.892	0.920	0.927	0.932	0.935	0.938	3	0.69	0.35	0.64	0.55
8 Sweden	0.816	0.897	0.906	0.927	0.932	0.934	0.935	0.937	–4	0.96	0.09	0.42	0.49
9 Singapore	0.718	0.818	0.909	0.923	0.929	0.933	0.934	0.935	–1	1.31	1.07	0.35	0.95
10 Netherlands	0.830	0.876	0.911	0.924	0.927	0.929	0.932	0.933	–3	0.55	0.39	0.31	0.42
11 Denmark	0.799	0.863	0.910	0.926	0.926	0.928	0.929	0.930	–6	0.77	0.54	0.27	0.54
12 Finland	0.784	0.858	0.903	0.916	0.919	0.922	0.924	0.925	–2	0.90	0.52	0.30	0.59
13 Canada	0.850	0.868	0.895	0.910	0.917	0.920	0.921	0.922	2	0.21	0.31	0.38	0.29
14 New Zealand	0.820	0.870	0.899	0.907	0.914	0.917	0.920	0.921	4	0.59	0.34	0.30	0.42
15 United Kingdom	0.775	0.867	0.905	0.914	0.916	0.918	0.919	0.920	–3	1.13	0.43	0.21	0.62
15 United States	0.860	0.881	0.911	0.914	0.917	0.919	0.919	0.920	–3	0.24	0.34	0.12	0.24
17 Belgium	0.806	0.873	0.903	0.908	0.913	0.915	0.917	0.919	–1	0.80	0.33	0.22	0.47
18 Liechtenstein	..	0.862	0.904	0.912	0.912	0.915	0.916	0.917	–4	..	0.48	0.17	..
19 Japan	0.816	0.855	0.885	0.900	0.906	0.910	0.913	0.915	0	0.47	0.34	0.42	0.41
20 Austria	0.795	0.838	0.895	0.896	0.906	0.909	0.912	0.914	0	0.54	0.66	0.26	0.50
21 Luxembourg	0.790	0.860	0.893	0.892	0.899	0.904	0.908	0.909	2	0.85	0.37	0.22	0.50
22 Israel	0.792	0.853	0.887	0.895	0.901	0.902	0.904	0.906	–1	0.74	0.39	0.27	0.48
22 Korea (Republic of)	0.728	0.817	0.882	0.893	0.899	0.901	0.904	0.906	0	1.17	0.77	0.33	0.78
24 Slovenia	0.829	0.824	0.881	0.884	0.886	0.892	0.899	0.902	0	–0.05	0.67	0.29	0.30
25 Spain	0.754	0.825	0.865	0.875	0.885	0.888	0.891	0.893	1	0.90	0.47	0.40	0.60
26 Czechia	0.730	0.796	0.862	0.874	0.882	0.885	0.888	0.891	1	0.86	0.80	0.41	0.71
26 France	0.780	0.842	0.872	0.882	0.888	0.887	0.890	0.891	–1	0.77	0.35	0.27	0.48
28 Malta	0.744	0.787	0.847	0.861	0.877	0.881	0.883	0.885	2	0.56	0.74	0.55	0.62
29 Italy	0.769	0.830	0.871	0.873	0.875	0.878	0.881	0.883	–1	0.77	0.48	0.17	0.49
30 Estonia	0.730	0.780	0.844	0.863	0.871	0.875	0.879	0.882	–1	0.67	0.79	0.54	0.68
31 Cyprus	0.731	0.799	0.850	0.854	0.864	0.869	0.871	0.873	2	0.90	0.62	0.34	0.64
32 Greece	0.753	0.796	0.857	0.858	0.868	0.866	0.871	0.872	–1	0.56	0.74	0.22	0.53
32 Poland	0.712	0.785	0.835	0.851	0.858	0.864	0.868	0.872	2	0.98	0.62	0.54	0.72
34 Lithuania	0.732	0.755	0.824	0.840	0.855	0.860	0.866	0.869	5	0.31	0.88	0.67	0.62
35 United Arab Emirates	0.723	0.782	0.821	0.839	0.860	0.863	0.864	0.866	5	0.78	0.48	0.68	0.65
36 Andorra	..	0.759	0.828	0.846	0.850	0.854	0.852	0.857	–1	..	0.88	0.43	..
36 Saudi Arabia	0.698	0.744	0.810	0.846	0.857	0.857	0.856	0.857	–1	0.64	0.85	0.71	0.74
36 Slovakia	0.739	0.763	0.829	0.844	0.849	0.851	0.854	0.857	1	0.33	0.82	0.42	0.53
39 Latvia	0.698	0.728	0.817	0.834	0.842	0.845	0.849	0.854	4	0.41	1.16	0.56	0.72
40 Portugal	0.711	0.785	0.822	0.837	0.843	0.846	0.848	0.850	1	0.98	0.46	0.42	0.64
41 Qatar	0.757	0.816	0.834	0.857	0.851	0.847	0.848	0.848	–9	0.74	0.22	0.22	0.41
42 Chile	0.703	0.753	0.800	0.830	0.839	0.843	0.845	0.847	2	0.70	0.61	0.71	0.67
43 Brunei Darussalam	0.768	0.805	0.832	0.844	0.843	0.844	0.843	0.845	–6	0.47	0.33	0.19	0.34
43 Hungary	0.704	0.769	0.826	0.835	0.835	0.838	0.841	0.845	–1	0.89	0.72	0.28	0.65
45 Bahrain	0.736	0.792	0.796	0.807	0.834	0.839	0.839	0.838	6	0.74	0.06	0.64	0.46
46 Croatia	0.670	0.749	0.811	0.825	0.830	0.832	0.835	0.837	–1	1.12	0.79	0.41	0.80
47 Oman	..	0.704	0.793	0.811	0.827	0.834	0.833	0.834	1	..	1.19	0.63	..
48 Argentina	0.707	0.770	0.818	0.824	0.828	0.828	0.832	0.830	–2	0.86	0.61	0.18	0.58
49 Russian Federation	0.734	0.721	0.780	0.803	0.813	0.817	0.822	0.824	3	–0.18	0.79	0.69	0.41
50 Belarus	..	0.682	0.792	0.808	0.811	0.812	0.815	0.817	0	..	1.50	0.39	..
50 Kazakhstan	0.690	0.685	0.764	0.791	0.806	0.808	0.813	0.817	9	–0.07	1.10	0.84	0.61
52 Bulgaria	0.694	0.712	0.779	0.792	0.807	0.812	0.813	0.816	6	0.26	0.90	0.58	0.58
52 Montenegro	..	..	0.793	0.801	0.807	0.809	0.813	0.816	1	..	..	0.36	..
52 Romania	0.701	0.709	0.797	0.800	0.806	0.808	0.813	0.816	2	0.11	1.18	0.29	0.54
55 Palau	..	0.736	0.776	0.811	0.803	0.808	0.811	0.814	–7	..	0.53	0.60	..
56 Barbados	0.732	0.771	0.799	0.812	0.812	0.814	0.813	0.813	–9	0.53	0.35	0.22	0.38
57 Kuwait	0.712	0.786	0.794	0.798	0.807	0.809	0.809	0.808	–2	1.00	0.10	0.22	0.45
57 Uruguay	0.692	0.742	0.774	0.797	0.802	0.806	0.807	0.808	–1	0.69	0.42	0.54	0.55
59 Turkey	0.579	0.655	0.743	0.781	0.800	0.800	0.805	0.806	5	1.26	1.26	1.03	1.19
60 Bahamas	..	0.787	0.795	0.797	0.799	0.800	0.804	0.805	–4	..	0.10	0.16	..
61 Malaysia	0.644	0.724	0.773	0.787	0.797	0.801	0.802	0.804	–1	1.18	0.66	0.49	0.80
62 Seychelles	..	0.712	0.762	0.782	0.801	0.801	0.800	0.801	1	..	0.68	0.63	..

TABLE **2**

HDI rank	Human Development Index (HDI) Value 1990	2000	2010	2013	2015	2016	2017	2018	Change in HDI rank 2013–2018[a]	Average annual HDI growth (%) 1990–2000	2000–2010	2010–2018	1990–2018
HIGH HUMAN DEVELOPMENT													
63 Serbia	0.706	0.710	0.762	0.775	0.785	0.791	0.794	0.799	4	0.06	0.71	0.60	0.45
63 Trinidad and Tobago	0.667	0.721	0.788	0.787	0.796	0.796	0.799	0.799	–3	0.78	0.90	0.17	0.65
65 Iran (Islamic Republic of)	0.577	0.671	0.756	0.785	0.789	0.799	0.799	0.797	–3	1.53	1.20	0.68	1.17
66 Mauritius	0.620	0.674	0.748	0.775	0.786	0.790	0.793	0.796	1	0.84	1.04	0.79	0.90
67 Panama	0.659	0.719	0.758	0.775	0.782	0.788	0.793	0.795	0	0.87	0.53	0.60	0.67
68 Costa Rica	0.655	0.711	0.754	0.777	0.786	0.789	0.792	0.794	–2	0.82	0.59	0.64	0.69
69 Albania	0.644	0.667	0.740	0.781	0.788	0.788	0.789	0.791	–5	0.35	1.05	0.84	0.74
70 Georgia	..	0.669	0.732	0.756	0.771	0.776	0.783	0.786	5	..	0.90	0.91	..
71 Sri Lanka	0.625	0.687	0.750	0.765	0.772	0.774	0.776	0.780	2	0.95	0.88	0.49	0.80
72 Cuba	0.676	0.686	0.776	0.762	0.768	0.771	0.777	0.778	2	0.15	1.24	0.02	0.50
73 Saint Kitts and Nevis	..	..	0.747	0.767	0.769	0.772	0.774	0.777	–2	..	..	0.48	..
74 Antigua and Barbuda	..	..	0.771	0.767	0.770	0.772	0.774	0.776	–3	..	..	0.08	..
75 Bosnia and Herzegovina	..	0.669	0.714	0.748	0.755	0.765	0.767	0.769	5	..	0.65	0.93	..
76 Mexico	0.652	0.705	0.739	0.750	0.759	0.764	0.765	0.767	2	0.79	0.48	0.47	0.59
77 Thailand	0.574	0.649	0.721	0.731	0.746	0.753	0.762	0.765	12	1.24	1.05	0.74	1.03
78 Grenada	..	..	0.743	0.750	0.756	0.760	0.760	0.763	0	..	..	0.33	..
79 Brazil	0.613	0.684	0.726	0.752	0.755	0.757	0.760	0.761	–3	1.11	0.59	0.59	0.78
79 Colombia	0.600	0.662	0.729	0.746	0.753	0.759	0.760	0.761	2	0.99	0.96	0.54	0.85
81 Armenia	0.633	0.649	0.729	0.743	0.748	0.751	0.758	0.760	3	0.24	1.17	0.52	0.65
82 Algeria	0.578	0.646	0.730	0.746	0.751	0.755	0.758	0.759	–1	1.11	1.23	0.49	0.97
82 North Macedonia	..	0.669	0.735	0.743	0.753	0.757	0.758	0.759	2	..	0.94	0.41	..
82 Peru	0.613	0.679	0.721	0.742	0.750	0.755	0.756	0.759	4	1.03	0.59	0.65	0.76
85 China	0.501	0.591	0.702	0.727	0.742	0.749	0.753	0.758	7	1.66	1.74	0.95	1.48
85 Ecuador	0.642	0.669	0.716	0.751	0.758	0.756	0.757	0.758	–8	0.41	0.68	0.71	0.59
87 Azerbaijan	..	0.641	0.732	0.741	0.749	0.749	0.752	0.754	0	..	1.34	0.36	..
88 Ukraine	0.705	0.671	0.732	0.744	0.742	0.746	0.747	0.750	–5	–0.49	0.87	0.29	0.22
89 Dominican Republic	0.593	0.653	0.701	0.712	0.733	0.738	0.741	0.745	10	0.97	0.71	0.76	0.82
89 Saint Lucia	..	0.694	0.730	0.726	0.736	0.744	0.744	0.745	4	..	0.50	0.26	..
91 Tunisia	0.569	0.653	0.717	0.725	0.731	0.736	0.738	0.739	3	1.40	0.93	0.39	0.94
92 Mongolia	0.583	0.589	0.697	0.728	0.736	0.730	0.729	0.735	–1	0.11	1.70	0.66	0.83
93 Lebanon	..	..	0.751	0.741	0.728	0.725	0.732	0.730	–6	..	..	–0.36	..
94 Botswana	0.570	0.578	0.660	0.699	0.714	0.719	0.724	0.728	11	0.14	1.34	1.22	0.88
94 Saint Vincent and the Grenadines	..	0.674	0.711	0.714	0.721	0.725	0.726	0.728	4	..	0.54	0.29	..
96 Jamaica	0.641	0.669	0.723	0.720	0.722	0.722	0.725	0.726	0	0.42	0.78	0.05	0.44
96 Venezuela (Bolivarian Republic of)	0.638	0.672	0.753	0.772	0.763	0.752	0.735	0.726	–26	0.51	1.14	–0.45	0.46
98 Dominica	..	0.694	0.733	0.730	0.729	0.729	0.723	0.724	–8	..	0.54	–0.15	..
98 Fiji	0.640	0.675	0.694	0.707	0.718	0.718	0.721	0.724	3	0.53	0.28	0.52	0.44
98 Paraguay	0.588	0.640	0.692	0.709	0.718	0.718	0.722	0.724	2	0.85	0.80	0.56	0.75
98 Suriname	..	..	0.701	0.724	0.730	0.725	0.722	0.724	–3	..	..	0.41	..
102 Jordan	0.616	0.702	0.728	0.720	0.721	0.722	0.722	0.723	–6	1.31	0.36	–0.07	0.57
103 Belize	0.613	0.643	0.693	0.707	0.715	0.722	0.719	0.720	–2	0.49	0.74	0.49	0.58
104 Maldives	..	0.610	0.669	0.693	0.709	0.713	0.716	0.719	4	..	0.92	0.90	..
105 Tonga	0.645	0.666	0.692	0.699	0.714	0.715	0.717	0.717	0	0.31	0.39	0.45	0.38
106 Philippines	0.590	0.631	0.672	0.692	0.702	0.704	0.709	0.712	3	0.67	0.62	0.73	0.67
107 Moldova (Republic of)	0.653	0.609	0.681	0.702	0.703	0.705	0.709	0.711	–3	–0.70	1.12	0.56	0.30
108 Turkmenistan	..	..	0.673	0.691	0.701	0.706	0.708	0.710	2	..	..	0.67	..
108 Uzbekistan	..	0.596	0.665	0.688	0.696	0.701	0.707	0.710	3	..	1.10	0.83	..
110 Libya	0.676	0.728	0.757	0.707	0.691	0.690	0.704	0.708	–9	0.74	0.39	–0.84	0.16
111 Indonesia	0.525	0.604	0.666	0.688	0.696	0.700	0.704	0.707	0	1.40	0.99	0.74	1.07
111 Samoa	0.621	0.638	0.690	0.696	0.699	0.704	0.706	0.707	–4	0.26	0.79	0.30	0.46
113 South Africa	0.625	0.629	0.662	0.683	0.699	0.702	0.704	0.705	0	0.06	0.52	0.78	0.43
114 Bolivia (Plurinational State of)	0.540	0.616	0.655	0.673	0.685	0.692	0.700	0.703	3	1.31	0.63	0.88	0.94
115 Gabon	0.619	0.627	0.658	0.679	0.692	0.696	0.700	0.702	1	0.13	0.48	0.81	0.45
116 Egypt	0.546	0.611	0.666	0.681	0.690	0.695	0.696	0.700	–2	1.13	0.86	0.62	0.89
MEDIUM HUMAN DEVELOPMENT													
117 Marshall Islands	..	..	..	..	..	..	0.696	0.698	..	..	..	..	..
118 Viet Nam	0.475	0.578	0.653	0.673	0.680	0.685	0.690	0.693	–1	1.99	1.23	0.74	1.36
119 Palestine, State of	..	..	0.671	0.681	0.685	0.687	0.689	0.690	–5	..	..	0.35	..
120 Iraq	0.574	0.608	0.652	0.662	0.665	0.672	0.684	0.689	–1	0.58	0.71	0.68	0.65
121 Morocco	0.458	0.531	0.618	0.646	0.660	0.669	0.675	0.676	2	1.48	1.53	1.14	1.40
122 Kyrgyzstan	0.618	0.594	0.636	0.658	0.666	0.669	0.671	0.674	–1	–0.39	0.69	0.73	0.31
123 Guyana	0.537	0.606	0.639	0.656	0.663	0.666	0.668	0.670	–1	1.21	0.53	0.61	0.79

TABLE 2 HUMAN DEVELOPMENT INDEX TRENDS, 1990–2018

TABLE 2

HDI rank	Human Development Index (HDI) Value 1990	2000	2010	2013	2015	2016	2017	2018	Change in HDI rank 2013–2018[a]	Average annual HDI growth (%) 1990–2000	2000–2010	2010–2018	1990–2018
124 El Salvador	0.529	0.608	0.659	0.662	0.660	0.662	0.665	0.667	–5	1.40	0.82	0.14	0.83
125 Tajikistan	0.603	0.538	0.630	0.643	0.642	0.647	0.651	0.656	–1	–1.13	1.60	0.50	0.30
126 Cabo Verde	..	0.564	0.626	0.641	0.643	0.645	0.647	0.651	–1	..	1.06	0.48	..
126 Guatemala	0.477	0.546	0.602	0.616	0.647	0.648	0.649	0.651	2	1.36	0.98	0.98	1.11
126 Nicaragua	0.494	0.568	0.614	0.630	0.644	0.649	0.653	0.651	0	1.41	0.77	0.74	0.99
129 India	0.431	0.497	0.581	0.607	0.627	0.637	0.643	0.647	1	1.43	1.57	1.34	1.46
130 Namibia	0.579	0.543	0.588	0.622	0.637	0.639	0.643	0.645	–3	–0.64	0.78	1.17	0.38
131 Timor-Leste	..	0.505	0.620	0.613	0.628	0.628	0.624	0.626	–2	..	2.06	0.13	..
132 Honduras	0.508	0.555	0.598	0.603	0.613	0.618	0.621	0.623	0	0.88	0.76	0.51	0.73
132 Kiribati	..	0.564	0.589	0.605	0.619	0.622	0.623	0.623	–1	..	0.43	0.71	..
134 Bhutan	..	..	0.571	0.594	0.606	0.610	0.615	0.617	0	..	..	0.98	..
135 Bangladesh	0.388	0.470	0.549	0.572	0.588	0.599	0.609	0.614	5	1.95	1.56	1.40	1.65
135 Micronesia (Federated States of)	..	0.541	0.595	0.599	0.606	0.608	0.612	0.614	–2	..	0.95	0.41	..
137 Sao Tome and Principe	0.437	0.480	0.546	0.568	0.590	0.593	0.603	0.609	5	0.94	1.31	1.36	1.19
138 Congo	0.531	0.495	0.557	0.581	0.614	0.613	0.609	0.608	–1	–0.71	1.19	1.12	0.49
138 Eswatini (Kingdom of)	0.545	0.468	0.513	0.558	0.585	0.596	0.603	0.608	6	–1.51	0.92	2.15	0.39
140 Lao People's Democratic Republic	0.399	0.466	0.546	0.579	0.594	0.598	0.602	0.604	–2	1.55	1.60	1.28	1.49
141 Vanuatu	..	..	0.585	0.588	0.592	0.592	0.595	0.597	–6	..	..	0.26	..
142 Ghana	0.454	0.483	0.554	0.578	0.585	0.587	0.591	0.596	–3	0.61	1.39	0.91	0.97
143 Zambia	0.424	0.428	0.531	0.559	0.570	0.580	0.589	0.591	0	0.11	2.17	1.35	1.20
144 Equatorial Guinea	..	0.520	0.580	0.588	0.593	0.592	0.590	0.588	–9	..	1.09	0.18	..
145 Myanmar	0.349	0.424	0.523	0.551	0.565	0.571	0.577	0.584	2	1.94	2.13	1.39	1.85
146 Cambodia	0.384	0.419	0.535	0.555	0.566	0.572	0.578	0.581	–1	0.89	2.46	1.05	1.49
147 Kenya	0.467	0.446	0.533	0.551	0.562	0.568	0.574	0.579	0	–0.46	1.79	1.04	0.77
147 Nepal	0.380	0.446	0.527	0.555	0.568	0.572	0.574	0.579	–2	1.61	1.70	1.18	1.52
149 Angola	..	0.394	0.510	0.547	0.565	0.570	0.576	0.574	1	..	2.63	1.50	..
150 Cameroon	0.445	0.438	0.471	0.531	0.548	0.556	0.560	0.563	3	–0.15	0.71	2.26	0.84
150 Zimbabwe	0.498	0.452	0.472	0.527	0.543	0.549	0.553	0.563	4	–0.95	0.43	2.22	0.44
152 Pakistan	0.404	0.449	0.524	0.537	0.550	0.556	0.558	0.560	–1	1.06	1.55	0.85	1.17
153 Solomon Islands	..	0.476	0.524	0.550	0.555	0.553	0.555	0.557	–4	..	0.97	0.78	..
LOW HUMAN DEVELOPMENT													
154 Syrian Arab Republic	0.558	0.590	0.644	0.572	0.540	0.539	0.544	0.549	–14	0.57	0.88	–1.98	–0.06
155 Papua New Guinea	0.377	0.436	0.510	0.521	0.539	0.541	0.543	0.543	0	1.45	1.58	0.80	1.31
156 Comoros	..	0.457	0.513	0.532	0.535	0.537	0.539	0.538	–4	..	1.15	0.60	..
157 Rwanda	0.245	0.337	0.488	0.506	0.515	0.525	0.529	0.536	2	3.24	3.77	1.19	2.84
158 Nigeria	..	..	0.484	0.520	0.527	0.528	0.533	0.534	–2	..	..	1.25	..
159 Tanzania (United Republic of)	0.373	0.395	0.487	0.503	0.519	0.518	0.522	0.528	2	0.59	2.10	1.03	1.25
159 Uganda	0.312	0.395	0.489	0.503	0.515	0.520	0.522	0.528	2	2.37	2.16	0.97	1.89
161 Mauritania	0.378	0.446	0.490	0.511	0.521	0.519	0.524	0.527	–4	1.67	0.94	0.91	1.19
162 Madagascar	..	0.456	0.504	0.509	0.514	0.515	0.518	0.521	–4	..	1.01	0.42	..
163 Benin	0.348	0.398	0.473	0.500	0.510	0.512	0.515	0.520	0	1.36	1.74	1.19	1.45
164 Lesotho	0.488	0.444	0.461	0.486	0.499	0.507	0.514	0.518	2	–0.93	0.37	1.46	0.21
165 Côte d'Ivoire	0.391	0.407	0.454	0.475	0.494	0.508	0.512	0.516	5	0.40	1.09	1.61	0.99
166 Senegal	0.377	0.390	0.468	0.494	0.504	0.506	0.510	0.514	–2	0.36	1.84	1.17	1.12
167 Togo	0.405	0.426	0.468	0.490	0.502	0.506	0.510	0.513	–2	0.50	0.94	1.16	0.85
168 Sudan	0.332	0.403	0.471	0.477	0.501	0.505	0.507	0.507	1	1.97	1.57	0.93	1.53
169 Haiti	0.412	0.440	0.467	0.483	0.492	0.497	0.501	0.503	–1	0.67	0.60	0.92	0.72
170 Afghanistan	0.298	0.345	0.464	0.485	0.490	0.491	0.493	0.496	–3	1.47	3.01	0.83	1.84
171 Djibouti	..	0.361	0.446	0.467	0.482	0.489	0.492	0.495	0	..	2.14	1.32	..
172 Malawi	0.303	0.362	0.437	0.463	0.475	0.478	0.482	0.485	0	1.79	1.90	1.32	1.69
173 Ethiopia	..	0.283	0.412	0.439	0.453	0.460	0.466	0.470	3	..	3.81	1.66	..
174 Gambia	0.328	0.382	0.437	0.448	0.454	0.456	0.459	0.466	0	1.53	1.35	0.79	1.26
174 Guinea	0.278	0.335	0.408	0.439	0.449	0.456	0.463	0.466	2	1.86	2.00	1.67	1.86
176 Liberia	..	0.422	0.441	0.463	0.463	0.463	0.466	0.465	–4	..	0.44	0.67	..
177 Yemen	0.392	0.432	0.499	0.506	0.493	0.477	0.463	0.463	–18	0.99	1.44	–0.94	0.59
178 Guinea-Bissau	..	..	0.426	0.441	0.453	0.457	0.460	0.461	–3	..	..	1.01	..
179 Congo (Democratic Republic of the)	0.377	0.333	0.416	0.429	0.445	0.453	0.456	0.459	0	–1.24	2.24	1.24	0.70
180 Mozambique	0.217	0.301	0.396	0.412	0.428	0.435	0.442	0.446	3	3.34	2.79	1.51	2.61
181 Sierra Leone	0.270	0.298	0.391	0.426	0.422	0.423	0.435	0.438	–1	0.99	2.74	1.45	1.74
182 Burkina Faso	..	0.286	0.375	0.401	0.413	0.420	0.429	0.434	3	..	2.74	1.84	..
182 Eritrea	..	..	0.433	0.425	0.433	0.434	0.431	0.434	–1	..	..	0.02	..
184 Mali	0.231	0.308	0.403	0.408	0.412	0.420	0.426	0.427	0	2.92	2.72	0.72	2.22
185 Burundi	0.295	0.293	0.402	0.422	0.427	0.427	0.421	0.423	–3	–0.07	3.20	0.65	1.29

TABLE **2**

HDI rank	Human Development Index (HDI) Value 1990	2000	2010	2013	2015	2016	2017	2018	Change in HDI rank 2013–2018[a]	Average annual HDI growth (%) 1990–2000	2000–2010	2010–2018	1990–2018
186 South Sudan	..	..	0.425	0.439	0.428	0.418	0.414	0.413	–10	..	..	–0.35	..
187 Chad	..	0.298	0.374	0.399	0.403	0.398	0.401	0.401	–1	..	2.29	0.89	..
188 Central African Republic	0.320	0.307	0.355	0.351	0.362	0.372	0.376	0.381	–1	–0.41	1.44	0.89	0.62
189 Niger	0.213	0.253	0.319	0.345	0.360	0.365	0.373	0.377	–1	1.75	2.34	2.09	2.06
OTHER COUNTRIES OR TERRITORIES													
.. Korea (Democratic People's Rep. of)	..	..	..	..	..	..	..	..	..	..	..	..	..
.. Monaco	..	..	..	..	..	..	..	..	..	..	..	..	..
.. Nauru	..	..	..	..	..	..	..	..	..	..	..	..	..
.. San Marino	..	..	..	..	..	..	..	..	..	..	..	..	..
.. Somalia	..	..	..	..	..	..	..	..	..	..	..	..	..
.. Tuvalu	..	..	..	..	..	..	..	..	..	..	..	..	..
Human development groups													
Very high human development	0.779	0.823	0.866	0.878	0.886	0.888	0.890	0.892	—	0.55	0.52	0.36	0.48
High human development	0.568	0.630	0.706	0.727	0.738	0.743	0.746	0.750	—	1.04	1.15	0.75	1.00
Medium human development	0.436	0.497	0.575	0.599	0.616	0.625	0.630	0.634	—	1.30	1.48	1.22	1.34
Low human development	0.352	0.386	0.473	0.490	0.499	0.501	0.505	0.507	—	0.94	2.04	0.88	1.32
Developing countries	0.516	0.571	0.642	0.663	0.674	0.680	0.683	0.686	—	1.02	1.19	0.82	1.02
Regions													
Arab States	0.556	0.613	0.676	0.688	0.695	0.699	0.701	0.703	—	0.99	0.98	0.49	0.84
East Asia and the Pacific	0.519	0.597	0.691	0.714	0.727	0.733	0.737	0.741	—	1.42	1.48	0.87	1.28
Europe and Central Asia	0.652	0.667	0.735	0.759	0.770	0.772	0.776	0.779	—	0.23	0.97	0.72	0.64
Latin America and the Caribbean	0.628	0.687	0.731	0.748	0.754	0.756	0.758	0.759	—	0.90	0.62	0.46	0.68
South Asia	0.441	0.505	0.585	0.607	0.624	0.634	0.639	0.642	—	1.36	1.48	1.18	1.35
Sub-Saharan Africa	0.402	0.423	0.498	0.521	0.532	0.535	0.539	0.541	—	0.50	1.65	1.03	1.06
Least developed countries	0.350	0.399	0.485	0.504	0.516	0.520	0.525	0.528	—	1.30	1.98	1.08	1.48
Small island developing states	0.595	0.642	0.702	0.708	0.717	0.719	0.722	0.723	—	0.77	0.91	0.35	0.70
Organisation for Economic Co-operation and Development	0.785	0.834	0.873	0.883	0.889	0.892	0.894	0.895	—	0.61	0.45	0.32	0.47
World	**0.598**	**0.641**	**0.697**	**0.713**	**0.722**	**0.727**	**0.729**	**0.731**	**—**	**0.71**	**0.84**	**0.60**	**0.72**

NOTES

For HDI values that are comparable across years and countries, use this table or the interpolated data at http://hdr.undp.org/en/data, which present trends using consistent data.

a A positive value indicates an improvement in rank.

DEFINITIONS

Human Development Index (HDI): A composite index measuring average achievement in three basic dimensions of human development—a long and healthy life, knowledge and a decent standard of living. See *Technical note 1* at http://hdr.undp.org/sites/default/files/hdr2019_technical_notes.pdf for details on how the HDI is calculated.

Average annual HDI growth: A smoothed annualized growth of the HDI in a given period, calculated as the annual compound growth rate.

MAIN DATA SOURCES

Columns 1–8: HDRO calculations based on data from UNDESA (2019b), UNESCO Institute for Statistics (2019), United Nations Statistics Division (2019b), World Bank (2019a), Barro and Lee (2018) and IMF (2019).

Column 9: Calculated based on data in columns 4 and 8.

Columns 10–13: Calculated based on data in columns 1, 2, 3 and 8.

TABLE 3

Inequality-adjusted Human Development Index

SDG 10.1

HDI rank	Human Development Index (HDI)	Inequality-adjusted HDI (IHDI)			Coefficient of human inequality	Inequality in life expectancy	Inequality-adjusted life expectancy index	Inequality in education[a]	Inequality-adjusted education index	Inequality in income[a]	Inequality-adjusted income index	Income share held by (%)			
	Value	Value	Overall loss (%)	Difference from HDI rank[b]		(%)	Value	(%)	Value	(%)	Value	Poorest 40 percent	Richest 10 percent	Richest 1 percent	Gini coefficient
	2018	2018	2018	2018	2018	2015–2020[c]	2018	2018[d]	2018	2018[d]	2018	2010–2017[e]	2010–2017[e]	2010–2017[e]	2010–2017[e]
VERY HIGH HUMAN DEVELOPMENT															
1 Norway	0.954	0.889	6.8	0	6.7	3.0	0.929	4.4	0.879	12.7	0.860	23.1	22.3	8.4	27.5
2 Switzerland	0.946	0.882	6.8	–1	6.6	3.5	0.945	1.9	0.879	14.5	0.825	20.3	25.2	11.9	32.3
3 Ireland	0.942	0.865	8.2	–6	8.0	3.4	0.923	3.5	0.885	16.9	0.793	20.9	25.4	12.8	31.8
4 Germany	0.939	0.861	8.3	–7	8.1	3.8	0.905	2.7	0.920	17.7	0.765	20.7	24.8	11.1	31.7
4 Hong Kong, China (SAR)	0.939	0.815	13.2	–17	12.6	2.5	0.970	9.8	0.776	25.6	0.720	..	..	..	..
6 Australia	0.938	0.862	8.1	–4	7.9	3.7	0.938	2.7	0.898	17.3	0.761	18.8	27.8	9.1	35.8
6 Iceland	0.938	0.885	5.7	4	5.6	2.4	0.944	2.8	0.892	11.7	0.822	23.2	23.5	6.8	27.8
8 Sweden	0.937	0.874	6.7	2	6.6	2.9	0.936	3.8	0.880	13.0	0.811	22.1	22.9	8.3	29.2
9 Singapore	0.935	0.810	13.3	–14	12.8	2.5	0.952	11.0	0.745	25.0	0.750	..	..	14.0	..
10 Netherlands	0.933	0.870	6.8	2	6.7	3.1	0.926	4.9	0.862	12.1	0.826	22.8	23.0	6.2	28.2
11 Denmark	0.930	0.873	6.1	4	6.0	3.6	0.901	3.0	0.892	11.4	0.829	23.3	23.8	12.8	28.2
12 Finland	0.925	0.876	5.3	7	5.2	3.0	0.921	2.3	0.894	10.4	0.816	23.4	22.4	7.3	27.1
13 Canada	0.922	0.841	8.8	–4	8.5	4.6	0.915	2.7	0.867	18.2	0.751	18.9	25.3	13.6	34.0
14 New Zealand	0.921	0.836	9.2	–4	9.1	4.3	0.915	6.4	0.863	16.4	0.740	..	..	8.2	..
15 United Kingdom	0.920	0.845	8.2	0	8.0	4.1	0.903	2.8	0.890	17.0	0.750	19.7	25.4	11.7	33.2
15 United States	0.920	0.797	13.4	–13	12.8	6.3	0.848	5.5	0.849	26.6	0.702	15.2	30.6	20.2	41.5
17 Belgium	0.919	0.849	7.6	3	7.6	3.6	0.912	7.7	0.824	11.4	0.814	22.6	22.2	6.7	27.7
18 Liechtenstein	0.917	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19 Japan	0.915	0.882	3.6	15	3.6	2.9	0.963	1.6	0.836	6.3	0.851	20.3[f]	24.7[f]	10.4	32.1[f]
20 Austria	0.914	0.843	7.7	3	7.5	3.7	0.910	3.0	0.845	15.9	0.780	21.1	23.8	8.2	30.5
21 Luxembourg	0.909	0.822	9.5	1	9.3	3.4	0.923	8.0	0.738	16.6	0.817	19.3	25.4	9.1	33.8
22 Israel	0.906	0.809	10.8	–3	10.2	3.3	0.935	3.7	0.844	23.7	0.671	15.9	27.7	..	38.9
22 Korea (Republic of)	0.906	0.777	14.3	–9	13.9	3.0	0.938	18.5	0.702	20.2	0.712	20.3	23.8	12.2	31.6
24 Slovenia	0.902	0.858	4.8	11	4.7	2.9	0.914	2.2	0.874	9.1	0.792	24.1	21.0	6.7	25.4
25 Spain	0.893	0.765	14.3	–13	14.0	3.0	0.947	17.1	0.683	21.9	0.692	17.5	26.2	9.8	36.2
26 Czechia	0.891	0.850	4.6	12	4.5	3.0	0.884	1.4	0.880	9.2	0.789	24.4	22.1	9.5	25.9
26 France	0.891	0.809	9.2	1	9.1	3.8	0.926	9.1	0.737	14.4	0.777	20.7	26.6	10.8	32.7
28 Malta	0.885	0.815	8.0	6	7.9	4.6	0.915	6.7	0.763	12.5	0.774	21.9	23.6	11.7	29.4
29 Italy	0.883	0.776	12.1	–4	11.8	3.1	0.944	11.0	0.706	21.3	0.700	18.0	25.7	7.5	35.4
30 Estonia	0.882	0.818	7.2	9	7.0	3.6	0.869	2.1	0.862	15.5	0.730	20.0	24.4	7.0	32.7
31 Cyprus	0.873	0.788	9.7	1	9.6	3.6	0.902	11.0	0.722	14.3	0.751	20.0	27.4	8.6	34.0
32 Greece	0.872	0.766	12.2	–5	11.9	3.5	0.922	12.8	0.727	19.5	0.671	17.7	26.2	10.8	36.0
32 Poland	0.872	0.801	8.1	4	8.0	4.3	0.862	5.2	0.821	14.4	0.727	21.3	24.6	12.5	30.8
34 Lithuania	0.869	0.775	10.9	–1	10.5	5.5	0.810	4.3	0.852	21.8	0.673	17.7	28.6	7.0	37.4
35 United Arab Emirates	0.866	..	..	..	..	5.2	0.843	18.2	0.606	..	..	..	..	22.8	..
36 Andorra	0.857	..	..	..	..	..	..	10.0	0.637	..	..	..	..	..	..
36 Saudi Arabia	0.857	..	..	..	..	6.4	0.792	18.0	0.651	..	..	..	..	19.7	..
36 Slovakia	0.857	0.804	6.2	8	6.1	5.0	0.839	1.6	0.811	11.7	0.764	23.1	20.9	5.2	26.5
39 Latvia	0.854	0.776	9.1	3	8.8	5.4	0.803	2.6	0.849	18.5	0.686	19.4	26.1	7.6	34.2
40 Portugal	0.850	0.742	12.7	–6	12.4	3.5	0.918	15.8	0.639	18.1	0.697	18.7	27.3	7.4	35.5
41 Qatar	0.848	..	..	..	..	5.7	0.872	11.8	0.583	..	..	..	..	29.0	..
42 Chile	0.847	0.696	17.8	–14	17.0	6.3	0.866	12.0	0.711	32.7	0.548	14.4	37.9	23.7	46.6
43 Brunei Darussalam	0.845	..	..	..	..	7.6	0.792	..	..	..	..	..	..	..	..
43 Hungary	0.845	0.777	8.0	8	7.8	4.2	0.836	3.2	0.790	16.1	0.711	21.1	23.8	7.7	30.4
45 Bahrain	0.838	..	..	..	..	5.5	0.831	22.7	0.570	..	..	..	..	18.0	..
46 Croatia	0.837	0.768	8.3	4	8.1	4.3	0.859	4.9	0.757	15.2	0.697	20.4	23.2	7.6	31.1
47 Oman	0.834	0.725	13.1	–3	12.0	6.7	0.827	11.9	0.644	20.1	0.714	..	..	19.5	..
48 Argentina	0.830	0.714	14.0	–4	13.6	8.6	0.795	6.2	0.790	25.8	0.579	15.3	29.4	..	40.6
49 Russian Federation	0.824	0.743	9.9	1	9.6	7.1	0.749	3.1	0.807	18.7	0.679	18.0	29.7	20.2	37.7
50 Belarus	0.817	0.765	6.4	6	6.3	4.4	0.803	3.7	0.806	10.8	0.692	24.1	21.3	..	25.4
50 Kazakhstan	0.817	0.759	7.1	4	7.1	7.7	0.756	3.2	0.791	10.3	0.732	23.4	23.0	..	27.5
52 Bulgaria	0.816	0.714	12.5	0	12.1	6.1	0.793	6.3	0.754	23.9	0.607	17.8	28.8	8.4	37.4
52 Montenegro	0.816	0.746	8.6	5	8.5	3.6	0.842	7.4	0.738	14.6	0.667	20.8	25.7	6.4	31.9
52 Romania	0.816	0.725	11.1	2	10.8	6.3	0.806	5.3	0.722	20.7	0.656	16.9	24.7	6.8	35.9
55 Palau	0.814	..	..	..	..	..	..	1.9	0.829	..	..	..	..	..	..
56 Barbados	0.813	0.675	17.0	–10	15.9	8.7	0.830	5.5	0.730	33.6	0.509	..	..	..	..
57 Kuwait	0.808	..	..	..	..	5.9	0.802	22.1	0.487	..	..	..	..	19.9	..
57 Uruguay	0.808	0.703	13.0	0	12.7	7.9	0.819	8.2	0.684	22.0	0.621	16.5	29.7	14.0	39.5
59 Turkey	0.806	0.675	16.2	–8	16.1	9.0	0.804	16.5	0.594	22.6	0.645	15.6	32.1	23.4	41.9

TABLE 3

HDI rank	Human Development Index (HDI)	Inequality-adjusted HDI (IHDI)			Coefficient of human inequality	Inequality in life expectancy	Inequality-adjusted life expectancy index	Inequality in education[a]	Inequality-adjusted education index	Inequality in income[a]	Inequality-adjusted income index	SDG 10.1 Income share held by (%)			
	Value	Value	Overall loss (%)	Difference from HDI rank[b]		(%)	Value	(%)	Value	(%)	Value	Poorest 40 percent	Richest 10 percent	Richest 1 percent	Gini coefficient
	2018	2018	2018	2018	2018	2015–2020[c]	2018	2018[d]	2018	2018[d]	2018	2010–2017[e]	2010–2017[e]	2010–2017[e]	2010–2017[e]
60 Bahamas	0.805	..	..	..	..	6.8	0.771	6.3	0.694	..	..	..	..	..	..
61 Malaysia	0.804	..	..	..	..	6.1	0.809	12.1	0.627	..	..	15.9	31.3	14.5	41.0
62 Seychelles	0.801	..	..	..	..	9.6	0.742	..	..	29.3	0.590	15.2	39.9	..	46.8
HIGH HUMAN DEVELOPMENT															
63 Serbia	0.799	0.685	14.4	–4	13.7	4.9	0.817	8.1	0.719	28.1	0.546	22.5	23.1	6.4	28.5
63 Trinidad and Tobago	0.799	..	..	..	..	14.9	0.699	..	..	..	..	..	..	..	..
65 Iran (Islamic Republic of)	0.797	0.706	11.5	5	11.3	9.2	0.789	5.0	0.706	19.7	0.631	16.6	30.9	16.3	40.0
66 Mauritius	0.796	0.688	13.7	0	13.6	9.4	0.765	13.2	0.634	18.2	0.671	19.2	29.0	7.1	35.8
67 Panama	0.795	0.626	21.2	–13	20.3	12.0	0.790	12.5	0.610	36.5	0.510	11.5	37.7	..	49.9
68 Costa Rica	0.794	0.645	18.7	–7	18.0	7.1	0.859	14.7	0.611	32.2	0.511	12.8	37.0	..	48.3
69 Albania	0.791	0.705	10.9	8	10.9	7.2	0.835	12.3	0.665	13.2	0.631	22.1	22.9	6.4	29.0
70 Georgia	0.786	0.692	12.0	5	11.6	7.9	0.759	3.2	0.828	23.6	0.526	17.4	28.9	..	37.9
71 Sri Lanka	0.780	0.686	12.1	4	11.8	7.0	0.813	7.4	0.700	21.0	0.567	17.7	32.9	..	39.8
72 Cuba	0.778	..	..	..	..	5.1	0.857	10.9	0.704	..	..	..	..	..	..
73 Saint Kitts and Nevis	0.777	..	..	..	..	..	..	..	..	..	..	..	..	..	..
74 Antigua and Barbuda	0.776	..	..	..	..	5.8	0.824	..	..	..	..	..	..	..	..
75 Bosnia and Herzegovina	0.769	0.658	14.4	–2	14.2	5.4	0.833	17.0	0.586	20.2	0.584	19.8	25.1	6.2	33.0
76 Mexico	0.767	0.595	22.5	–17	21.8	10.5	0.757	18.5	0.558	36.3	0.498	15.5	34.8	..	43.4
77 Thailand	0.765	0.635	16.9	–4	16.7	7.9	0.807	18.3	0.543	23.8	0.585	18.4	28.4	20.2	36.5
78 Grenada	0.763	..	..	..	..	11.2	0.716	..	..	..	..	..	..	..	..
79 Brazil	0.761	0.574	24.5	–23	23.8	10.9	0.763	23.8	0.525	36.7	0.473	10.6	41.9	28.3	53.3
79 Colombia	0.761	0.585	23.1	–16	22.4	10.7	0.785	20.3	0.545	36.2	0.468	12.4	39.0	20.5	49.7
81 Armenia	0.760	0.685	9.9	9	9.7	8.7	0.772	2.9	0.737	17.4	0.565	20.8	28.4	..	33.6
82 Algeria	0.759	0.604	20.4	–8	19.7	14.1	0.749	33.7	0.448	11.4	0.658	23.1	22.9	..	27.6
82 North Macedonia	0.759	0.660	13.1	5	12.9	7.9	0.789	10.5	0.623	20.3	0.585	17.3	24.8	5.8	35.6
82 Peru	0.759	0.612	19.4	–5	19.1	10.8	0.776	18.1	0.567	28.3	0.521	14.4	32.3	..	43.3
85 China	0.758	0.636	16.1	4	15.7	7.9	0.803	11.7	0.573	27.4	0.558	17.0	29.4	13.9	38.6
85 Ecuador	0.758	0.607	19.9	–4	19.5	11.5	0.773	16.5	0.596	30.5	0.485	14.1	33.8	..	44.7
87 Azerbaijan	0.754	0.683	9.4	13	9.3	13.9	0.700	5.3	0.657	8.9	0.692	..	..	..	..
88 Ukraine	0.750	0.701	6.5	21	6.5	7.4	0.740	3.6	0.768	8.5	0.605	24.5	21.2	..	25.0
89 Dominican Republic	0.745	0.584	21.5	–8	21.4	17.0	0.688	19.1	0.532	28.1	0.545	13.9	35.4	..	45.7
89 Saint Lucia	0.745	0.617	17.2	4	16.9	10.6	0.771	12.6	0.584	27.4	0.521	11.0	38.6	..	51.2
91 Tunisia	0.739	0.585	20.8	–4	20.2	9.0	0.791	32.8	0.442	18.9	0.573	20.1	25.6	..	32.8
92 Mongolia	0.735	0.635	13.6	10	13.6	13.1	0.664	11.9	0.646	15.7	0.596	20.4	25.6	..	32.3
93 Lebanon	0.730	..	..	..	..	7.4	0.839	6.2	0.566	..	..	20.6	24.8	23.4	31.8
94 Botswana	0.728	..	..	..	..	19.4	0.611	..	..	..	..	10.9	41.5	..	53.3
94 Saint Vincent and the Grenadines	0.728	..	..	..	..	11.3	0.715	..	..	..	..	..	..	..	..
96 Jamaica	0.726	0.604	16.7	3	15.9	10.0	0.753	5.6	0.653	32.0	0.449	..	..	..	..
96 Venezuela (Bolivarian Republic of)	0.726	0.600	17.3	1	17.0	17.1	0.665	8.8	0.638	25.2	0.510	..	..	..	..
98 Dominica	0.724	..	..	..	..	..	..	..	..	..	..	..	..	..	..
98 Fiji	0.724	..	..	..	..	14.9	0.620	..	..	..	..	18.8	29.7	..	36.7
98 Paraguay	0.724	0.545	24.7	–14	23.8	13.8	0.718	18.1	0.519	39.5	0.435	13.2	39.2	..	48.8
98 Suriname	0.720	0.557	22.7	–9	21.9	12.8	0.692	15.6	0.551	37.3	0.453	..	..	..	..
102 Jordan	0.723	0.617	14.7	11	14.7	10.6	0.748	15.4	0.574	17.9	0.547	20.3	27.5	16.1	33.7
103 Belize	0.720	0.558	22.6	–8	21.6	11.1	0.745	15.9	0.582	37.9	0.400	..	..	..	..
104 Maldives	0.719	0.568	21.0	–5	20.4	6.0	0.848	29.3	0.399	25.8	0.541	17.4[g]	29.9[g]	..	38.4[g]
105 Tonga	0.717	..	..	..	..	10.4	0.700	4.5	0.736	..	..	18.2	29.7	..	37.6
106 Philippines	0.712	0.582	18.2	1	17.8	15.3	0.666	10.1	0.599	28.1	0.495	16.8	31.3	..	40.1
107 Moldova (Republic of)	0.711	0.638	10.4	21	10.3	9.6	0.721	7.3	0.656	14.0	0.549	24.1	21.7	6.1	25.9
108 Turkmenistan	0.710	0.579	18.5	1	17.9	23.4	0.567	3.6	0.606	26.8	0.564	..	..	..	..
108 Uzbekistan	0.710	..	..	..	..	13.9	0.683	0.7	0.713	..	..	..	..	..	..
110 Libya	0.708	..	..	..	..	9.1	0.737	..	..	..	..	..	..	..	..
111 Indonesia	0.707	0.584	17.4	6	17.4	13.9	0.682	18.2	0.511	20.1	0.570	17.5	29.5	..	38.1
111 Samoa	0.707	..	..	..	..	10.0	0.736	4.9	0.666	..	..	17.9	31.3	..	38.7
113 South Africa	0.705	0.463	34.4	–17	31.4	19.2	0.545	17.3	0.596	57.7	0.305	7.2	50.5	19.2	63.0
114 Bolivia (Plurinational State of)	0.703	0.533	24.2	–6	24.1	22.5	0.611	20.0	0.552	29.7	0.449	13.6	31.7	..	44.0
115 Gabon	0.702	0.544	22.5	–4	22.5	22.8	0.549	23.5	0.486	21.2	0.602	16.8	27.7	..	38.0
116 Egypt	0.700	0.492	29.7	–8	28.7	11.6	0.705	38.1	0.376	36.5	0.449	21.9	27.8	19.1	31.8
MEDIUM HUMAN DEVELOPMENT															
117 Marshall Islands	0.698	..	..	..	..	..	..	4.3	0.677	..	..	..	..	..	..

TABLE 3 INEQUALITY-ADJUSTED HUMAN DEVELOPMENT INDEX

TABLE 3

HDI rank		Human Development Index (HDI)	Inequality-adjusted HDI (IHDI)			Coefficient of human inequality	Inequality in life expectancy	Inequality-adjusted life expectancy index	Inequality in education[a]	Inequality-adjusted education index	Inequality in income[a]	Inequality-adjusted income index	SDG 10.1 Income share held by (%)			
		Value	Value	Overall loss (%)	Difference from HDI rank[b]		(%)	Value	(%)	Value	(%)	Value	Poorest 40 percent	Richest 10 percent	Richest 1 percent	Gini coefficient
		2018	2018	2018	2018	2018	2015–2020[c]	2018	2018[d]	2018	2018[d]	2018	2010–2017[e]	2010–2017[e]	2010–2017[e]	2010–2017[e]
118	Viet Nam	0.693	0.580	16.3	8	16.2	12.9	0.741	17.6	0.515	18.1	0.511	18.8	27.1	..	35.3
119	Palestine, State of	0.690	0.597	13.5	16	13.5	12.0	0.730	11.9	0.582	16.6	0.500	19.2	25.2	15.8	33.7
120	Iraq	0.689	0.552	19.8	3	19.4	15.9	0.653	29.7	0.389	12.7	0.664	21.9	23.7	22.0	29.5
121	Morocco	0.676	..	..	..	..	13.0	0.756	..	..	21.7	0.510	17.4	31.9	..	39.5
122	Kyrgyzstan	0.674	0.610	9.5	23	9.5	11.3	0.700	5.0	0.697	12.2	0.465	23.6	23.3	..	27.3
123	Guyana	0.670	0.546	18.5	4	18.3	19.0	0.620	10.7	0.537	25.1	0.490	..	..	..	..
124	El Salvador	0.667	0.521	21.9	1	21.6	12.5	0.715	29.1	0.401	23.2	0.492	17.4	29.1	..	38.0
125	Tajikistan	0.656	0.574	12.5	12	12.4	16.7	0.652	6.0	0.632	14.5	0.459	19.4	26.4	..	34.0
126	Cabo Verde	0.651	..	..	..	..	12.2	0.713	23.7	0.410	..	..	..	..	..	47.2
126	Guatemala	0.651	0.472	27.4	–2	26.9	14.6	0.710	30.8	0.353	35.4	0.420	13.1	38.0	..	48.3
126	Nicaragua	0.651	0.501	23.0	1	22.7	13.1	0.726	25.7	0.420	29.2	0.414	14.3	37.2	..	46.2
129	India	0.647	0.477	26.3	1	25.7	19.7	0.610	38.7	0.342	18.8	0.518	19.8	30.1	21.3	35.7
130	Namibia	0.645	0.417	35.3	–14	33.6	22.1	0.520	25.0	0.437	53.6	0.321	8.6	47.3	..	59.1
131	Timor-Leste	0.626	0.450	28.0	–5	26.7	21.7	0.593	44.9	0.273	13.6	0.564	22.8	24.0	..	28.7
132	Honduras	0.623	0.464	25.5	0	25.0	13.3	0.735	26.6	0.369	34.9	0.369	11.0	37.7	..	50.5
132	Kiribati	0.623	..	..	..	..	24.7	0.557	..	..	..	..	..	..	..	..
134	Bhutan	0.617	0.450	27.1	–3	26.3	17.1	0.656	41.7	0.257	20.0	0.539	17.5	27.9	..	37.4
135	Bangladesh	0.614	0.465	24.3	4	23.6	17.3	0.666	37.7	0.320	15.7	0.472	21.0	26.8	..	32.4
135	Micronesia (Federated States of)	0.614	..	..	..	..	16.1	0.616	..	..	26.4	0.402	16.2	29.7	..	40.1
137	Sao Tome and Principe	0.609	0.507	16.7	10	16.7	17.0	0.641	18.3	0.463	14.9	0.438	21.1	24.2	..	30.8
138	Congo	0.608	0.456	25.0	2	24.9	22.8	0.526	20.9	0.426	31.0	0.423	12.4	37.9	..	48.9
138	Eswatini (Kingdom of)	0.608	0.430	29.3	–4	29.0	25.1	0.454	24.1	0.411	37.9	0.426	11.5[g]	40.0[g]	..	51.5[g]
140	Lao People's Democratic Republic	0.604	0.454	24.9	3	24.7	22.6	0.567	31.3	0.330	20.3	0.499	19.1	29.8	..	36.4
141	Vanuatu	0.597	..	..	..	..	14.4	0.663	..	..	19.7	0.405	17.8	29.4	..	37.6
142	Ghana	0.596	0.427	28.3	–3	28.1	24.2	0.511	34.9	0.364	25.3	0.419	14.3	32.2	..	43.5
143	Zambia	0.591	0.394	33.4	–6	32.3	26.5	0.492	21.7	0.448	48.6	0.278	8.9	44.4	..	57.1
144	Equatorial Guinea	0.588	..	..	..	..	34.6	0.386	..	..	..	..	..	..	..	..
145	Myanmar	0.584	0.448	23.2	3	23.2	22.8	0.557	26.9	0.330	19.9	0.490	18.6	31.7	..	38.1
146	Cambodia	0.581	0.465	20.1	12	19.9	18.1	0.625	27.3	0.346	14.3	0.464	..	..	..	..
147	Kenya	0.579	0.426	26.3	0	26.2	22.5	0.553	22.9	0.406	33.1	0.345	16.5	31.6	..	40.8
147	Nepal	0.579	0.430	25.8	3	24.9	17.5	0.641	40.9	0.296	16.3	0.419	20.4	26.4	..	32.8
149	Angola	0.574	0.392	31.8	–2	31.7	32.0	0.427	34.3	0.327	28.9	0.432	15.0[f]	32.3[f]	..	42.7[f]
150	Cameroon	0.563	0.371	34.1	–6	34.1	33.5	0.398	33.0	0.378	35.9	0.338	13.0	35.0	..	46.6
150	Zimbabwe	0.563	0.435	22.8	7	22.7	24.2	0.480	16.8	0.473	27.0	0.362	15.3	33.8	..	43.2
152	Pakistan	0.560	0.386	31.1	–1	30.2	29.9	0.508	43.5	0.230	17.2	0.494	21.1	28.9	..	33.5
153	Solomon Islands	0.557	..	..	..	..	12.1	0.714	..	..	19.4	0.366	18.4	29.2	..	37.1
LOW HUMAN DEVELOPMENT																
154	Syrian Arab Republic	0.549	..	..	..	..	13.0	0.693	..	..	..	..	..	..	14.7	..
155	Papua New Guinea	0.543	..	..	..	..	24.1	0.517	11.5	0.382	..	..	15.1[g]	31.0[g]	..	41.9[g]
156	Comoros	0.538	0.294	45.3	–22	44.2	28.9	0.483	47.6	0.249	56.0	0.212	13.6	33.7	..	45.3
157	Rwanda	0.536	0.382	28.7	–1	28.4	19.5	0.603	29.3	0.324	36.4	0.286	15.8	35.6	..	43.7
158	Nigeria	0.534	0.349	34.6	–5	34.5	37.1	0.332	38.1	0.301	28.2	0.426	15.1[g]	32.7[g]	..	43.0[g]
159	Tanzania (United Republic of)	0.528	0.397	24.9	7	24.9	25.3	0.517	27.0	0.309	22.4	0.391	18.5	31.0	..	37.8
159	Uganda	0.528	0.387	26.7	4	26.7	27.2	0.481	27.9	0.371	24.9	0.325	15.9	34.2	..	42.8
161	Mauritania	0.527	0.358	32.1	1	31.8	30.0	0.481	40.8	0.230	24.6	0.413	19.9	24.9	..	32.6
162	Madagascar	0.521	0.386	25.8	6	25.5	21.1	0.567	35.0	0.320	20.4	0.318	15.7	33.5	..	42.6
163	Benin	0.520	0.327	37.1	–6	36.9	34.9	0.415	43.7	0.268	32.0	0.315	12.8	37.6	..	47.8
164	Lesotho	0.518	0.350	32.5	3	32.0	33.1	0.347	21.9	0.398	41.1	0.310	9.6	40.9	..	54.2
165	Côte d'Ivoire	0.516	0.331	35.8	–3	35.0	33.3	0.384	47.4	0.232	24.4	0.409	15.9	31.9	17.1	41.5
166	Senegal	0.514	0.347	32.5	2	31.6	21.2	0.578	46.0	0.190	27.7	0.381	16.4	31.0	..	40.3
167	Togo	0.513	0.350	31.7	6	31.5	30.5	0.436	38.9	0.314	25.1	0.313	14.5	31.6	..	43.1
168	Sudan	0.507	0.332	34.6	1	34.3	27.4	0.504	42.5	0.195	33.0	0.372	18.5[g]	26.7[g]	..	35.4[g]
169	Haiti	0.503	0.299	40.5	–7	40.0	32.2	0.455	37.3	0.279	50.4	0.211	15.8	31.2	..	41.1
170	Afghanistan	0.496	..	..	..	..	28.3	0.491	45.4	0.225	..	..	..	..	..	..
171	Djibouti	0.495	..	..	..	..	23.4	0.549	..	..	27.7	0.391	15.8	32.3	..	41.6
172	Malawi	0.485	0.346	28.7	5	28.6	25.1	0.505	28.4	0.328	32.4	0.250	16.2	38.1	..	44.7
173	Ethiopia	0.470	0.337	28.4	5	27.3	24.9	0.534	43.5	0.189	13.4	0.377	17.6	31.4	..	39.1
174	Gambia	0.466	0.293	37.2	–8	36.4	28.5	0.459	49.3	0.195	31.5	0.279	19.0	28.7	..	35.9
174	Guinea	0.466	0.310	33.4	–1	32.2	31.3	0.435	48.3	0.176	17.1	0.388	19.8	26.4	..	33.7
176	Liberia	0.465	0.314	32.3	2	31.8	29.8	0.472	42.9	0.241	22.7	0.273	18.8	27.1	..	35.3

TABLE 3

HDI rank		Human Development Index (HDI)	Inequality-adjusted HDI (IHDI)			Coefficient of human inequality	Inequality in life expectancy	Inequality-adjusted life expectancy index	Inequality in education[a]	Inequality-adjusted education index	Inequality in income[a]	Inequality-adjusted income index	SDG 10.1 Income share held by (%)			
		Value	Value	Overall loss (%)	Difference from HDI rank[b]		(%)	Value	(%)	Value	(%)	Value	Poorest 40 percent	Richest 10 percent	Richest 1 percent	Gini coefficient
		2018	2018	2018	2018	2018	2015–2020[c]	2018	2018[d]	2018	2018[d]	2018	2010–2017[e]	2010–2017[e]	2010–2017[e]	2010–2017[e]
177	Yemen	0.463	0.316	31.8	5	30.9	24.7	0.534	46.1	0.187	21.8	0.315	18.8	29.4	15.7	36.7
178	Guinea-Bissau	0.461	0.288	37.5	–5	37.4	32.3	0.396	41.9	0.233	37.9	0.260	12.8	42.0	..	50.7
179	Congo (Democratic Republic of the)	0.459	0.316	31.0	7	30.9	36.1	0.397	28.5	0.354	28.2	0.225	15.5	32.0	..	42.1
180	Mozambique	0.446	0.309	30.7	4	30.7	29.8	0.434	33.8	0.257	28.4	0.265	11.8	45.5	..	54.0
181	Sierra Leone	0.438	0.282	35.7	–3	34.6	39.0	0.322	46.9	0.214	17.7	0.326	19.8	26.9	..	34.0
182	Burkina Faso	0.434	0.303	30.1	5	29.5	32.0	0.431	39.2	0.183	17.3	0.354	20.0	29.6	..	35.3
182	Eritrea	0.434	..	..	..	..	21.4	0.556	..	..	..	..	..	..	..	..
184	Mali	0.427	0.294	31.2	3	30.4	36.7	0.379	39.2	0.176	15.4	0.381	20.1[g]	25.7[g]	..	33.0[g]
185	Burundi	0.423	0.296	30.1	5	29.6	28.5	0.454	39.5	0.253	20.9	0.225	17.9	31.0	..	38.6
186	South Sudan	0.413	0.264	36.1	–1	36.0	36.2	0.369	39.6	0.182	32.3	0.274	12.5[g]	33.2[g]	..	46.3[g]
187	Chad	0.401	0.250	37.7	–1	37.4	40.9	0.309	43.0	0.164	28.4	0.307	14.6	32.4	..	43.3
188	Central African Republic	0.381	0.222	41.6	–1	41.3	40.1	0.302	34.5	0.231	49.2	0.157	10.3[f]	46.2[f]	..	56.2[f]
189	Niger	0.377	0.272	27.9	3	27.4	30.9	0.447	35.0	0.161	16.4	0.279	19.6	27.0	..	34.3
OTHER COUNTRIES OR TERRITORIES																
..	Korea (Democratic People's Rep. of)	..	..	..	..	..	11.5	0.709	..	..	..	..	..	..	..	..
..	Monaco	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	Nauru	..	..	..	..	..	..	..	..	..	23.9	0.592	..	..	..	..
..	San Marino	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	Somalia	..	..	..	..	..	38.9	0.348	..	..	..	..	..	..	..	..
..	Tuvalu	..	..	..	..	..	..	..	10.5	..	..	..	17.4	30.7	..	39.1
Human development groups																
	Very high human development	0.892	0.796	10.7	—	10.5	5.2	0.868	7.0	0.796	19.3	0.730	18.2	27.6	14.9	—
	High human development	0.750	0.615	17.9	—	17.6	10.0	0.764	14.8	0.563	27.9	0.541	16.6	31.1	..	—
	Medium human development	0.634	0.470	25.9	—	25.4	20.5	0.604	36.3	0.342	19.6	0.502	19.4	29.9	..	—
	Low human development	0.507	0.349	31.1	—	30.9	30.4	0.442	37.4	0.261	25.0	0.368	16.4	32.1	..	—
Developing countries		0.686	0.533	22.3	—	22.2	16.6	0.655	25.6	0.435	24.3	0.532	17.6	30.8	..	—
Regions																
	Arab States	0.703	0.531	24.5	—	24.2	15.0	0.679	32.5	0.386	25.0	0.571	20.6	26.9	..	—
	East Asia and the Pacific	0.741	0.618	16.6	—	16.3	9.8	0.766	13.5	0.550	25.6	0.560	17.2	29.5	..	—
	Europe and Central Asia	0.779	0.688	11.7	—	11.6	9.7	0.753	8.3	0.682	16.8	0.634	19.9	26.7	..	—
	Latin America and the Caribbean	0.759	0.589	22.3	—	21.7	11.6	0.754	19.5	0.553	34.1	0.491	13.1	37.3	..	—
	South Asia	0.642	0.476	25.9	—	25.3	20.2	0.611	37.5	0.340	18.4	0.520	19.9	29.7	..	—
	Sub-Saharan Africa	0.541	0.376	30.5	—	30.4	29.7	0.445	34.0	0.308	27.6	0.387	15.4	33.8	..	—
Least developed countries		0.528	0.377	28.6	—	28.4	26.3	0.510	36.3	0.275	22.5	0.383	17.6	31.1	..	—
Small island developing states		0.723	0.549	24.0	—	23.6	16.6	0.665	19.7	0.503	34.3	0.496	..	..	..	—
Organisation for Economic Co-operation and Development		0.895	0.791	11.7	—	11.4	5.3	0.880	8.0	0.783	20.9	0.717	18.0	28.0	14.2	—
World		**0.731**	**0.584**	**20.2**	**—**	**20.1**	**14.7**	**0.690**	**22.3**	**0.492**	**23.3**	**0.586**	17.7	30.2	..	—

NOTES

a See http://hdr.undp.org/en/composite/IHDI for the list of surveys used to estimate inequalities.

b Based on countries for which an Inequality-adjusted Human Development Index value is calculated.

c Calculated by HDRO from the 2015–2020 period life tables from UNDESA (2019b).

d Data refer to 2018 or the most recent year available.

e Data refer to the most recent year available during the period specified.

f Refers to 2008.

g Refers to 2009.

DEFINITIONS

Human Development Index (HDI): A composite index measuring average achievement in three basic dimensions of human development—a long and healthy life, knowledge and a decent standard of living. See *Technical note 1* at http://hdr.undp.org/sites/default/files/hdr2019_technical_notes.pdf for details on how the HDI is calculated.

Inequality-adjusted HDI (IHDI): HDI value adjusted for inequalities in the three basic dimensions of human development. See *Technical note 2* at http://hdr.undp.org/sites/default/files/hdr2019_technical_notes.pdf for details on how the IHDI is calculated.

Overall loss: Percentage difference between the IHDI value and the HDI value.

Difference from HDI rank: Difference in ranks on the IHDI and the HDI, calculated only for countries for which an IHDI value is calculated.

Coefficient of human inequality: Average inequality in three basic dimensions of human development.

Inequality in life expectancy: Inequality in distribution of expected length of life based on data from life tables estimated using the Atkinson inequality index.

Inequality-adjusted life expectancy index: HDI life expectancy index value adjusted for inequality in distribution of expected length of life based on data from life tables listed in *Main data sources*.

Inequality in education: Inequality in distribution of years of schooling based on data from household surveys estimated using the Atkinson inequality index.

Inequality-adjusted education index: HDI education index value adjusted for inequality in distribution of years of schooling based on data from household surveys listed in *Main data sources*.

Inequality in income: Inequality in income distribution based on data from household surveys estimated using the Atkinson inequality index.

Inequality-adjusted income index: HDI income index value adjusted for inequality in income distribution based on data from household surveys listed in *Main data sources*.

Income share: Percentage of income (or consumption) that accrues to the indicated population subgroups of population.

Gini coefficient: Measure of the deviation of the distribution of income among individuals or households within a country from a perfectly equal distribution. A value of 0 represents absolute equality, a value of 100 absolute inequality.

MAIN DATA SOURCES

Column 1: HDRO calculations based on data from UNDESA (2019b), UNESCO Institute for Statistics (2019), United Nations Statistics Division (2019b), World Bank (2019a), Barro and Lee (2018) and IMF (2019).

Column 2: Calculated as the geometric mean of the values in inequality-adjusted life expectancy index, inequality-adjusted education index and inequality-adjusted income index using the methodology in *Technical note 2* (available at http://hdr.undp.org/sites/default/files/hdr2019_technical_notes.pdf).

Column 3: Calculated based on data in columns 1 and 2.

Column 4: Calculated based on IHDI values and recalculated HDI ranks for countries for which an IHDI value is calculated.

Column 5: Calculated as the arithmetic mean of the values in inequality in life expectancy, inequality in education and inequality in income using the methodology in *Technical note 2* (available at http://hdr.undp.org/sites/default/files/hdr2019_technical_notes.pdf).

Column 6: Calculated based on abridged life tables from UNDESA (2019b).

Column 7: Calculated based on inequality in life expectancy and the HDI life expectancy index.

Columns 8 and 10: Calculated based on data from the Luxembourg Income Study database, Eurostat's European Union Statistics on Income and Living Conditions, the World Bank's International Income Distribution Database, the Center for Distributive, Labor and Social Studies and the World Bank's Socio-Economic Database for Latin America and the Caribbean, ICF Macro Demographic and Health Surveys and United Nations Children's Fund Multiple Indicator Cluster Surveys using the methodology in *Technical note 2* (available at http://hdr.undp.org/sites/default/files/hdr2019_technical_notes.pdf).

Column 9: Calculated based on inequality in education and the HDI education index.

Column 11: Calculated based on inequality in income and the HDI income index.

Columns 12, 13 and 15: World Bank (2019a).

Column 14: World Inequality Database (2019).

TABLE 4 Gender Development Index

HDI rank	Gender Development Index		Human Development Index (HDI)		SDG 3 Life expectancy at birth		SDG 4.3 Expected years of schooling		SDG 4.6 Mean years of schooling		SDG 8.5 Estimated gross national income per capita[a]	
			Value		(years)		(years)		(years)		(2011 PPP $)	
	Value	Group[b]	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
	2018	2018	2018	2018	2018	2018	2018[c]	2018[c]	2018[c]	2018[c]	2018	2018
VERY HIGH HUMAN DEVELOPMENT												
1 Norway	0.990	1	0.946	0.955	84.3	80.3	18.8[d]	17.4	12.6	12.5	60,283	75,688[e]
2 Switzerland	0.963	2	0.924	0.959	85.5	81.7	16.1	16.3	12.7	13.6	49,275	69,649
3 Ireland	0.975	2	0.929	0.953	83.7	80.4	18.9[d]	18.7[d]	12.7[f]	12.3[f]	44,921	66,583
4 Germany	0.968	2	0.923	0.953	83.6	78.8	17.0	17.2	13.7	14.6	38,470	55,649
4 Hong Kong, China (SAR)	0.963	2	0.919	0.954	87.6	81.8	16.4	16.6	11.6	12.5	43,852	79,385[e]
6 Australia	0.975	1	0.926	0.949	85.3	81.3	22.6[d]	21.6[d]	12.7[f]	12.6[f]	35,900	52,359
6 Iceland	0.966	2	0.921	0.954	84.4	81.3	20.4[d]	18.0[d]	12.3[f]	12.7[f]	39,246	55,824
8 Sweden	0.982	1	0.928	0.945	84.4	80.9	19.6[d]	18.0[d]	12.5	12.3	41,919	53,979
9 Singapore	0.988	1	0.929	0.941	85.6	81.3	16.5	16.1	11.1	12.0	74,600	92,163[e]
10 Netherlands	0.967	2	0.916	0.947	83.8	80.4	18.3[d]	17.8	11.9	12.5	40,573	59,536
11 Denmark	0.980	1	0.920	0.938	82.8	78.8	19.8[d]	18.4[d]	12.7	12.4	41,026	56,732
12 Finland	0.990	1	0.920	0.929	84.6	78.9	20.1[d]	18.5[d]	12.6	12.3	35,066	48,689
13 Canada	0.989	1	0.916	0.926	84.3	80.3	16.6	15.6	13.5[f]	13.1[f]	35,118	52,221
14 New Zealand	0.963	2	0.902	0.936	83.9	80.4	19.7[d]	17.9	12.6[f]	12.8[f]	26,754	43,745
15 United Kingdom	0.967	2	0.904	0.935	83.0	79.5	18.0[d]	17.1	12.9[g]	13.0[g]	28,526	50,771
15 United States	0.991	1	0.915	0.923	81.4	76.3	16.9	15.7	13.5	13.4	44,465	68,061
17 Belgium	0.972	2	0.904	0.931	83.8	79.1	20.6[d]	18.8[d]	11.6	11.9	34,928	52,927
18 Liechtenstein	..	..	..	..	..	..	13.4	16.1	..	..	..	..
19 Japan	0.976	1	0.901	0.923	87.5	81.3	15.2	15.3	13.0[h]	12.6[h]	28,784	53,384
20 Austria	0.963	2	0.895	0.929	83.8	79.0	16.6	16.0	12.3	13.0	32,618	60,303
21 Luxembourg	0.970	2	0.893	0.921	84.2	80.0	14.3	14.1	11.8[g]	12.6[g]	53,006	77,851[e]
22 Israel	0.972	2	0.891	0.917	84.4	81.1	16.6	15.4	13.0	13.0	24,616	42,792
22 Korea (Republic of)	0.934	3	0.870	0.932	85.8	79.7	15.8	16.9	11.5	12.9	23,228	50,241
24 Slovenia	1.003	1	0.902	0.899	83.9	78.4	18.2[d]	16.7	12.2	12.3	28,832	35,487
25 Spain	0.981	1	0.882	0.899	86.1	80.7	18.2[d]	17.5	9.7	10.0	28,086	42,250
26 Czechia	0.983	1	0.882	0.897	81.8	76.6	17.6	16.1	12.5	13.0	24,114	39,327
26 France	0.984	1	0.883	0.897	85.4	79.6	15.8	15.2	11.2	11.6	33,002	48,510
28 Malta	0.965	2	0.867	0.899	84.1	80.5	16.4	15.4	11.0	11.6	25,023	44,518
29 Italy	0.967	2	0.866	0.895	85.4	81.1	16.6	15.9	10.0[g]	10.5[g]	26,471	46,360
30 Estonia	1.016	1	0.886	0.872	82.6	74.1	16.8	15.3	13.4[f]	12.6[f]	22,999	38,653
31 Cyprus	0.983	1	0.865	0.880	82.9	78.7	15.1	14.3	12.0	12.2	27,791	38,404
32 Greece	0.963	2	0.854	0.887	84.5	79.6	17.1	17.5	10.3	10.8	19,747	30,264
32 Poland	1.009	1	0.874	0.867	82.4	74.6	17.3	15.6	12.3	12.3	21,876	33,739
34 Lithuania	1.028	2	0.880	0.856	81.2	70.1	16.9	16.1	13.0[g]	13.0[g]	25,665	34,560
35 United Arab Emirates	0.965	2	0.832	0.862	79.2	77.1	14.3	13.4	12.0	9.8	24,211	85,772[e]
36 Andorra	..	..	..	..	..	..	..	..	10.1	10.2	..	..
36 Saudi Arabia	0.879	5	0.784	0.892	76.6	73.8	15.8[g]	17.6[g]	9.0[g]	10.1[g]	18,166	72,328
36 Slovakia	0.992	1	0.852	0.859	80.8	73.8	15.0	14.1	12.5[f]	12.7[f]	23,683	38,045
39 Latvia	1.030	2	0.865	0.840	79.9	70.1	16.7	15.3	13.1[f]	12.5[f]	21,857	31,520
40 Portugal	0.984	1	0.843	0.856	84.7	78.8	16.2	16.4	9.2	9.2	23,627	32,738
41 Qatar	1.043	2	0.873	0.837	81.9	79.0	14.1	11.1	11.1	9.3	57,209	127,774[e]
42 Chile	0.962	2	0.828	0.860	82.4	77.6	16.8	16.3	10.3	10.6	15,211	28,933
43 Brunei Darussalam	0.987	1	0.837	0.848	77.0	74.6	14.8	14.0	9.1[h]	9.1[h]	65,914	86,071[e]
43 Hungary	0.984	1	0.836	0.850	80.1	73.1	15.4	14.8	11.7	12.1	21,010	33,906
45 Bahrain	0.937	3	0.800	0.854	78.3	76.3	16.1	14.7	9.3[g]	9.5[g]	18,422	52,949
46 Croatia	0.989	1	0.832	0.842	81.5	75.1	15.7	14.3	10.9[g]	12.0[g]	19,441	26,960
47 Oman	0.943	3	0.793	0.841	80.1	75.9	15.5	14.1	10.6	9.4	11,435	50,238
48 Argentina	0.988	1	0.818	0.828	79.9	73.1	18.9[d]	16.4	10.7[f]	10.5[f]	12,084	23,419
49 Russian Federation	1.015	1	0.828	0.816	77.6	66.9	15.9	15.2	11.9[g]	12.1[g]	19,969	30,904
50 Belarus	1.010	1	0.820	0.811	79.4	69.4	15.7	15.0	12.2[i]	12.4[i]	13,923	20,616
50 Kazakhstan	0.999	1	0.814	0.815	77.3	68.8	15.6	14.9	11.9[h]	11.7[h]	16,492	28,197
52 Bulgaria	0.993	1	0.812	0.818	78.5	71.4	15.0	14.6	11.9	11.8	15,621	23,905
52 Montenegro	0.966	2	0.801	0.829	79.2	74.3	15.3	14.7	10.7[g]	12.0[g]	14,457	20,634
52 Romania	0.986	1	0.809	0.821	79.4	72.5	14.6	13.9	10.6	11.3	19,487	28,569
55 Palau	..	..	..	..	..	..	16.3[g]	15.0[g]	..	..	..	..
56 Barbados	1.010	1	0.816	0.808	80.4	77.7	16.6[g]	13.8[g]	10.9[j]	10.3[j]	13,686	18,292
57 Kuwait	0.999	1	0.802	0.803	76.5	74.7	14.3	12.9	8.0	6.9	49,067	85,620[e]
57 Uruguay	1.016	1	0.810	0.797	81.4	74.0	17.1	15.1	9.0	8.4	14,901	24,292
59 Turkey	0.924	4	0.771	0.834	80.3	74.4	15.9[g]	16.9[g]	6.9	8.4	15,921	34,137
60 Bahamas	..	..	..	..	75.9	71.5	..	..	11.7[g]	11.4[g]	22,830	34,288
61 Malaysia	0.972	2	0.792	0.815	78.2	74.1	13.8	13.1	10.0	10.3	20,820	33,279

TABLE 4

	Gender Development Index		Human Development Index (HDI)		SDG 3 Life expectancy at birth		SDG 4.3 Expected years of schooling		SDG 4.6 Mean years of schooling		SDG 8.5 Estimated gross national income per capita[a]	
			Value		(years)		(years)		(years)		(2011 PPP $)	
	Value	Group[b]	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
HDI rank	2018	2018	2018	2018	2018	2018	2018[c]	2018[c]	2018[c]	2018[c]	2018	2018
62 Seychelles	..	..	..	..	77.3	69.8	16.2	14.7	..	..	..	..
HIGH HUMAN DEVELOPMENT												
63 Serbia	0.976	1	0.789	0.808	78.5	73.3	15.3	14.3	10.7	11.6	12,549	17,995
63 Trinidad and Tobago	1.002	1	0.798	0.796	76.1	70.8	13.8[g]	12.0[g]	11.1[i]	10.9[i]	22,266	34,878
65 Iran (Islamic Republic of)	0.874	5	0.727	0.832	77.7	75.4	14.6	14.8	9.9	10.1	5,809	30,250
66 Mauritius	0.974	2	0.782	0.803	78.4	71.5	15.5	14.4	9.3[h]	9.5[h]	14,261	31,385
67 Panama	1.005	1	0.794	0.790	81.6	75.2	13.3	12.1	10.4[h]	9.9[h]	16,106	24,788
68 Costa Rica	0.977	1	0.782	0.800	82.7	77.5	15.8	14.9	8.8	8.5	10,566	19,015
69 Albania	0.971	2	0.779	0.802	80.2	76.8	15.8	14.8	9.9[j]	10.2[j]	9,781	14,725
70 Georgia	0.979	1	0.775	0.791	78.0	69.2	15.7	15.2	12.8	12.8	6,505	12,929
71 Sri Lanka	0.938	3	0.749	0.799	80.1	73.4	14.2	13.7	10.5[g]	11.6[g]	6,766	16,852
72 Cuba	0.948	3	0.753	0.794	80.7	76.8	14.8	13.9	11.8[g]	11.7[g]	5,035	10,625
73 Saint Kitts and Nevis	..	..	..	..	..	..	13.8[g]	13.5[g]	..	..	..	..
74 Antigua and Barbuda	..	..	..	..	78.0	75.7	13.1[g]	11.8[g]	..	..	..	..
75 Bosnia and Herzegovina	0.924	4	0.735	0.796	79.7	74.8	13.9[k]	13.5[k]	8.6	10.9	8,432	17,123
76 Mexico	0.957	2	0.747	0.781	77.8	72.1	14.6	14.0	8.4	8.8	11,254	24,286
77 Thailand	0.995	1	0.763	0.766	80.7	73.2	14.8[g]	14.5[g]	7.5	8.0	14,319	18,033
78 Grenada	..	..	..	..	74.9	70.1	17.0	16.2	..	..	..	..
79 Brazil	0.995	1	0.757	0.761	79.4	72.0	15.8	15.0	8.1[g]	7.6[g]	10,432	17,827
79 Colombia	0.986	1	0.755	0.765	79.9	74.3	14.9	14.3	8.5	8.2	10,236	15,656
81 Armenia	0.972	2	0.746	0.767	78.4	71.2	13.6[g]	12.8[g]	11.8	11.8	6,342	12,581
82 Algeria	0.865	5	0.685	0.792	77.9	75.5	14.9[g]	14.5[g]	7.7[i]	8.3[i]	4,103	22,981
82 North Macedonia	0.947	3	0.737	0.778	77.7	73.7	13.6	13.3	9.2[i]	10.2[i]	9,464	16,279
82 Peru	0.951	2	0.738	0.776	79.3	73.8	14.1	13.7	8.7	9.7	8,839	15,854
85 China	0.961	2	0.741	0.771	79.1	74.5	14.1[g]	13.7[g]	7.5[j]	8.3[j]	12,665	19,410
85 Ecuador	0.980	1	0.748	0.763	79.6	74.1	15.7[g]	14.1[g]	8.9	9.1	7,319	12,960
87 Azerbaijan	0.940	3	0.728	0.774	75.3	70.3	12.4	12.5	10.2	10.8	9,849	20,656
88 Ukraine	0.995	1	0.745	0.749	76.7	67.0	15.2[g]	14.8[g]	11.3[j]	11.3[j]	6,064	10,232
89 Dominican Republic	1.003	1	0.744	0.742	77.2	70.8	14.8	13.5	8.3	7.6	11,176	18,974
89 Saint Lucia	0.975	2	0.734	0.753	77.4	74.7	14.2[g]	13.6[g]	8.8	8.2	9,085	14,046
91 Tunisia	0.899	5	0.689	0.767	78.5	74.5	15.8	14.4	6.4[g]	7.9[g]	4,737	16,722
92 Mongolia	1.031	2	0.746	0.724	74.0	65.6	14.8[g]	13.7[g]	10.5[g]	9.9[g]	9,666	11,931
93 Lebanon	0.891	5	0.678	0.762	80.8	77.1	11.4	11.6	8.5[l]	8.9[l]	4,667	17,530
94 Botswana	0.990	1	0.723	0.731	72.0	66.2	12.8[g]	12.6[g]	9.2[j]	9.5[j]	14,176	17,854
94 Saint Vincent and the Grenadines	..	..	..	..	75.0	70.2	13.7[g]	13.4[g]	..	..	8,615	14,780
96 Jamaica	0.986	1	0.719	0.729	76.0	72.8	13.9[g]	12.4[g]	10.0[g]	9.5[g]	6,326	9,559
96 Venezuela (Bolivarian Republic of)	1.013	1	0.728	0.719	76.1	68.4	13.8[g]	11.8[g]	10.7	10.0	6,655	11,546
98 Dominica	..	..	..	..	..	..	..	..	..	..	..	..
98 Fiji	..	..	..	..	69.2	65.6	..	..	11.0[h]	10.7[h]	5,839	12,292
98 Paraguay	0.968	2	0.710	0.734	76.3	72.2	13.2[g]	12.2[g]	8.5	8.4	8,325	15,001
98 Suriname	0.972	2	0.710	0.731	74.9	68.4	13.4[g]	12.4[g]	9.0	9.2	7,953	15,868
102 Jordan	0.868	5	0.654	0.754	76.2	72.7	12.1[g]	11.6[g]	10.2[h]	10.7[h]	2,734	13,668
103 Belize	0.983	1	0.713	0.725	77.7	71.6	13.4	12.9	9.9[i]	9.7[i]	5,665	8,619
104 Maldives	0.939	3	0.689	0.734	80.5	77.2	12.2[m]	12.0[m]	6.7[m]	6.9[m]	7,454	15,576
105 Tonga	0.944	3	0.692	0.733	72.8	68.9	14.4[g]	13.9[g]	11.3[h]	11.2[h]	3,817	7,747
106 Philippines	1.004	1	0.712	0.710	75.4	67.1	13.0[g]	12.4[g]	9.6[g]	9.2[g]	7,541	11,518
107 Moldova (Republic of)	1.007	1	0.714	0.709	76.1	67.5	11.8	11.4	11.6	11.5	5,886	7,861
108 Turkmenistan	..	..	..	..	71.6	64.6	10.5[g]	11.1[g]	..	..	11,746	21,213
108 Uzbekistan	0.939	3	0.685	0.730	73.7	69.4	11.8	12.2	11.3	11.8	4,656	8,277
110 Libya	0.931	3	0.670	0.720	75.8	69.9	13.0[l]	12.6[l]	8.0[j]	7.2[j]	4,867	18,363
111 Indonesia	0.937	3	0.681	0.727	73.7	69.4	12.9	12.9	7.6	8.4	7,672	14,789
111 Samoa	..	..	..	..	75.3	71.2	12.9[g]	12.1[g]	..	..	3,955	7,685
113 South Africa	0.984	1	0.698	0.710	67.4	60.5	14.0	13.3	10.0	10.5	9,035	14,554
114 Bolivia (Plurinational State of)	0.936	3	0.678	0.724	74.2	68.4	14.0[n]	14.0[n]	8.3	9.8	4,902	8,780
115 Gabon	0.917	4	0.669	0.729	68.3	64.2	12.5[l]	13.3[l]	7.5[m]	9.2[m]	11,238	20,183
116 Egypt	0.878	5	0.643	0.732	74.2	69.6	13.1	13.1	6.7[h]	8.0[h]	4,364	16,989
MEDIUM HUMAN DEVELOPMENT												
117 Marshall Islands	..	..	..	..	..	..	..	..	10.9[g]	11.2[g]	..	..
118 Viet Nam	1.003	1	0.693	0.692	79.4	71.2	12.9[i]	12.5[i]	7.9[h]	8.5[h]	5,739	6,703
119 Palestine, State of	0.871	5	0.624	0.716	75.6	72.3	13.7	12.0	8.9	9.3	1,824	8,705
120 Iraq	0.789	5	0.587	0.744	72.5	68.4	10.2[m]	12.1[m]	6.0[g]	8.6[g]	3,712	26,745
121 Morocco	0.833	5	0.603	0.724	77.7	75.2	12.6[g]	13.6[g]	4.6[h]	6.4[h]	3,012	12,019

TABLE 4 GENDER DEVELOPMENT INDEX

	Gender Development Index		Human Development Index (HDI)		SDG 3 Life expectancy at birth		SDG 4.3 Expected years of schooling		SDG 4.6 Mean years of schooling		SDG 8.5 Estimated gross national income per capita[a]	
			Value		(years)		(years)		(years)		(2011 PPP $)	
	Value	Group[b]	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
HDI rank	2018	2018	2018	2018	2018	2018	2018[c]	2018[c]	2018[c]	2018[c]	2018	2018
122 Kyrgyzstan	0.959	2	0.656	0.684	75.5	67.3	13.6	13.2	11.0[i]	10.8[i]	2,192	4,465
123 Guyana	0.973	2	0.656	0.674	73.0	66.8	11.9[g]	11.1[g]	8.9[i]	8.0[i]	4,676	10,533
124 El Salvador	0.969	2	0.654	0.675	77.6	68.2	11.9	12.2	6.6	7.3	5,234	8,944
125 Tajikistan	0.799	5	0.561	0.703	73.2	68.7	10.9[g]	12.3[g]	10.1[m]	11.2[m]	1,044	5,881
126 Cabo Verde	0.984	1	0.644	0.655	76.0	69.3	12.1	11.6	6.0	6.5	5,523	7,497
126 Guatemala	0.943	3	0.628	0.666	76.9	71.1	10.5	10.8	6.4	6.5	4,864	9,970
126 Nicaragua	1.013	1	0.655	0.646	77.8	70.7	12.5[n]	11.9[n]	7.1[h]	6.5[h]	4,277	5,318
129 India	0.829	5	0.574	0.692	70.7	68.2	12.9	11.9	4.7[g]	8.2[g]	2,625	10,712
130 Namibia	1.009	1	0.647	0.641	66.2	60.4	12.7[m]	12.5[m]	7.3[h]	6.6[h]	8,917	10,497
131 Timor-Leste	0.899	5	0.589	0.655	71.4	67.3	12.0[g]	12.8[g]	3.6[m]	5.3[m]	5,389	9,618
132 Honduras	0.970	2	0.611	0.630	77.4	72.8	10.6	9.8	6.6	6.6	3,214	5,305
132 Kiribati	..	..	..	..	72.1	64.0	12.2[g]	11.4[g]	..	..	..	..
134 Bhutan	0.893	5	0.581	0.650	71.8	71.1	12.2[g]	12.0[g]	2.1[g]	4.2[g]	6,388	10,579
135 Bangladesh	0.895	5	0.575	0.642	74.3	70.6	11.6	10.8	5.3	6.8	2,373	5,701
135 Micronesia (Federated States of)	..	..	..	..	69.5	66.1	..	..	..	..	..	..
137 Sao Tome and Principe	0.900	5	0.571	0.635	72.6	67.8	12.8[g]	12.6[g]	5.7[g]	7.2[g]	1,885	4,162
138 Congo	0.931	3	0.591	0.635	65.7	62.8	11.5[l]	11.9[l]	6.1[j]	7.5[j]	4,989	6,621
138 Eswatini (Kingdom of)	0.962	2	0.595	0.618	64.0	55.3	10.9[g]	11.7[g]	6.3[i]	7.2[i]	7,030	11,798
140 Lao People's Democratic Republic	0.929	3	0.581	0.625	69.4	65.8	10.8	11.3	4.8[h]	5.6[h]	5,027	7,595
141 Vanuatu	..	..	..	..	72.0	68.8	10.9[g]	11.7[g]	..	..	2,185	3,413
142 Ghana	0.912	4	0.567	0.622	64.9	62.7	11.4	11.7	6.4[h]	7.9[h]	3,287	4,889
143 Zambia	0.949	3	0.575	0.606	66.4	60.5	11.6[m]	12.5[m]	6.7[m]	7.5[m]	3,011	4,164
144 Equatorial Guinea	..	..	..	..	59.6	57.4	..	..	3.9[k]	7.2[k]	12,781	21,809
145 Myanmar	0.953	2	0.566	0.594	69.9	63.8	10.5	10.1	5.0[m]	4.9[m]	3,613	8,076
146 Cambodia	0.919	4	0.557	0.606	71.6	67.3	10.9[g]	11.8[g]	4.1[h]	5.7[h]	3,129	4,089
147 Kenya	0.933	3	0.553	0.593	68.7	64.0	10.3[g]	10.9[g]	6.0[h]	7.2[h]	2,619	3,490
147 Nepal	0.897	5	0.549	0.612	71.9	69.0	12.7	11.7	3.6[h]	6.4[h]	2,113	3,510
149 Angola	0.902	4	0.546	0.605	63.7	58.1	11.0[m]	12.7[m]	4.0[m]	6.4[m]	4,720	6,407
150 Cameroon	0.869	5	0.522	0.601	60.2	57.7	11.9	13.6	4.8[i]	7.8[i]	2,724	3,858
150 Zimbabwe	0.925	4	0.540	0.584	62.6	59.5	10.3	10.6	7.6[g]	9.0[g]	2,280	3,080
152 Pakistan	0.747	5	0.464	0.622	68.1	66.2	7.8	9.3	3.8	6.5	1,570	8,605
153 Solomon Islands	..	..	..	..	74.7	71.2	9.7[g]	10.7[g]	..	..	1,569	2,469
LOW HUMAN DEVELOPMENT												
154 Syrian Arab Republic	0.795	5	0.457	0.575	77.8	66.6	8.7[g]	8.8[g]	4.6[o]	5.6[o]	656	4,779
155 Papua New Guinea	..	..	..	..	65.6	63.0	..	..	3.9[h]	5.4[h]	3,248	4,106
156 Comoros	0.888	5	0.504	0.568	65.9	62.4	11.1[g]	11.4[g]	3.9[m]	5.9[m]	1,812	3,030
157 Rwanda	0.943	3	0.520	0.551	70.8	66.5	11.2	11.2	3.9[g]	4.9[g]	1,708	2,218
158 Nigeria	0.868	5	0.492	0.567	55.2	53.5	8.6[i]	10.1[i]	5.3[m]	7.6[m]	4,313	5,838
159 Tanzania (United Republic of)	0.936	3	0.509	0.544	66.8	63.2	7.7	8.1	5.6[h]	6.4[h]	2,436	3,175
159 Uganda	0.863	5	0.484	0.561	65.2	60.7	10.4[g]	11.5[g]	4.8[m]	7.4[m]	1,272	2,247
161 Mauritania	0.853	5	0.479	0.562	66.3	63.1	8.5	8.5	3.7[h]	5.5[h]	2,018	5,462
162 Madagascar	0.946	3	0.504	0.533	68.3	65.1	10.3	10.4	6.4[l]	5.8[l]	1,119	1,690
163 Benin	0.883	5	0.486	0.550	63.0	59.9	11.4	13.8	3.0[j]	4.4[j]	1,863	2,407
164 Lesotho	1.026	2	0.522	0.509	57.0	50.6	11.1	10.3	7.0[h]	5.5[h]	2,641	3,864
165 Côte d'Ivoire	0.796	5	0.445	0.559	58.7	56.3	8.2	10.0	4.1[h]	6.3[h]	1,790	5,355
166 Senegal	0.873	5	0.476	0.545	69.6	65.5	9.4	8.6	1.8[g]	4.4[g]	2,173	4,396
167 Togo	0.818	5	0.459	0.561	61.6	59.9	11.4	13.7	3.3[m]	6.6[m]	1,200	1,989
168 Sudan	0.837	5	0.457	0.546	66.9	63.3	7.7	8.3	3.2[h]	4.2[h]	1,759	6,168
169 Haiti	0.890	5	0.477	0.536	65.8	61.5	9.6[l]	10.4[l]	4.3[m]	6.6[m]	1,388	1,949
170 Afghanistan	0.723	5	0.411	0.568	66.0	63.0	7.9	12.5	1.9[h]	6.0[h]	1,102	2,355
171 Djibouti	..	..	..	..	68.8	64.6	6.0[g]	6.9[g]	..	..	2,900	4,232
172 Malawi	0.930	3	0.466	0.501	66.9	60.7	10.9[m]	11.0[m]	4.1[h]	5.1[h]	925	1,400
173 Ethiopia	0.844	5	0.428	0.507	68.2	64.4	8.3[g]	9.1[g]	1.6[m]	3.9[m]	1,333	2,231
174 Gambia	0.832	5	0.416	0.500	63.2	60.4	9.5[g]	9.4[g]	3.0[m]	4.3[m]	800	2,190
174 Guinea	0.806	5	0.413	0.513	61.7	60.5	7.7[g]	10.3[g]	1.5[m]	3.9[m]	1,878	2,569
176 Liberia	0.899	5	0.438	0.487	65.1	62.3	8.8[g]	10.1[g]	3.5[h]	5.9[h]	1,051	1,030
177 Yemen	0.458	5	0.245	0.535	67.8	64.4	7.4[g]	10.1[g]	1.9[j]	4.4[j]	168	2,679
178 Guinea-Bissau	..	..	..	..	59.9	56.0	..	..	..	..	1,305	1,895
179 Congo (Democratic Republic of the)	0.844	5	0.419	0.496	61.9	58.9	8.7[g]	10.6[g]	5.3	8.4	684	917
180 Mozambique	0.901	4	0.422	0.468	63.0	57.1	9.3	10.2	2.5[g]	4.6[g]	1,031	1,284
181 Sierra Leone	0.882	5	0.411	0.465	55.1	53.5	9.7[g]	10.6[g]	2.8[h]	4.4[h]	1,238	1,525

TABLE 4

HDI rank	Gender Development Index: Value 2018	Gender Development Index: Group[b] 2018	HDI: Female 2018	HDI: Male 2018	SDG 3 Life expectancy at birth (years): Female 2018	SDG 3 Life expectancy at birth (years): Male 2018	SDG 4.3 Expected years of schooling (years): Female 2018[c]	SDG 4.3 Expected years of schooling (years): Male 2018[c]	SDG 4.6 Mean years of schooling (years): Female 2018[c]	SDG 4.6 Mean years of schooling (years): Male 2018[c]	SDG 8.5 Estimated gross national income per capita[a] (2011 PPP $): Female 2018	SDG 8.5 Estimated gross national income per capita[a] (2011 PPP $): Male 2018
182 Burkina Faso	0.875	5	0.403	0.461	61.9	60.4	8.7	9.1	1.0[m]	2.1[m]	1,336	2,077
182 Eritrea	..	..	..	..	68.2	63.8	4.6	5.4	..	..	1,403	2,011
184 Mali	0.807	5	0.380	0.471	59.6	58.1	6.8	8.6	1.7[i]	3.0[i]	1,311	2,618
185 Burundi	1.003	1	0.422	0.420	63.0	59.4	10.9	11.7	2.7[m]	3.6[m]	763	555
186 South Sudan	0.839	5	0.369	0.440	59.1	56.1	3.5[g]	5.9[g]	4.0	5.3	1,277	1,633
187 Chad	0.774	5	0.347	0.449	55.4	52.6	6.0[g]	8.9[g]	1.3[m]	3.6[m]	1,377	2,056
188 Central African Republic	0.795	5	0.335	0.421	55.0	50.6	6.2[g]	8.9[g]	3.0[h]	5.6[h]	622	935
189 Niger	0.298	5	0.130	0.435	63.2	60.9	5.8	7.2	1.4[g]	2.7[g]	112	1,705
OTHER COUNTRIES OR TERRITORIES												
.. Korea (Democratic People's Rep. of)	..	..	..	..	75.5	68.4	10.4[g]	11.3[g]	..	..	..	..
.. Monaco	..	..	..	..	..	..	..	..	..	..	..	..
.. Nauru	..	..	..	..	..	..	11.8[g]	10.8[g]	..	..	..	..
.. San Marino	..	..	..	..	..	..	15.6	14.6	..	..	..	..
.. Somalia	..	..	..	..	58.8	55.4	..	..	..	..	..	..
.. Tuvalu	..	..	..	..	..	..	..	..	..	..	..	..
Human development groups												
Very high human development	0.979	—	0.880	0.898	82.4	76.7	16.7	16.1	12.0	12.1	30,171	50,297
High human development	0.960	—	0.732	0.763	77.8	72.7	14.0	13.6	8.0	8.6	10,460	18,271
Medium human development	0.845	—	0.571	0.676	70.9	67.8	11.9	11.5	5.0	7.8	2,787	9,528
Low human development	0.858	—	0.465	0.542	63.0	59.7	8.5	9.9	3.8	5.8	1,928	3,232
Developing countries	0.918	—	0.653	0.711	73.2	69.1	12.2	12.2	6.7	8.1	6,804	14,040
Regions												
Arab States	0.856	—	0.634	0.740	73.8	70.2	11.7	12.3	6.4	7.8	5,338	25,343
East Asia and the Pacific	0.962	—	0.725	0.754	77.8	72.9	13.5	13.3	7.5	8.3	11,385	17,728
Europe and Central Asia	0.953	—	0.757	0.794	77.5	70.8	14.4	14.7	9.9	10.5	10,588	20,674
Latin America and the Caribbean	0.978	—	0.747	0.764	78.6	72.3	14.9	14.1	8.6	8.5	9,836	18,004
South Asia	0.828	—	0.570	0.688	71.1	68.5	12.0	11.6	5.0	8.0	2,639	10,693
Sub-Saharan Africa	0.891	—	0.507	0.569	62.9	59.4	9.3	10.4	4.8	6.6	2,752	4,133
Least developed countries	0.869	—	0.489	0.562	66.9	63.2	9.3	10.2	3.9	5.7	1,807	3,462
Small island developing states	0.967	—	0.718	0.743	74.0	69.8	13.1	12.6	8.5	9.0	12,022	19,066
Organisation for Economic Co-operation and Development	0.976	—	0.882	0.903	83.0	77.7	16.6	16.0	11.9	12.1	31,016	50,530
World	**0.941**	**—**	**0.707**	**0.751**	**74.9**	**70.4**	**12.7**	**12.6**	**7.9**	**9.0**	**11,246**	**20,167**

NOTES

a Because disaggregated income data are not available, data are crudely estimated. See *Definitions* and *Technical note 3* at http://hdr.undp.org/sites/default/files/hdr2019_technical_notes.pdf for details on how the Gender Development Index is calculated.

b Countries are divided into five groups by absolute deviation from gender parity in HDI values.

c Data refer to 2018 or the most recent year available.

d In calculating the HDI value, expected years of schooling is capped at 18 years.

e In calculating the male HDI value, estimated gross national income per capita is capped at $75,000.

f Based on data from OECD (2018).

g Updated by HDRO based on data from UNESCO Institute for Statistics (2019).

h Based on Barro and Lee (2018).

i Updated by HDRO based on data from United Nations Children's Fund (UNICEF) Multiple Indicator Cluster Surveys for 2006–2018.

j Updated by HDRO using Barro and Lee (2018) estimates.

k Based on data from the national statistical office.

l Based on cross-country regression.

m Updated by HDRO based on data from ICF Macro Demographic and Health Surveys for 2006–2018.

n Updated by HDRO based on data from CEDLAS and World Bank (2018).

o Updated by HDRO based on Syrian Center for Policy Research (2017).

DEFINITIONS

Gender Development Index: Ratio of female to male HDI values. See *Technical note 3* at http://hdr.undp.org/sites/default/files/hdr2019_technical_notes.pdf for details on how the Gender Development Index is calculated.

Gender Development Index groups: Countries are divided into five groups by absolute deviation from gender parity in HDI values. Group 1 comprises countries with high equality in HDI achievements between women and men (absolute deviation of less than 2.5 percent), group 2 comprises countries with medium to high equality in HDI achievements between women and men (absolute deviation of 2.5–5 percent), group 3 comprises countries with medium equality in HDI achievements between women and men (absolute deviation of 5–7.5 percent), group 4 comprises countries with medium to low equality in HDI achievements between women and men (absolute deviation of 7.5–10 percent) and group 5 comprises countries with low equality in HDI achievements between women and men (absolute deviation from gender parity of more than 10 percent).

Human Development Index (HDI): A composite index measuring average achievement in three basic dimensions of human development—a long and healthy life, knowledge and a decent standard of living. See *Technical note 1* at http://hdr.undp.org/sites/default/files/hdr2019_technical_notes.pdf for details on how the HDI is calculated.

Life expectancy at birth: Number of years a newborn infant could expect to live if prevailing patterns of age-specific mortality rates at the time of birth stay the same throughout the infant's life.

Expected years of schooling: Number of years of schooling that a child of school entrance age can expect to receive if prevailing patterns of age-specific enrolment rates persist throughout the child's life.

Mean years of schooling: Average number of years of education received by people ages 25 and older, converted from educational attainment levels using official durations of each level.

Estimated gross national income per capita: Derived from the ratio of female to male wages, female and male shares of economically active population and gross national income (in 2011 purchasing power parity terms). See *Technical note 3* at http://hdr.undp.org/sites/default/files/hdr2019_technical_notes.pdf for details.

MAIN DATA SOURCES

Column 1: Calculated based on data in columns 3 and 4.

Column 2: Calculated based on data in column 1.

Columns 3 and 4: HDRO calculations based on data from UNDESA (2019b), UNESCO Institute for Statistics (2019), Barro and Lee (2018), World Bank (2019a), ILO (2019) and IMF (2019).

Columns 5 and 6: UNDESA (2019b).

Columns 7 and 8: UNESCO Institute for Statistics (2019), ICF Macro Demographic and Health Surveys, UNICEF Multiple Indicator Cluster Surveys and OECD (2018).

Columns 9 and 10: UNESCO Institute for Statistics (2019), Barro and Lee (2018), ICF Macro Demographic and Health Surveys, UNICEF Multiple Indicator Cluster Surveys and OECD (2018).

Columns 11 and 12: HDRO calculations based on ILO (2019), UNDESA (2019b), World Bank (2019a), United Nations Statistics Division (2019b) and IMF (2019).

TABLE 5

Gender Inequality Index

		Gender Inequality Index		SDG 3.1 Maternal mortality ratio	SDG 3.7 Adolescent birth rate	SDG 5.5 Share of seats in parliament	SDG 4.6 Population with at least some secondary education (% ages 25 and older)		Labour force participation rate[a] (% ages 15 and older)	
		Value	Rank	(deaths per 100,000 live births)	(births per 1,000 women ages 15–19)	(% held by women)	Female	Male	Female	Male
HDI rank		2018	2018	2015	2015–2020[b]	2018	2010–2018[c]	2010–2018[c]	2018	2018
VERY HIGH HUMAN DEVELOPMENT										
1	Norway	0.044	5	5	5.1	41.4	96.1	94.8	60.2	66.7
2	Switzerland	0.037	1	5	2.8	29.3	96.4	97.2	62.6	74.1
3	Ireland	0.093	22	8	7.5	24.3	90.2[d]	86.3[d]	55.1	68.1
4	Germany	0.084	19	6	8.1	31.5	96.0	96.6	55.3	66.2
4	Hong Kong, China (SAR)	..	..	..	2.7	..	76.6	82.9	54.1	67.8
6	Australia	0.103	25	6	11.7	32.7	90.0	90.7	59.7	70.5
6	Iceland	0.057	9	3	6.3	38.1	100.0[e]	100.0[e]	72.1	80.6
8	Sweden	0.040	2	4	5.1	46.1	88.8	89.0	61.1	67.6
9	Singapore	0.065	11	10	3.5	23.0	76.3	83.3	60.5	76.3
10	Netherlands	0.041	4	7	3.8	35.6	86.6	90.1	58.0	68.9
11	Denmark	0.040	2	6	4.1	37.4	89.2	89.4	58.1	65.9
12	Finland	0.050	7	3	5.8	42.0	100.0	100.0	55.0	62.2
13	Canada	0.083	18	7	8.4	31.7	100.0[e]	100.0[e]	60.9	69.7
14	New Zealand	0.133	34	11	19.3	38.3	97.2	96.6	64.6	75.7
15	United Kingdom	0.119	27	9	13.4	28.9	82.9	85.7	57.1	67.8
15	United States	0.182	42	14	19.9	23.6	95.7	95.5	56.1	68.2
17	Belgium	0.045	6	7	4.7	41.4	82.6	87.1	47.9	58.9
18	Liechtenstein	..	..	..	..	12.0	..	..	..	..
19	Japan	0.099	23	5	3.8	13.7	95.2[d]	92.2[d]	51.4	70.7
20	Austria	0.073	14	4	7.3	34.8	100.0	100.0	54.8	65.9
21	Luxembourg	0.078	16	10	4.7	20.0	100.0	100.0	53.5	62.7
22	Israel	0.100	24	5	9.6	27.5	87.8	90.5	59.2	69.1
22	Korea (Republic of)	0.058	10	11	1.4	17.0	89.8	95.6	52.8	73.3
24	Slovenia	0.069	12	9	3.8	20.0	97.0	98.3	53.4	62.7
25	Spain	0.074	15	5	7.7	38.6	73.3	78.4	51.7	63.4
26	Czechia	0.137	35	4	12.0	20.3	99.8	99.8	52.4	68.4
26	France	0.051	8	8	4.7	35.7	81.0	86.3	50.3	60.0
28	Malta	0.195	44	9	12.9	11.9	74.3	82.2	43.3	66.2
29	Italy	0.069	12	4	5.2	35.6	75.6	83.0	40.0	58.4
30	Estonia	0.091	21	9	7.7	26.7	100.0[e]	100.0[e]	57.0	70.9
31	Cyprus	0.086	20	7	4.6	17.9	78.2	82.6	57.3	67.2
32	Greece	0.122	31	3	7.2	18.7	61.5	73.2	45.3	60.7
32	Poland	0.120	30	3	10.5	25.5	82.9	88.1	48.9	65.5
34	Lithuania	0.124	33	10	10.9	21.3	92.9	97.5	56.4	66.7
35	United Arab Emirates	0.113	26	6	6.5	22.5	78.8[d]	65.7[d]	51.2	93.4
36	Andorra	..	..	..	..	32.1	71.5	73.3	..	..
36	Saudi Arabia	0.224	49	12	7.3	19.9	67.8	75.5	23.4	79.2
36	Slovakia	0.190	43	6	25.7	20.0	99.1	100.0	52.7	67.4
39	Latvia	0.169	40	18	16.2	31.0	100.0[e]	99.1[e]	55.4	68.0
40	Portugal	0.081	17	10	8.4	34.8	53.6	54.8	53.9	64.2
41	Qatar	0.202	45	13	9.9	9.8	73.5	66.1	57.8	94.7
42	Chile	0.288	62	22	41.1	22.7	79.0	80.9	51.0	74.2
43	Brunei Darussalam	0.234	51	23	10.3	9.1	69.5[d]	70.6[d]	58.2	71.7
43	Hungary	0.258	56	17	24.0	12.6	96.3	98.2	48.3	65.0
45	Bahrain	0.207	47	15	13.4	18.8	64.2[d]	57.5[d]	44.5	87.3
46	Croatia	0.122	31	8	8.7	18.5	94.5	96.9	45.7	58.2
47	Oman	0.304	65	17	13.1	8.8	73.4	63.7	31.0	88.7
48	Argentina	0.354	77	52	62.8	39.5	66.5[d]	63.3[d]	49.0	72.8
49	Russian Federation	0.255	54	25	20.7	16.1	96.3	95.7	54.9	70.5
50	Belarus	0.119	27	4	14.5	33.1	87.2	92.5	58.1	70.3
50	Kazakhstan	0.203	46	12	29.8	22.1	98.3[d]	98.9[d]	65.2	77.1
52	Bulgaria	0.218	48	11	39.9	23.8	94.2	96.2	49.5	61.6
52	Montenegro	0.119	27	7	9.3	23.5	88.0	97.5	43.6	58.1
52	Romania	0.316	69	31	36.2	18.7	87.2	93.1	45.6	64.2
55	Palau	..	..	..	..	13.8	96.9	97.3	..	..
56	Barbados	0.256	55	27	33.6	27.5	94.6[d]	91.9[d]	61.9	69.6
57	Kuwait	0.245	53	4	8.2	3.1	56.8	49.3	57.5	85.3
57	Uruguay	0.275	59	15	58.7	22.3	57.8	54.0	55.8	73.8
59	Turkey	0.305	66	16	26.6	17.4	44.3	66.0	33.5	72.6
60	Bahamas	0.353	76	80	30.0	21.8	88.0	91.0	67.6	82.0

	Gender Inequality Index		SDG 3.1 Maternal mortality ratio	SDG 3.7 Adolescent birth rate	SDG 5.5 Share of seats in parliament	SDG 4.6 Population with at least some secondary education (% ages 25 and older)		Labour force participation rate[a] (% ages 15 and older)	
	Value	Rank	(deaths per 100,000 live births)	(births per 1,000 women ages 15–19)	(% held by women)	Female	Male	Female	Male
HDI rank	2018	2018	2015	2015–2020[b]	2018	2010–2018[c]	2010–2018[c]	2018	2018
61 Malaysia	0.274	58	40	13.4	15.8	79.8[d]	81.8[d]	50.9	77.4
62 Seychelles	..	..	..	62.1	21.2	..	..	..	..
HIGH HUMAN DEVELOPMENT									
63 Serbia	0.161	37	17	14.7	34.4	85.7	93.6	46.8	62.1
63 Trinidad and Tobago	0.323	72	63	30.1	30.1	74.4[d]	71.2[d]	50.4	71.3
65 Iran (Islamic Republic of)	0.492	118	25	40.6	5.9	67.4	72.0	16.8	71.2
66 Mauritius	0.369	82	53	25.7	11.6	65.7[d]	68.1[d]	45.0	71.8
67 Panama	0.460	108	94	81.8	18.3	74.8[d]	68.4[d]	52.5	80.5
68 Costa Rica	0.285	61	25	53.5	45.6	53.8	52.3	45.7	74.6
69 Albania	0.234	51	29	19.6	27.9	93.5	92.8	47.2	64.9
70 Georgia	0.351	75	36	46.4	16.0	97.4	98.6	57.8	78.7
71 Sri Lanka	0.380	86	30	20.9	5.8	82.6[d]	83.1[d]	34.9	72.2
72 Cuba	0.312	67	39	51.6	53.2	86.7[d]	88.9[d]	40.0	67.4
73 Saint Kitts and Nevis	..	..	..	..	13.3	..	..	..	..
74 Antigua and Barbuda	..	..	..	42.8	31.4	..	..	..	..
75 Bosnia and Herzegovina	0.162	38	11	9.6	19.3	73.1	90.0	35.6	58.6
76 Mexico	0.334	74	38	60.4	48.4	58.4	61.1	43.8	78.9
77 Thailand	0.377	84	20	44.9	5.3	43.1	48.2	59.5	76.2
78 Grenada	..	..	27	29.2	39.3	..	..	..	..
79 Brazil	0.386	89	44	59.1	15.0	61.0	57.7	54.0	74.4
79 Colombia	0.411	94	64	66.7	19.0	53.1	50.9	58.6	82.0
81 Armenia	0.259	57	25	21.5	18.1	96.9	97.6	49.6	69.9
82 Algeria	0.443	100	140	10.1	21.3	39.1[d]	38.9[d]	14.9	67.4
82 North Macedonia	0.145	36	8	15.7	38.3	41.6[f]	57.6[f]	42.7	67.5
82 Peru	0.381	87	68	56.9	27.7	57.4	68.5	69.9	84.7
85 China	0.163	39	27	7.6	24.9	75.4[d]	83.0[d]	61.3	75.9
85 Ecuador	0.389	90	64	79.3	38.0	51.9	51.9	56.6	81.8
87 Azerbaijan	0.321	70	25	55.8	16.8	93.9	97.5	63.1	69.7
88 Ukraine	0.284	60	24	23.7	12.3	94.0[d]	95.2[d]	46.7	62.8
89 Dominican Republic	0.453	104	92	94.3	24.3	58.6	54.4	50.9	77.6
89 Saint Lucia	0.333	73	48	40.5	20.7	49.2	42.1	60.2	75.3
91 Tunisia	0.300	63	62	7.8	31.3	42.3[d]	54.6[d]	24.1	69.9
92 Mongolia	0.322	71	44	31.0	17.1	91.2	86.3	53.3	66.7
93 Lebanon	0.362	79	15	14.5	4.7	54.3[g]	55.6[g]	23.5	70.9
94 Botswana	0.464	111	129	46.1	9.5	89.6[d]	90.3[d]	66.2	78.6
94 Saint Vincent and the Grenadines	..	..	45	49.0	13.0	..	..	57.3	79.2
96 Jamaica	0.405	93	89	52.8	19.0	69.9	62.4	60.4	73.9
96 Venezuela (Bolivarian Republic of)	0.458	106	95	85.3	22.2	71.7	66.6	47.7	77.1
98 Dominica	..	..	..	..	25.0	..	..	..	..
98 Fiji	0.357	78	30	49.4	19.6	78.3[d]	70.2[d]	38.1	76.1
98 Paraguay	0.482	117	132	70.5	16.0	47.3	48.3	56.9	84.1
98 Suriname	0.465	112	155	61.7	25.5	61.5	60.1	39.2	64.2
102 Jordan	0.469	113	58	25.9	15.4	82.0[d]	85.9[d]	14.1	64.0
103 Belize	0.391	91	28	68.5	11.1	78.9	78.4	53.3	81.4
104 Maldives	0.367	81	68	7.8	5.9	44.9[d]	49.3[d]	41.9	82.0
105 Tonga	0.418	96	124	14.7	7.4	94.0[d]	93.4[d]	45.3	74.1
106 Philippines	0.425	98	114	54.2	29.1	75.6[d]	72.4[d]	45.7	74.1
107 Moldova (Republic of)	0.228	50	23	22.4	22.8	95.5	97.4	38.9	45.6
108 Turkmenistan	..	..	42	24.4	24.8	..	..	52.8	78.2
108 Uzbekistan	0.303	64	36	23.8	16.4	99.9	99.9	53.4	78.0
110 Libya	0.172	41	9	5.8	16.0	69.4[d]	45.0[d]	25.7	79.0
111 Indonesia	0.451	103	126	47.4	19.8	44.5	53.2	52.2	82.0
111 Samoa	0.364	80	51	23.9	10.0	79.1[h]	71.6[h]	23.7	38.6
113 South Africa	0.422	97	138	67.9	41.8[i]	75.0	78.2	48.9	62.6
114 Bolivia (Plurinational State of)	0.446	101	206	64.9	51.8	52.8	65.1	56.6	79.4
115 Gabon	0.534	128	291	96.2	17.4[j]	65.6[d]	49.8[d]	43.4	60.2
116 Egypt	0.450	102	33	53.8	14.9	59.2[d]	71.2[d]	22.8	73.2
MEDIUM HUMAN DEVELOPMENT									
117 Marshall Islands	..	..	..	..	9.1	91.6	92.5	..	..
118 Viet Nam	0.314	68	54	30.9	26.7	66.2[d]	77.7[d]	72.7	82.5
119 Palestine, State of	..	..	45	52.8	..	60.0	62.2	19.3	71.1

TABLE 5 GENDER INEQUALITY INDEX

	Gender Inequality Index		SDG 3.1 Maternal mortality ratio	SDG 3.7 Adolescent birth rate	SDG 5.5 Share of seats in parliament	SDG 4.6 Population with at least some secondary education (% ages 25 and older)		Labour force participation rate[a] (% ages 15 and older)	
	Value	Rank	(deaths per 100,000 live births)	(births per 1,000 women ages 15–19)	(% held by women)	Female	Male	Female	Male
HDI rank	2018	2018	2015	2015–2020[b]	2018	2010–2018[c]	2010–2018[c]	2018	2018
120 Iraq	0.540	131	50	71.7	25.2	39.5[d]	56.5[d]	12.4	72.6
121 Morocco	0.492	118	121	31.0	18.4	29.0[d]	35.6[d]	21.4	70.4
122 Kyrgyzstan	0.381	87	76	32.8	19.2	98.6[d]	98.3[d]	48.0	75.8
123 Guyana	0.492	118	229	74.4	31.9	70.9[d]	55.5[d]	41.2	73.6
124 El Salvador	0.397	92	54	69.5	31.0	39.9	46.3	46.1	78.9
125 Tajikistan	0.377	84	32	57.1	20.0	98.8[d]	87.0[d]	27.8	59.7
126 Cabo Verde	0.372	83	42	73.8	20.8[k]	28.7	31.2	65.1	73.2
126 Guatemala	0.492	118	88	70.9	12.7	38.4	37.2	41.1	85.0
126 Nicaragua	0.455	105	150	85.0	45.7	48.3[d]	46.6[d]	50.7	83.7
129 India	0.501	122	174	13.2	11.7	39.0[d]	63.5[d]	23.6	78.6
130 Namibia	0.460	108	265	63.6	39.7	40.5[d]	41.9[d]	56.2	65.9
131 Timor-Leste	..	..	215	33.8	33.8	..	..	25.0	52.6
132 Honduras	0.479	116	129	72.9	21.1	34.2	32.6	47.2	83.7
132 Kiribati	..	..	90	16.2	6.5	..	..	..	..
134 Bhutan	0.436	99	148	20.2	15.3	7.6	17.5	58.2	74.5
135 Bangladesh	0.536	129	176	83.0	20.3	45.3[d]	49.2[d]	36.0	81.3
135 Micronesia (Federated States of)	..	..	100	13.9	0.0[l]	..	..	..	..
137 Sao Tome and Principe	0.547	136	156	94.6	14.5	31.5	45.8	43.3	76.2
138 Congo	0.579	145	442	112.2	14.0	46.7[d]	51.3[d]	66.9	71.6
138 Eswatini (Kingdom of)	0.579	145	389	76.7	12.1	31.3[d]	33.9[d]	41.4	65.9
140 Lao People's Democratic Republic	0.463	110	197	65.4	27.5	35.0[d]	46.0[d]	76.8	79.7
141 Vanuatu	..	..	78	49.4	0.0[l]	..	..	61.5	79.6
142 Ghana	0.541	133	319	66.6	12.7	55.7[d]	71.1[d]	63.6	71.5
143 Zambia	0.540	131	224	120.1	18.0	39.2[d]	52.4[d]	70.8	79.8
144 Equatorial Guinea	..	..	342	155.6	18.0	..	..	55.2	67.1
145 Myanmar	0.458	106	178	28.5	10.2	28.7[d]	22.3[d]	47.7	77.3
146 Cambodia	0.474	114	161	50.2	19.3	15.1[d]	28.1[d]	75.2	87.6
147 Kenya	0.545	134	510	75.1	23.3	29.8[d]	37.3[d]	63.6	69.1
147 Nepal	0.476	115	258	65.1	33.5	29.0[d]	44.2[d]	81.7	84.4
149 Angola	0.578	144	477	150.5	30.5	23.1	38.1	75.4	80.1
150 Cameroon	0.566	140	596	105.8	29.3	32.7	40.9	71.2	81.4
150 Zimbabwe	0.525	126	443	86.1	34.3	55.9	66.3	78.6	89.0
152 Pakistan	0.547	136	178	38.8	20.0	26.7	47.3	23.9	81.5
153 Solomon Islands	..	..	114	78.0	2.0	..	..	62.4	80.3
LOW HUMAN DEVELOPMENT									
154 Syrian Arab Republic	0.547	136	68	38.6	13.2	37.1[d]	43.4[d]	12.0	70.3
155 Papua New Guinea	0.740	161	215	52.7	0.0[l]	9.9[d]	15.2[d]	46.0	47.6
156 Comoros	..	..	335	65.4	6.1	..	..	37.4	50.7
157 Rwanda	0.412	95	290	39.1	55.7	12.9[d]	17.9[d]	84.2	83.6
158 Nigeria	..	..	814	107.3	5.8	..	..	50.6	59.8
159 Tanzania (United Republic of)	0.539	130	398	118.4	37.2	11.9[d]	16.9[d]	79.4	87.2
159 Uganda	0.531	127	343	118.8	34.3	27.4[d]	34.7[d]	67.2	75.0
161 Mauritania	0.620	150	602	71.0	20.3	12.7[d]	24.9[d]	29.2	63.2
162 Madagascar	..	..	353	109.6	19.6	..	..	83.6	89.3
163 Benin	0.613	148	405	86.1	7.2	18.2[d]	33.6[d]	69.2	73.3
164 Lesotho	0.546	135	487	92.7	22.7	32.8[d]	25.1[d]	59.8	74.9
165 Côte d'Ivoire	0.657	157	645	117.6	9.2[m]	17.8[d]	34.1[d]	48.3	66.0
166 Senegal	0.523	125	315	72.7	41.8	11.1	21.4	35.2	58.6
167 Togo	0.566	140	368	89.1	17.6	27.6[d]	54.0[d]	76.1	79.3
168 Sudan	0.560	139	311	64.0	31.0	15.3[d]	19.6[d]	24.5	70.3
169 Haiti	0.620	150	359	51.7	2.7	26.9[d]	39.9[d]	63.3	72.8
170 Afghanistan	0.575	143	396	69.0	27.4[j]	13.2[d]	36.9[d]	48.7	82.1
171 Djibouti	..	..	229	18.8	26.2	..	..	54.8	71.1
172 Malawi	0.615	149	634	132.7	16.7	17.6[d]	25.9[d]	72.9	82.0
173 Ethiopia	0.508	123	353	66.7	37.3	11.5[n]	22.0[n]	74.2	86.5
174 Gambia	0.620	150	706	78.2	10.3	30.7[n]	43.6[n]	51.7	67.7
174 Guinea	..	..	679	135.3	21.9	..	..	64.1	65.1
176 Liberia	0.651	155	725	136.0	11.7	18.5[d]	39.6[d]	54.7	57.5
177 Yemen	0.834	162	385	60.4	0.5	19.9[d]	35.5[d]	6.0	70.8

HDI rank	Gender Inequality Index Value	Gender Inequality Index Rank	SDG 3.1 Maternal mortality ratio (deaths per 100,000 live births)	SDG 3.7 Adolescent birth rate (births per 1,000 women ages 15–19)	SDG 5.5 Share of seats in parliament (% held by women)	SDG 4.6 Population with at least some secondary education (% ages 25 and older) Female	Male	Labour force participation rate[a] (% ages 15 and older) Female	Male
	2018	2018	2015	2015–2020[b]	2018	2010–2018[c]	2010–2018[c]	2018	2018
178 Guinea-Bissau	..	..	549	104.8	13.7	..	..	67.3	78.9
179 Congo (Democratic Republic of the)	0.655	156	693	124.2	8.2	36.7	65.8	60.8	66.5
180 Mozambique	0.569	142	489	148.6	39.6	14.0	27.3	77.5	79.6
181 Sierra Leone	0.644	153	1,360	112.8	12.3	19.9[d]	32.9[d]	57.7	58.5
182 Burkina Faso	0.612	147	371	104.3	11.0	6.0[n]	12.1[n]	58.5	75.1
182 Eritrea	..	..	501	52.6	22.0	..	..	74.1	87.1
184 Mali	0.676	158	587	169.1	8.8	7.3[f]	16.4[f]	61.3	80.9
185 Burundi	0.520	124	712	55.6	38.8	7.5[d]	11.0[d]	80.4	77.6
186 South Sudan	..	..	789	62.0	26.6	..	..	71.8	74.3
187 Chad	0.701	160	856	161.1	15.3	1.7[n]	10.3[n]	64.8	77.9
188 Central African Republic	0.682	159	882	129.1	8.6	13.4[d]	31.1[d]	64.7	79.8
189 Niger	0.647	154	553	186.5	17.0	4.3[d]	8.9[d]	67.3	90.5
OTHER COUNTRIES OR TERRITORIES									
.. Korea (Democratic People's Rep. of)	..	..	82	0.3	16.3	..	..	74.3	87.3
.. Monaco	..	..	..	..	33.3	..	..	..	..
.. Nauru	..	..	..	..	10.5	..	..	..	..
.. San Marino	..	..	..	..	26.7	..	..	..	..
.. Somalia	..	..	732	100.1	24.3	..	..	19.1	74.3
.. Tuvalu	..	..	..	..	6.7	..	..	..	..
Human development groups									
Very high human development	0.175	—	15	16.7	27.2	87.0	88.7	52.1	69.0
High human development	0.331	—	56	33.6	24.4	68.9	74.5	53.9	75.6
Medium human development	0.501	—	198	34.3	20.8	39.5	58.7	32.3	78.9
Low human development	0.590	—	557	101.1	21.3	17.8	30.3	58.2	73.1
Developing countries	0.466	—	231	46.8	22.4	55.0	65.8	46.6	76.6
Regions									
Arab States	0.531	—	148	46.6	18.3	45.9	54.9	20.4	73.8
East Asia and the Pacific	0.310	—	62	22.0	20.3	68.8	76.2	59.7	77.0
Europe and Central Asia	0.276	—	25	27.8	21.2	78.1	85.8	45.2	70.1
Latin America and the Caribbean	0.383	—	68	63.2	31.0	59.7	59.3	51.8	77.2
South Asia	0.510	—	176	26.1	17.1	39.9	60.8	25.9	78.8
Sub-Saharan Africa	0.573	—	550	104.7	23.5	28.8	39.8	63.5	72.9
Least developed countries	0.561	—	434[T]	94.4	22.5	25.3	34.9	57.3	78.8
Small island developing states	0.453	—	192	57.5	24.6	59.0	61.5	51.0	70.2
Organisation for Economic Co-operation and Development	0.182	—	14	20.5	30.1	84.8	87.7	51.6	68.5
World	**0.439**	**—**	**216[T]**	**42.9**	24.1	62.8	71.2	**48.0**	**74.9**

NOTES

a Estimates modelled by the International Labour Organization.

b Data are average annual estimates for 2015–2020.

c Data refer to the most recent year available during the period specified.

d Based on Barro and Lee (2018).

e Based on data from OECD (2018).

f Updated by HDRO based on data from United Nations Children's Fund Multiple Indicator Cluster Surveys for 2006–2018.

g Based on cross-country regression.

h Based on data from the national statistical office.

i Excludes the 36 special rotating delegates appointed on an ad hoc basis.

j Refers to 2017.

k Refers to 2013.

l In calculating the Gender Inequality Index, a value of 0.1 percent was used.

m Refers to 2015.

n Updated by HDRO based on data from ICF Macro Demographic and Health Surveys for 2006–2018.

T From original data source.

DEFINITIONS

Gender Inequality Index: A composite measure reflecting inequality in achievement between women and men in three dimensions: reproductive health, empowerment and the labour market. See *Technical note 4* at http://hdr.undp.org/sites/default/files/hdr2019_technical_notes.pdf for details on how the Gender Inequality Index is calculated.

Maternal mortality ratio: Number of deaths due to pregnancy-related causes per 100,000 live births.

Adolescent birth rate: Number of births to women ages 15–19 per 1,000 women ages 15–19.

Share of seats in parliament: Proportion of seats held by women in the national parliament expressed as a percentage of total seats. For countries with a bicameral legislative system, the share of seats is calculated based on both houses.

Population with at least some secondary education: Percentage of the population ages 25 and older that has reached (but not necessarily completed) a secondary level of education.

Labour force participation rate: Proportion of the working-age population (ages 15 and older) that engages in the labour market, either by working or actively looking for work, expressed as a percentage of the working-age population.

MAIN DATA SOURCES

Column 1: HDRO calculations based on data in columns 3–9.

Column 2: Calculated based on data in column 1.

Column 3: UN Maternal Mortality Estimation Group (2017).

Column 4: UNDESA (2019b).

Column 5: IPU (2019).

Columns 6 and 7: UNESCO Institute for Statistics (2019) and Barro and Lee (2018).

Columns 8 and 9: ILO (2019).

TABLE 6 Multidimensional Poverty Index: developing countries

	Multidimensional Poverty Index[a]		SDG 1.2 Population in multidimensional poverty[a]						Population vulnerable to multidimensional poverty[a]	Contribution of deprivation in dimension to overall multidimensional poverty[a]			SDG 1.2 SDG 1.1 Population living below income poverty line (%)	
	Year and survey[b]		Headcount			Intensity of deprivation	Inequality among the poor	Population in severe multidimensional poverty		Health	Education	Standard of living	National poverty line	PPP $1.90 a day
			(%)	(thousands)										
	2007–2018	Value	(%)	In survey year	2017	(%)	Value	(%)	(%)	(%)	(%)	(%)	2007–2018[c]	2007–2017[c]
Afghanistan	2015/2016 D	0.272[d]	55.9[d]	19,376[d]	19,865[d]	48.6[d]	0.020[d]	24.9[d]	18.1[d]	10.0[d]	45.0[d]	45.0[d]	54.5	..
Albania	2017/2018 D	0.003	0.7	21	21	39.1	..[e]	0.1	5.0	28.3	55.1	16.7	14.3	1.1
Algeria	2012/2013 M	0.008	2.1	805	868	38.8	0.006	0.3	5.8	29.9	46.8	23.2	5.5	0.5
Angola	2015/2016 D	0.282	51.1	14,725	15,221	55.3	0.024	32.5	15.5	21.2	32.1	46.8	36.6	30.1
Armenia	2015/2016 D	0.001	0.2	5	5	36.2	..[e]	0.0	2.7	33.1	36.8	30.1	25.7	1.4
Bangladesh	2014 D	0.198	41.7	66,468	68,663	47.5	0.016	16.7	21.4	23.5	29.2	47.3	24.3	14.8
Barbados	2012 M	0.009[f]	2.5[f]	7[f]	7[f]	34.2[f]	..[e]	0.0[f]	0.5[f]	96.0[f]	0.7[f]	3.3[f]	..	..
Belize	2015/2016 M	0.017	4.3	16	16	39.8	0.007	0.6	8.4	39.5	20.9	39.6	..	..
Benin	2017/2018 D	0.368	66.8	7,672	7,465	55.0	0.025	40.9	14.7	20.8	36.3	42.9	40.1	49.5
Bhutan	2010 M	0.175[g]	37.3[g]	272[g]	302[g]	46.8[g]	0.016[g]	14.7[g]	17.7[g]	24.2[g]	36.6[g]	39.2[g]	8.2	1.5
Bolivia (Plurinational State of)	2008 D	0.094	20.4	1,958	2,254	46.0	0.014	7.1	15.7	21.6	26.6	51.8	36.4	5.8
Bosnia and Herzegovina	2011/2012 M	0.008[f]	2.2[f]	80[f]	77[f]	37.9[f]	0.002[f]	0.1[f]	4.1[f]	79.7[f]	7.2[f]	13.1[f]	16.9	0.1
Brazil	2015 N[h]	0.016[d,g,h]	3.8[d,g,h]	7,913[d,g,h]	8,041[d,g,h]	42.5[d,g,h]	0.008[d,g,h]	0.9[d,g,h]	6.2[d,g,h]	49.8[d,g,h]	22.9[d,g,h]	27.3[d,g,h]	26.5	4.8
Burkina Faso	2010 D	0.519	83.8	13,083	16,091	61.9	0.027	64.8	7.4	20.0	40.6	39.4	40.1	43.7
Burundi	2016/2017 D	0.403	74.3	8,067	8,067	54.3	0.022	45.3	16.3	23.3	27.5	49.2	64.9	71.8
Cambodia	2014 D	0.170	37.2	5,679	5,952	45.8	0.015	13.2	21.1	21.8	31.7	46.6	17.7	..
Cameroon	2014 M	0.243	45.3	10,081	10,903	53.5	0.026	25.6	17.3	23.2	28.2	48.6	37.5	23.8
Central African Republic	2010 M	0.465[g]	79.4[g]	3,530[g]	3,697[g]	58.6[g]	0.028[g]	54.7[g]	13.1[g]	27.8[g]	25.7[g]	46.5[g]	62.0	66.3
Chad	2014/2015 D	0.533	85.7	12,002	12,765	62.3	0.026	66.1	9.9	20.1	34.4	45.5	46.7	38.4
China	2014 N[i]	0.016[i,k]	3.9[i,k]	53,688[i,k]	54,437[i,k]	41.3[i,k]	0.005[i,k]	0.3[i,k]	17.1[i,k]	35.2[i,k]	39.2[i,k]	25.5[i,k]	3.1	0.7
Colombia	2015/2016 D	0.020[d]	4.8[d]	2,358[d]	2,378[d]	40.6[d]	0.009[d]	0.8[d]	6.2[d]	12.0[d]	39.5[d]	48.5[d]	27.0	3.9
Comoros	2012 D	0.181	37.3	270	303	48.5	0.020	16.1	22.3	20.8	31.6	47.6	42.4	17.9
Congo	2014/2015 M	0.112	24.3	1,212	1,277	46.0	0.013	9.4	21.3	23.4	20.2	56.4	46.5	37.0
Congo (Democratic Republic of the)	2013/2014 D	0.389	74.0	54,590	60,230	52.5	0.020	43.9	16.8	26.1	18.4	55.5	63.9	76.6
Côte d'Ivoire	2016 M	0.236	46.1	10,916	11,192	51.2	0.019	24.5	17.6	19.6	40.4	40.0	46.3	28.2
Dominican Republic	2014 M	0.015[d]	3.9[d]	404[d]	418[d]	38.9[d]	0.006[d]	0.5[d]	5.2[d]	29.1[d]	35.8[d]	35.0[d]	30.5	1.6
Ecuador	2013/2014 N	0.018[g]	4.5[g]	714[g]	746[g]	40.0[g]	0.007[g]	0.8[g]	7.5[g]	40.8[g]	23.4[g]	35.8[g]	23.2	3.2
Egypt	2014 D	0.019[l]	5.2[l]	4,742[l]	5,038[l]	37.6[l]	0.004[l]	0.6[l]	6.1[l]	39.8[l]	53.2[l]	7.0[l]	27.8	1.3
El Salvador	2014 M	0.032	7.9	494	501	41.3	0.009	1.7	9.9	15.5	43.4	41.1	29.2	1.9
Eswatini (Kingdom of)	2014 M	0.081	19.2	249	263	42.3	0.009	4.4	20.9	29.3	17.9	52.8	63.0	42.0
Ethiopia	2016 D	0.489	83.5	85,511	87,643	58.5	0.024	61.5	8.9	19.7	29.4	50.8	23.5	27.3
Gabon	2012 D	0.066	14.8	261	301	44.3	0.013	4.7	17.5	31.0	22.2	46.8	33.4	3.4
Gambia	2013 D	0.286	55.2	1,027	1,160	51.7	0.018	32.0	21.8	28.2	34.4	37.5	48.6	10.1
Ghana	2014 D	0.138	30.1	8,109	8,671	45.8	0.016	10.4	22.0	22.3	30.4	47.2	23.4	13.3
Guatemala	2014/2015 D	0.134	28.9	4,694	4,885	46.2	0.013	11.2	21.1	26.3	35.0	38.7	59.3	8.7
Guinea	2016 M	0.336	61.9	7,668	7,867	54.3	0.022	37.7	17.2	18.7	38.7	42.6	55.2	35.3
Guinea-Bissau	2014 M	0.372	67.3	1,161	1,253	55.3	0.025	40.4	19.2	21.3	33.9	44.7	69.3	67.1
Guyana	2014 M	0.014	3.4	26	26	41.8	0.008	0.7	5.8	31.5	18.7	49.8	..	..
Haiti	2016/2017 D	0.200	41.3	4,532	4,532	48.4	0.019	18.5	21.8	18.5	24.6	57.0	58.5	25.0
Honduras	2011/2012 D	0.090[m]	19.3[m]	1,642[m]	1,788[m]	46.4[m]	0.013[m]	6.5[m]	22.3[m]	18.5[m]	33.0[m]	48.5[m]	61.9	17.2
India	2015/2016 D	0.123	27.9	369,546	373,735	43.9	0.014	8.8	19.3	31.9	23.4	44.8	21.9	21.2
Indonesia	2012 D	0.028[d]	7.0[d]	17,452[d]	18,512[d]	40.3[d]	0.009[d]	1.2[d]	9.1[d]	23.2[d]	30.0[d]	46.8[d]	10.6	5.7
Iraq	2018 M	0.033	8.6	3,397	3,305	37.9	0.005	1.3	5.2	33.1	60.9	6.0	18.9	2.5
Jamaica	2014 N	0.018[f]	4.7[f]	134[f]	135[f]	38.7[f]	..[e]	0.8[f]	6.4[f]	42.1[f]	17.5[f]	40.4[f]	19.9	..
Jordan	2017/2018 D	0.002	0.4	43	42	35.4	..[e]	0.0	0.7	37.5	53.5	9.0	14.4	0.1
Kazakhstan	2015 M	0.002[g]	0.5[g]	80[g]	82[g]	35.6[g]	..[e]	0.0[g]	1.8[g]	90.4[g]	3.1[g]	6.4[g]	2.5	0.0
Kenya	2014 D	0.178	38.7	17,801	19,223	46.0	0.014	13.3	34.9	24.9	14.6	60.5	36.1	36.8
Kyrgyzstan	2014 M	0.008	2.3	132	138	36.3	0.002	0.0	8.3	52.8	13.0	34.3	25.6	1.5
Lao People's Democratic Republic	2017 M	0.108	23.1	1,582	1,582	47.0	0.016	9.6	21.2	21.5	39.7	38.8	23.4	22.7
Lesotho	2014 D	0.146	33.6	720	750	43.4	0.010	8.5	24.4	20.6	21.5	57.9	57.1	59.7
Liberia	2013 D	0.320	62.9	2,698	2,978	50.8	0.019	32.1	21.4	19.7	28.2	52.1	50.9	40.9
Libya	2014 P	0.007	2.0	124	127	37.1	0.003	0.1	11.3	39.0	48.6	12.4	..	..
Madagascar	2008/2009 D	0.453	77.8	15,995	19,885	58.2	0.023	57.1	11.8	17.5	31.8	50.7	70.7	77.6
Malawi	2015/2016 D	0.243	52.6	9,520	9,799	46.2	0.013	18.5	28.5	20.7	23.1	56.2	51.5	70.3
Maldives	2016/2017 D	0.003	0.8	3	3	34.4	..[e]	0.0	4.8	80.7	15.1	4.2	8.2	7.3
Mali	2015 M	0.457	78.1	13,640	14,479	58.5	0.024	56.6	10.9	22.0	41.6	36.3	41.1	49.7
Mauritania	2015 M	0.261	50.6	2,115	2,235	51.5	0.019	26.3	18.6	20.2	33.1	46.6	31.0	6.0
Mexico	2016 N[n]	0.025[f]	6.3[f]	8,039[f]	8,141[f]	39.2[f]	0.008[f]	1.0[f]	4.7[f]	67.0[f]	14.1[f]	18.8[f]	43.6	2.5
Moldova (Republic of)	2012 M	0.004	0.9	38	38	37.4	..[e]	0.1	3.7	9.2	42.4	48.4	9.6	0.1
Mongolia	2013 M	0.042	10.2	292	313	41.7	0.007	1.6	19.2	24.0	20.9	55.1	21.6	0.6
Montenegro	2013 M	0.002[g]	0.4[g]	2[g]	2[g]	45.7[g]	..[e]	0.1[g]	4.3[g]	24.4[g]	46.0[g]	29.7[g]	24.0	0.0
Morocco	2011 P	0.085[g]	18.6[g]	6,101[g]	6,636[g]	45.7[g]	0.017[g]	6.5[g]	13.2[g]	25.6[g]	42.1[g]	32.3[g]	4.8	1.0

TABLE 6

	Multidimensional Poverty Index[a]		SDG 1.2 Population in multidimensional poverty[a]						Population vulnerable to multidimensional poverty[a]	Contribution of deprivation in dimension to overall multidimensional poverty[a]			SDG 1.2 SDG 1.1 Population living below income poverty line (%)	
			Headcount			Intensity of deprivation	Inequality among the poor	Population in severe multidimensional poverty		Health	Education	Standard of living	National poverty line	PPP $1.90 a day
	Year and survey[b]		(%)	(thousands)		(%)	Value	(%)	(%)	(%)	(%)	(%)		
	2007–2018	Value		In survey year	2017								2007–2018[c]	2007–2017[c]
Mozambique	2011 D	0.411	72.5	18,069	21,496	56.7	0.023	49.1	13.6	17.2	32.5	50.3	46.1	62.4
Myanmar	2015/2016 D	0.176	38.3	20,263	20,449	45.9	0.015	13.8	21.9	18.5	32.3	49.2	32.1	6.2
Namibia	2013 D	0.171	38.0	880	963	45.1	0.012	12.2	20.3	30.3	14.9	54.9	17.4	13.4
Nepal	2016 D	0.148	34.0	9,851	9,961	43.6	0.012	11.6	22.3	31.5	27.2	41.3	25.2	15.0
Nicaragua	2011/2012 D	0.074	16.3	956	1,011	45.2	0.013	5.5	13.2	11.1	36.5	52.4	24.9	3.2
Niger	2012 D	0.590	90.5	16,042	19,431	65.2	0.026	74.8	5.1	20.3	37.3	42.4	44.5	44.5
Nigeria	2016/2017 M	0.291	51.4	98,175	98,175	56.6	0.029	32.3	16.8	27.0	32.2	40.8	46.0	53.5
North Macedonia	2011 M	0.010[f]	2.5[f]	52[f]	53[f]	37.7[f]	0.007[f]	0.2[f]	2.9[f]	62.5[f]	17.0[f]	20.5[f]	22.2	5.2
Pakistan	2017/2018 D	0.198	38.3	76,976	75,520	51.7	0.023	21.5	12.9	27.6	41.3	31.1	24.3	3.9
Palestine, State of	2014 M	0.004	1.0	43	47	37.5	0.003	0.1	5.4	53.3	32.8	13.9	29.2	1.0
Paraguay	2016 M	0.019	4.5	303	307	41.9	0.013	1.0	7.2	14.3	38.9	46.8	26.4	1.2
Peru	2012 D	0.053	12.7	3,818	4,072	41.6	0.009	2.9	12.5	20.3	23.7	56.0	21.7	3.4
Philippines	2017 D	0.024[d]	5.8[d]	6,081[d]	6,081[d]	41.8[d]	0.010[d]	1.3[d]	7.3[d]	20.3[d]	31.0[d]	48.7[d]	21.6	7.8
Rwanda	2014/2015 D	0.259	54.4	6,329	6,644	47.5	0.013	22.2	25.7	13.6	30.5	55.9	38.2	55.5
Saint Lucia	2012 M	0.007[f]	1.9[f]	3[f]	3[f]	37.5[f]	..[e]	0.0[f]	1.6[f]	69.5[f]	7.5[f]	23.0[f]	25.0	4.7
Sao Tome and Principe	2014 M	0.092	22.1	42	45	41.7	0.008	4.4	19.4	18.6	37.4	44.0	66.2	32.3
Senegal	2017 D	0.288	53.2	8,428	8,428	54.2	0.021	32.8	16.4	22.1	44.9	33.0	46.7	38.0
Serbia	2014 M	0.001[g]	0.3[g]	30[g]	30[g]	42.5[g]	..[e]	0.1[g]	3.4[g]	20.6[g]	42.7[g]	36.8[g]	25.7	0.1
Sierra Leone	2017 M	0.297	57.9	4,378	4,378	51.2	0.020	30.4	19.6	18.6	28.9	52.4	52.9	52.2
South Africa	2016 D	0.025	6.3	3,505	3,549	39.8	0.005	0.9	12.2	39.5	13.1	47.4	55.5	18.9
South Sudan	2010 M	0.580	91.9	9,248	11,552	63.2	0.023	74.3	6.3	14.0	39.6	46.5	82.3	42.7
Sudan	2014 M	0.279	52.3	19,748	21,210	53.4	0.023	30.9	17.7	21.1	29.2	49.8	46.5	14.9
Suriname	2010 M	0.041[f]	9.4[f]	49[f]	53[f]	43.4[f]	0.018[f]	2.5[f]	4.5[f]	45.7[f]	25.5[f]	28.8[f]	..	..
Syrian Arab Republic	2009 P	0.029[g]	7.4[g]	1,539[g]	1,350[g]	38.9[g]	0.006[g]	1.2[g]	7.7[g]	40.7[g]	49.0[g]	10.2[g]	35.2	..
Tajikistan	2017 D	0.029	7.4	664	664	39.0	0.004	0.7	20.1	47.8	26.5	25.8	31.3	4.8
Tanzania (United Republic of)	2015/2016 D	0.273	55.4	30,814	31,778	49.3	0.016	25.9	24.2	21.1	22.9	56.0	28.2	49.1
Thailand	2015/2016 M	0.003[g]	0.8[g]	541[g]	542[g]	39.1[g]	0.007[g]	0.1[g]	7.2[g]	35.0[g]	47.4[g]	17.6[g]	8.6	0.0
Timor-Leste	2016 D	0.210	45.8	581	594	45.7	0.014	16.3	26.1	27.8	24.2	48.0	41.8	30.7
Togo	2013/2014 D	0.249	48.2	3,481	3,755	51.6	0.023	24.3	21.8	21.7	28.4	50.0	55.1	49.2
Trinidad and Tobago	2011 M	0.002[g]	0.6[g]	8[g]	9[g]	38.0[g]	..[e]	0.1[g]	3.7[g]	45.5[g]	34.0[g]	20.5[g]	..	..
Tunisia	2011/2012 M	0.005	1.3	144	153	39.7	0.006	0.2	3.7	25.7	50.2	24.1	15.2	0.3
Turkmenistan	2015/2016 M	0.001	0.4	23	23	36.1	..[e]	0.0	2.4	88.0	4.4	7.6	..	..
Uganda	2016 D	0.269	55.1	22,857	23,614	48.8	0.017	24.1	24.9	22.4	22.5	55.1	21.4	41.7
Ukraine	2012 M	0.001[d]	0.2[d]	109[d]	106[d]	34.5[d]	..[e]	0.0[d]	0.4[d]	59.7[d]	28.8[d]	11.5[d]	2.4	0.1
Vanuatu	2007 M	0.174[g]	38.8[g]	85[g]	107[g]	44.9[g]	0.012[g]	10.2[g]	32.3[g]	21.4[g]	22.5[g]	56.2[g]	12.7	13.1
Viet Nam	2013/2014 M	0.019[d]	4.9[d]	4,530[d]	4,677[d]	39.5[d]	0.010[d]	0.7[d]	5.6[d]	15.2[d]	42.6[d]	42.2[d]	9.8	2.0
Yemen	2013 D	0.241	47.7	12,199	13,475	50.5	0.021	23.9	22.1	28.3	30.7	41.0	48.6	18.8
Zambia	2013/2014 D	0.261	53.2	8,317	9,102	49.1	0.017	24.2	22.5	23.7	22.5	53.7	54.4	57.5
Zimbabwe	2015 D	0.137	31.8	5,018	5,257	42.9	0.009	8.0	27.4	27.3	12.3	60.4	72.3	21.4
Developing countries	—	0.114	23.1	1,279,663	1,325,994	49.4	0.018	10.5	15.3	25.8	29.5	44.7	21.3	14.2
Regions														
Arab States	—	0.076	15.7	48,885	52,251	48.4	0.018	6.9	9.4	26.2	35.3	38.6	25.2	4.6
East Asia and the Pacific	—	0.024	5.6	110,775	113,247	42.3	0.009	1.0	14.9	27.4	35.6	37.0	6.6	2.1
Europe and Central Asia	—	0.004	1.1	1,237	1,240	37.9	0.004	0.1	3.6	52.8	23.3	23.9	11.9	0.6
Latin America and the Caribbean	—	0.033	7.5	38,067	39,324	43.1	0.011	2.0	7.7	35.4	25.7	38.9	31.5	4.1
South Asia	—	0.142	31.0	542,492	548,048	45.6	0.016	11.3	18.8	29.2	27.9	42.9	22.9	17.5
Sub-Saharan Africa	—	0.315	57.5	538,206	571,884	54.9	0.022	35.1	17.2	22.2	29.6	48.1	43.7	44.7

NOTES

a Not all indicators were available for all countries, so caution should be used in cross-country comparisons. When an indicator is missing, weights of available indicators are adjusted to total 100 percent. See *Technical note 5* at http://hdr.undp.org/sites/default/files/hdr2019_technical_notes.pdf for details.

b *D* indicates data from Demographic and Health Surveys, *M* indicates data from Multiple Indicator Cluster Surveys, *N* indicates data from national surveys and *P* indicates data from Pan Arab Population and Family Health Surveys (see http://hdr.undp.org/en/faq-page/multidimensional-poverty-index-mpi for the list of national surveys).

c Data refer to the most recent year available during the period specified.

d Missing indicator on nutrition.

e Value is not reported because it is based on a small number of multidimensionally poor people.

f Missing indicator on child mortality.

g Considers child deaths that occurred at any time because the survey did not collect the date of child deaths.

h The methodology was adjusted to account for missing indicator on nutrition and incomplete indicator on child mortality (the survey did not collect the date of child deaths).

i Based on data accessed on 7 June 2016.

j Missing indicator on housing.

k Child mortality was constructed based on deaths that occurred between surveys—that is, between 2012 and 2014. Child deaths reported by an adult man in the household were taken into account because the date of death was reported.

l Missing indicator on cooking fuel.

m Missing indicator on electricity.

n Multidimensional Poverty Index estimates are based on the 2016 National Health and Nutrition Survey. Estimates based on the 2015 Multiple Indicator Cluster Survey are 0.010 for Multidimensional Poverty Index value, 2.6 for multidimensional poverty headcount (%), 3,125,000 for multidimensional poverty headcount in year of survey, 3,200,000 for projected multidimensional poverty headcount in 2017, 40.2 for intensity of deprivation, 0.4 for population in severe multidimensional poverty, 6.1 for population vulnerable to multidimensional poverty, 39.9 for contribution of deprivation in health, 23.8 for contribution of deprivation in education and 36.3 for contribution of deprivation in standard of living.

DEFINITIONS

Multidimensional Poverty Index: Percentage of the population that is multidimensionally poor adjusted by the intensity of the deprivations. See *Technical note 5* at http://hdr.undp.org/sites/default/files/hdr2019_technical_notes.pdf for details on how the Multidimensional Poverty Index is calculated.

Multidimensional poverty headcount: Population with a deprivation score of at least 33 percent. It is expressed as a share of the population in the survey year, the number of people in the survey year and the projected number of people in 2017.

Intensity of deprivation of multidimensional poverty: Average deprivation score experienced by people in multidimensional poverty.

Inequality among the poor: Variance of individual deprivation scores of poor people. It is calculated by subtracting the deprivation score of each multidimensionally poor person from the average intensity, squaring the differences and dividing the sum of the weighted squares by the number of multidimensionally poor people.

Population in severe multidimensional poverty: Percentage of the population in severe multidimensional poverty—that is, those with a deprivation score of 50 percent or more.

Population vulnerable to multidimensional poverty: Percentage of the population at risk of suffering multiple deprivations—that is, those with a deprivation score of 20–33 percent.

Contribution of deprivation in dimension to overall multidimensional poverty: Percentage of the Multidimensional Poverty Index attributed to deprivations in each dimension.

Population living below national poverty line: Percentage of the population living below the national poverty line, which is the poverty line deemed appropriate for a country by its authorities. National estimates are based on population-weighted subgroup estimates from household surveys.

Population living below PPP $1.90 a day: Percentage of the population living below the international poverty line of $1.90 (in purchasing power parity [PPP] terms) a day.

MAIN DATA SOURCES

Column 1: Refers to the year and the survey whose data were used to calculate the country's Multidimensional Poverty Index value and its components.

Columns 2–12: HDRO and OPHI calculations based on data on household deprivations in health, education and standard of living from various household surveys listed in column 1 using the methodology described in *Technical note 5* (available at http://hdr.undp.org/sites/default/files/hdr2019_technical_notes.pdf) and Alkire, Kanagaratnam and Suppa (2019). Columns 4 and 5 also use population data from UNDESA (2017b).

Columns 13 and 14: World Bank (2019a).

Human development dashboards

Quality of human development

Country groupings (terciles)

Top third | Middle third | Bottom third

Three-colour coding is used to visualize partial grouping of countries by indicator. For each indicator countries are divided into three groups of approximately equal size (terciles): the top third, the middle third and the bottom third. Aggregates are colour coded using the same tercile cutoffs. See *Notes* after the table.

		Quality of health			SDG 4.c	SDG 4.a	Quality of education		SDG 4.1			SDG 7.1	SDG 6.1	SDG 6.2
							Schools with access to the Internet		Programme for International Student Assessment (PISA) score			Quality of standard of living		
		Lost health expectancy	Physicians	Hospital beds	Pupil–teacher ratio, primary school	Primary school teachers trained to teach	Primary	Secondary	Mathematics[b]	Reading[c]	Science[c]	Vulnerable employment[a]	Rural population with access to electricity	Population using at least basic drinking-water sources	Population using at least basic sanitation facilities
		(%)	(per 10,000 people)		(pupils per teacher)	(%)	(%)					(% of total employment)	(%)		
HDI rank		2017	2010–2018[d]	2010–2015[d]	2013–2018[d]	2010–2018[d]	2010–2018[d]	2010–2018[d]	2015	2015	2015	2018	2017	2017	2017
VERY HIGH HUMAN DEVELOPMENT															
1	Norway	14.7	46.3	39	9	..	100	100	502	513	498	4.8	100	100	98
2	Switzerland	14.3	42.4	47	10	..	100	100	521	492	506	9.0	100	100	100
3	Ireland	13.9	30.9	28	..	..	..	..	504	521	503	10.9	100	97	91
4	Germany	13.8	42.1	83	12	..	..	..	506	509	509	5.9	100	100	99
4	Hong Kong, China (SAR)	..	..	..	14	97	99	95	548	527	523	5.9	100	..	..
6	Australia	14.6	35.9	38	..	..	100	100	494	503	510	10.7	100	100	100
6	Iceland	13.8	39.7	32	10	..	..	..	488	482	473	8.0	100	100	99
8	Sweden	14.1	54.0	26	12	..	..	..	494	500	493	6.2	100	100	99
9	Singapore	12.5	23.1	24	15	99	..	..	564	535	556	9.8	100	100	100
10	Netherlands	13.9	35.1	47[e]	12	..	100	100	512	503	509	12.6	100	100	98
11	Denmark	13.9	44.6	25	11	..	100	100	511	500	502	5.1	100	100	100
12	Finland	14.3	38.1	44	13	..	100	100	511	526	531	9.2	100	100	99
13	Canada	14.0	26.1	27	..	..	..	..	516	527	528	10.7	100	99	99
14	New Zealand	15.3	30.3	28	15	..	..	..	495	509	513	12.4	100	100	100
15	United Kingdom	14.4	28.1	28	15	..	..	..	492	498	509	13.0	100	100	99
15	United States	15.3	25.9	29	14	..	100	100	470	497	496	3.8	100	99	100
17	Belgium	14.5	33.2	62	11	..	100	100	507	499	502	10.2	100	100	99
18	Liechtenstein	..	..	..	8	..	..	..	..	..	..	..	100	..	..
19	Japan	13.2	24.1	134	16	..	..	..	532	516	538	8.4	100	99	100
20	Austria	13.9	51.4	76	10	..	..	..	497	485	495	7.7	100	100	100
21	Luxembourg	14.7	30.3	48	8	..	..	..	486	481	483	6.3	100	100	98
22	Israel	14.0	32.2	31	12	..	85	85	470	479	467	8.3	100	100	100
22	Korea (Republic of)	13.2	23.7	115	16	..	100	100	524	517	516	23.5	100	100	100
24	Slovenia	15.3	30.0	46	14	..	100	100	510	505	513	10.6	100	100	99
25	Spain	13.2	40.7	30	13	..	100	100	486	496	493	11.3	100	100	100
26	Czechia	14.9	43.1	65	19	..	..	..	492	487	493	14.0	100	100	99
26	France	13.4	32.3	65	18	..	98	99	493	499	495	7.4	100	100	99
28	Malta	13.8	38.3	47	13	..	..	..	479	447	465	9.9	100	100	100
29	Italy	13.6	40.9	34	11	..	70	88	490	485	481	17.0	100	99	99
30	Estonia	14.2	34.7	50	11	..	100	100	520	519	534	5.5	100	100	99
31	Cyprus	13.5	19.5	34	12	..	..	..	437	443	433	11.1	100	100	99
32	Greece	13.7	45.9	43	9	..	..	..	454	467	455	26.7	100	100	99
32	Poland	14.4	24.0	65	11	..	100	100	504	506	501	16.3	100	100	99
34	Lithuania	14.3	43.4	73	13	..	..	..	478	472	475	9.5	100	98	93
35	United Arab Emirates	13.9	23.9	12	25	100	..	..	427	434	437	0.8	100	98	99
36	Andorra	13.9	33.3	25[e]	11	100	100	100	..	..	..	..	100	100	100
36	Saudi Arabia	13.7	23.9	27	12	100	100	100	..	..	..	2.9	100	100	100
36	Slovakia	14.3	24.6	58	15	..	100	100	475	453	461	12.0	100	100	98
39	Latvia	14.1	31.9	58	11	..	100	100	482	488	490	7.9	100	99	92
40	Portugal	13.9	33.4	34	13	..	100	100	492	498	501	12.3	100	100	100
41	Qatar	14.7	0.0	12	12	49[e]	100	100	402	402	418	0.1	100	100	100
42	Chile	13.8	10.8	22	18	..	..	..	423	459	447	24.1	100	100	100
43	Brunei Darussalam	12.1	17.7	27	10	85	..	..	..	..	..	6.0	100	100	96[f]
43	Hungary	14.3	32.3	70	11	..	100	99	477	470	477	5.7	100	100	98
45	Bahrain	14.7	9.3	20	12	84	100	100	..	..	..	1.1	100	100	100
46	Croatia	14.1	30.0	56	14	..	..	..	464	487	475	7.6	100	100	97
47	Oman	14.7	19.7	16	10	100	71	87	..	..	..	2.6	100	92	100
48	Argentina	12.8	39.6	50	..	..	38	56	456[g]	475[g]	475[g]	21.5	100	99[h]	94[h]
49	Russian Federation	13.7	40.1	82	21	..	..	..	494	495	487	5.3	100	97	90
50	Belarus	13.6	40.8	110	19	100	100	100	..	..	..	3.4	100	96	98
50	Kazakhstan	12.9	32.5	67	20	100	..	..	..	..	..	25.8	100	96	98

HDI rank		Quality of health			Quality of education							Quality of standard of living			
					SDG 4.c	SDG 4.a		SDG 4.1				SDG 7.1	SDG 6.1		SDG 6.2
		Lost health expectancy	Physicians	Hospital beds	Pupil–teacher ratio, primary school	Primary school teachers trained to teach	Schools with access to the Internet		Programme for International Student Assessment (PISA) score			Vulnerable employment[a]	Rural population with access to electricity	Population using at least basic drinking-water sources	Population using at least basic sanitation facilities
							Primary	Secondary	Mathematics[b]	Reading[c]	Science[c]				
		(%)	(per 10,000 people)		(pupils per teacher)	(%)	(%)					(% of total employment)	(%)		
		2017	2010–2018[d]	2010–2015[d]	2013–2018[d]	2010–2018[d]	2010–2018[d]	2010–2018[d]	2015	2015	2015	2018	2017	2017	2017
52	Bulgaria	13.4	39.9	68	18	..	..	..	441	432	446	8.3	100	99	86
52	Montenegro	13.7	23.3	40	..	..	..	..	418	427	411	13.3	100	97	98
52	Romania	14.0	22.6	63	19	..	..	..	444	434	435	25.2	100	100	84
55	Palau	..	11.8	48	..	..	..	..	..	..	..	..	100	100	100
56	Barbados	11.9	24.9	58	14	80	..	..	..	..	..	15.8	100	98	97
57	Kuwait	14.9	25.8	20	9	79	..	..	..	..	..	1.1	100	100	100
57	Uruguay	12.7	50.5	28	11	100	100	100	418	437	435	24.0	100	99	97
59	Turkey	13.9	17.6	27	18	..	..	..	420	428	425	28.0	100	99	97
60	Bahamas	11.7	19.4	29	19	90	..	..	..	..	..	9.9	100	99	95
61	Malaysia	11.6	15.1	19	12	99	100	100	..	..	..	21.8	100	97	100
62	Seychelles	11.7	9.5	36	14	84	86	97	..	..	..	..	100	96	100
HIGH HUMAN DEVELOPMENT															
63	Serbia	13.7	31.3	57	14	56	..	..	..	..	..	27.1	100	86	98
63	Trinidad and Tobago	12.4	26.7	30	..	88[e]	..	..	417	427	425	18.1	100	98	93
65	Iran (Islamic Republic of)	15.1	11.4	15	29	100	11	36	..	..	..	41.3	100	95	88
66	Mauritius	13.4	20.2	34	18	100	35	94	..	..	..	16.3	100	100	96
67	Panama	12.5	15.7	23	21	99	..	..	..	..	..	32.2	100	96	83
68	Costa Rica	12.2	11.5	12	12	94	22	51	400	427	420	20.1	99	100	98
69	Albania	13.7	12.0	29	18	..	..	..	413	405	427	54.9	100	91	98
70	Georgia	12.4	51.0	26	9	95[e]	100	100	404	401	411	49.2	100	98	90
71	Sri Lanka	12.3	9.6	36	23	85	..	..	..	..	..	38.9	97	89	96
72	Cuba	11.9	81.9	52	9	100	..	..	..	..	..	8.0	100	95	93
73	Saint Kitts and Nevis	..	25.2	23	14	72	100	100	..	..	..	..	100	99[i]	92[i]
74	Antigua and Barbuda	12.6	27.6	38	12	55	..	91	..	..	..	..	100	97	88
75	Bosnia and Herzegovina	14.3	20.0	35	17	..	..	..	..	..	..	19.3	100	96	95
76	Mexico	12.3	22.5	15	27	97	39	53	408	423	416	26.9	100	99	91
77	Thailand	12.3	8.1	21	16	100	99	97	415	409	421	47.3	100	100	99
78	Grenada	12.0	14.5	37	16	64	100	100	..	..	..	..	96	96	91
79	Brazil	13.4	21.5	22	20	..	32	69	377	407	401	27.6	100	98	88
79	Colombia	12.1	20.8	15	24	95	39	70	390	425	416	46.8	98	97	90
81	Armenia	13.0	29.0	42	..	..	..	..	..	..	..	40.2	100	100	94
82	Algeria	14.4	18.3	19	24	100	..	..	360	350	376	26.8	100	94	88
82	North Macedonia	13.7	28.7	44	14	..	..	..	371	352	384	19.1	100	93	99
82	Peru	12.5	12.7	16	17	95	41	74	387	398	397	50.9	84	91	74
85	China	11.7	17.9	42	17	..	93	98	531[j]	494[j]	518[j]	43.8	100	93	85
85	Ecuador	12.4	20.5	15	25	82	37	69	..	..	..	46.2	100	94	88
87	Azerbaijan	12.4	34.5	47	15	98	53	61	..	..	..	55.0	100	91	93
88	Ukraine	13.5	30.1	88	13	87	48	94	..	..	..	14.9	100	94	96
89	Dominican Republic	12.2	15.6	16	19	95	23	..	328	358	332	40.2	100	97	84
89	Saint Lucia	12.2	1.1[e]	13	15	89	99	100	..	..	..	29.3	99	98	88
91	Tunisia	14.0	12.7	23	16	100	58	..	367	361	386	20.6	100	96	91
92	Mongolia	12.5	28.9	70	30	100	71	83	..	..	..	48.9	56	83	58
93	Lebanon	15.0	22.7	29	12	..	..	..	396	347	386	27.6	100	93	98
94	Botswana	14.8	3.7	18	23	99	..	86	..	..	..	25.3	24	90	77
94	Saint Vincent and the Grenadines	12.2	6.6	26	14	84	100	100	..	..	..	17.9	100	95	87
96	Jamaica	12.1	13.2	17	22	96	84	73	..	..	..	35.7	99	91	87
96	Venezuela (Bolivarian Republic of)	12.1	..	8	..	..	..	..	..	..	..	32.9	100	96	94
98	Dominica	12.0	10.8	38	13	66	100	93	..	..	..	..	100	97[f]	78[f]
98	Fiji	13.2	8.4	23	20	90	..	..	..	..	..	43.3	91	94	95
98	Paraguay	13.3	13.7	13	..	92	5	22	..	..	..	38.5	99	100	90
98	Suriname	12.4	12.3	31	13	98	..	..	..	..	..	12.1	91	95	84
102	Jordan	14.6	23.4	14	21	100	67	91	380	408	409	8.6	100	99	97
103	Belize	12.5	11.3	13	20	73	..	..	..	..	..	27.1	98	98	88
104	Maldives	12.7	10.4	43[e]	10	90	100	100	..	..	..	19.3	100	99	99
105	Tonga	13.2	5.2	26	22	92	..	..	..	..	..	53.3	98	100	93
106	Philippines	12.5	12.8	10	29	100	..	..	..	..	..	33.8	90	94	77
107	Moldova (Republic of)	13.6	32.0	58	18	99	85	87	420	416	428	34.3	100	89	76
108	Turkmenistan	12.0	22.2	74	..	..	..	..	..	..	..	23.6	100	99	99

	Quality of health			Quality of education							Quality of standard of living			
				SDG 4.c	SDG 4.a			SDG 4.1			SDG 7.1	SDG 6.1		SDG 6.2
	Lost health expectancy	Physicians	Hospital beds	Pupil–teacher ratio, primary school	Primary school teachers trained to teach	Schools with access to the Internet		Programme for International Student Assessment (PISA) score			Vulnerable employment[a]	Rural population with access to electricity	Population using at least basic drinking-water sources	Population using at least basic sanitation facilities
						Primary	Secondary	Mathematics[b]	Reading[c]	Science[c]				
	(%)	(per 10,000 people)		(pupils per teacher)	(%)	(%)					(% of total employment)	(%)		
HDI rank	2017	2010–2018[d]	2010–2015[d]	2013–2018[d]	2010–2018[d]	2010–2018[d]	2010–2018[d]	2015	2015	2015	2018	2017	2017	2017
108 Uzbekistan	12.4	23.7	40	21	99	91	90	..	..	..	40.1	100	98	100
110 Libya	14.8	21.6	37	..	..	..	..	..	..	..	5.7	70	99	100
111 Indonesia	12.3	3.8	12	16	..	..	51	386	397	403	47.3	96	89	73
111 Samoa	13.2	3.4	..	..	..	14	23	..	..	..	31.0	96	97	98
113 South Africa	13.9	9.1	..	30	..	..	..	..	..	..	9.7	67	93	76
114 Bolivia (Plurinational State of)	12.5	16.1	11	19	58	..	..	..	..	..	58.1	75	93	61
115 Gabon	14.2	3.6	63	..	..	..	..	..	..	..	31.5	49	86	47
116 Egypt	13.9	7.9	16	24	74	48	49	..	..	..	21.3	100	99	94
MEDIUM HUMAN DEVELOPMENT														
117 Marshall Islands	12.6	4.6	27	..	..	26	..	..	..	..	..	92	88	83
118 Viet Nam	11.7	8.2	26	20	100	..	..	495	487	525	54.5	100	95	84
119 Palestine, State of	15.2	..	..	25	100	57	72	..	..	..	22.9	100	..	..
120 Iraq	16.0	8.2	14	..	..	..	..	..	..	..	25.9	100	97	94
121 Morocco	14.6	7.3	11	28	100	79	89	..	..	..	48.8	100	87	89
122 Kyrgyzstan	12.8	18.8	45	25	95	41	44	..	..	..	33.9	100	87	97
123 Guyana	12.7	8.0	16	..	70	..	..	..	..	..	56.8	89	96	86
124 El Salvador	12.2	15.7	13	28	95	36	40	..	..	..	36.1	100	97	87
125 Tajikistan	12.8	17.0	48	22	100	..	..	..	..	..	45.2	99	81	97
126 Cabo Verde	13.1	7.7	21	21	93	10	100	..	..	..	28.8	90	87	74
126 Guatemala	12.3	3.6	6	20	..	9	44	..	..	..	34.5	89	94	65
126 Nicaragua	12.7	10.1	9	..	75	..	..	..	..	..	39.4	68	82	74
129 India	13.9	7.8	7	35	70	..	..	..	..	..	76.7	89	93	60
130 Namibia	14.1	3.7[e]	27[e]	..	96	..	..	..	..	..	24.8	29	83	35
131 Timor-Leste	13.6	7.2	59	..	..	..	..	..	..	..	71.2	72	78	54
132 Honduras	12.3	3.1	7	26	..	16	..	..	..	..	40.5	72	95	81
132 Kiribati	13.5	2.0	19	25	73	..	..	..	..	..	..	100	72	48
134 Bhutan	13.4	3.7	17	35	100	46	..	..	..	..	71.3	97	97	69
135 Bangladesh	13.7	5.3	8	30	50	4	82	..	..	..	55.5	81	97	48
135 Micronesia (Federated States of)	13.4	1.9[e]	32[e]	20	..	..	..	..	..	..	..	77	79	88
137 Sao Tome and Principe	12.9	3.2	29	31	27	..	..	..	..	..	46.9	45	84	43
138 Congo	13.7	1.2	..	..	80	..	..	..	..	..	76.9	24	73	20
138 Eswatini (Kingdom of)	14.2	0.8	21	27	70	16	69	..	..	..	32.9	67	69	58
140 Lao People's Democratic Republic	12.0	5.0	15	22	97	..	..	..	..	..	80.0	91	82	74
141 Vanuatu	13.0	1.7	17[e]	27	..	..	..	..	..	..	70.8	53	91	34
142 Ghana	13.0	1.8	9	27	60	8	20	..	..	..	68.9	65	81	18
143 Zambia	12.8	0.9	20	42	99	6	..	..	..	..	77.8	14	60	26
144 Equatorial Guinea	13.9	4.0	21	23	37	..	..	..	..	..	55.8	6	65	66
145 Myanmar	12.6	8.6	9	23	98	0	5	..	..	..	59.5	60	82	64
146 Cambodia	13.2	1.7	8	42	100	..	..	..	..	..	50.8	86	79	59
147 Kenya	12.6	2.0	14	31	97[e]	..	..	..	..	..	53.5	58	59	29
147 Nepal	13.8	6.5	3	21	97	..	..	..	..	..	79.4	95	89	62
149 Angola	14.3	2.1	..	50	47	3	17	..	..	..	67.1	0	56	50
150 Cameroon	13.4	0.9	13	45	81	..	23	..	..	..	73.8	21	60	39
150 Zimbabwe	13.2	0.8	17	36	86	..	..	..	..	..	65.6	19	64	36
152 Pakistan	13.2	9.8	6	45	82	..	..	..	..	..	59.3	54	91	60
153 Solomon Islands	12.9	2.0	14	26	74	..	14	..	..	..	80.3	60	68	34
LOW HUMAN DEVELOPMENT														
154 Syrian Arab Republic	14.3	12.2	15	..	..	..	..	..	..	..	34.4	78	97	91
155 Papua New Guinea	13.2	0.5	..	36	..	..	..	..	..	..	78.3	50	41	13
156 Comoros	12.5	1.7	22	19	55	8	11	..	..	..	64.6	74	80	36
157 Rwanda	12.9	1.3	16[e]	58	93	25	33	..	..	..	68.7	24	58	67
158 Nigeria	14.3	3.8	..	..	66	..	..	..	..	..	78.4	23	71	39
159 Tanzania (United Republic of)	12.7	0.4	7	47	99	..	..	..	..	..	82.7	17	57	30
159 Uganda	13.2	0.9	5	43	80	..	..	..	..	..	75.2	11	49	18
161 Mauritania	13.6	1.8	..	36	85	..	..	..	..	..	52.8	0	71	48
162 Madagascar	12.8	1.8	2	41	15	..	..	..	..	..	85.3	0	54	11
163 Benin	13.6	1.6	5	44	68	..	..	..	..	..	88.0	17	66	16
164 Lesotho	13.9	0.7	..	33	87	..	..	..	..	..	54.7	20	69	43

		Quality of health			SDG 4.c	SDG 4.a		SDG 4.1				SDG 7.1	SDG 6.1	SDG 6.2
					Quality of education						Quality of standard of living			
		Lost health expectancy	Physicians	Hospital beds	Pupil–teacher ratio, primary school	Primary school teachers trained to teach	Schools with access to the Internet		Programme for International Student Assessment (PISA) score			Vulnerable employment[a]	Rural population with access to electricity	Population using at least basic drinking-water sources	Population using at least basic sanitation facilities
							Primary	Secondary							
		(%)	(per 10,000 people)		(pupils per teacher)	(%)	(%)		Mathematics[b]	Reading[c]	Science[c]	(% of total employment)		(%)	
HDI rank		2017	2010–2018[d]	2010–2015[d]	2013–2018[d]	2010–2018[d]	2010–2018[d]	2010–2018[d]	2015	2015	2015	2018	2017	2017	2017
165	Côte d'Ivoire	13.3	2.3	..	42	100	..	..	..	..	..	72.4	37	73	32
166	Senegal	13.5	0.7	3[e]	33	75	17	83	..	..	..	65.1	35	81	51
167	Togo	13.2	0.5	7	40	73	..	..	..	..	..	77.4	19	65	16
168	Sudan	14.7	4.1	8	..	..	..	..	..	..	..	40.0	43	60	37
169	Haiti	13.3	2.3	7	..	..	..	..	..	..	..	85.0	3	65	35
170	Afghanistan	16.4	2.8	5	44	..	..	..	..	..	..	89.4	97	67	43
171	Djibouti	11.9	2.2	14	29	100	..	..	..	..	..	47.3	26	76	64
172	Malawi	13.0	0.2	13	70	91	..	..	..	..	..	59.5	4	69	26
173	Ethiopia	13.0	1.0	3	..	85[e]	..	..	..	..	..	86.0	31	41	7
174	Gambia	13.7	1.1	11	36	100	..	..	..	..	..	72.3	21	78	39
174	Guinea	13.0	0.8	3	47	75	..	..	..	..	..	89.9	9	62	23
176	Liberia	15.7	0.4	8	27	47	..	5	..	..	..	77.7	7	73	17
177	Yemen	16.6	3.1	7	27	..	..	..	..	..	..	45.4	69	63	59
178	Guinea-Bissau	13.3	2.0	10[e]	..	39	..	..	..	..	..	78.4	9	67	21
179	Congo (Democratic Republic of the)	14.4	0.9	..	33	95	..	..	..	..	..	79.7	0	43	20
180	Mozambique	13.2	0.7	7	52	97	..	..	..	..	..	83.1	2	56	29
181	Sierra Leone	13.7	0.3	..	39	54	0	3	..	..	..	86.3	5	61	16
182	Burkina Faso	13.5	0.6	4	41	86	..	3	..	..	..	86.4	10	48	19
182	Eritrea	13.1	..	7	39	41	..	..	..	..	..	78.2	30	52[h]	12[h]
184	Mali	14.2	1.4	1	38	52	..	..	..	..	..	89.6	12	78	39
185	Burundi	12.5	0.5	8	50	100	..	1	..	..	..	94.7	2	61	46
186	South Sudan	14.5	..	..	47	44	..	..	..	..	..	87.3	21	41	11
187	Chad	14.2	0.5	..	57	65	..	..	..	..	..	93.1	2	39	8
188	Central African Republic	13.5	0.6	10	83	..	..	..	..	..	..	93.6	15	46[h]	25[h]
189	Niger	13.0	0.5	3	36	66	..	..	..	..	..	89.0	11	50	14
OTHER COUNTRIES OR TERRITORIES															
..	Korea (Democratic People's Rep. of)	11.8	36.7	132	20	..	..	..	..	..	..	65.9	52	95	83
..	Monaco	..	65.6	138	10	..	100	100	..	..	..	..	100	100	100
..	Nauru	..	12.4	50	40	100	..	..	..	..	..	..	..	99	66
..	San Marino	..	61.5	38	..	..	..	..	..	..	..	..	100	100	100
..	Somalia	12.5	0.2	9	..	..	..	..	..	..	..	77.7	9	52	38
..	Tuvalu	..	9.2	..	17	77	..	..	..	..	..	..	100	99	84
Human development groups															
	Very high human development	14.0	30.4	55	14	..	—	—	—	—	—	10.3	100	99	98
	High human development	12.3	16.5	32	19	..	—	—	—	—	—	40.2	98	94	85
	Medium human development	13.6	7.3	9	33	75	—	—	—	—	—	68.6	82	90	60
	Low human development	13.9	2.1	..	41	80	—	—	—	—	—	79.1	24	59	29
Developing countries		13.0	11.5	21	25	..	—	—	—	—	—	53.3	77	88	69
Regions															
	Arab States	14.5	11.1	15	21	..	—	—	—	—	—	24.5	82	89	83
	East Asia and the Pacific	11.9	14.8	35	18	..	—	—	—	—	—	45.0	96	92	83
	Europe and Central Asia	13.4	24.9	51	18	..	—	—	—	—	—	28.4	100	96	97
	Latin America and the Caribbean	12.7	21.6	20	21	..	—	—	—	—	—	32.7	92	97	87
	South Asia	13.9	7.8	8	35	72	—	—	—	—	—	71.6	86	93	60
	Sub-Saharan Africa	13.6	2.1	..	39	80	—	—	—	—	—	74.9	22	61	30
Least developed countries		13.6	2.5	7	37	76	—	—	—	—	—	73.7	38	64	34
Small island developing states		12.6	22.2	25	18	94	—	—	—	—	—	40.1	60	82	67
Organisation for Economic Co-operation and Development		14.0	28.9	50	15	..	—	—	—	—	—	11.8	100	99	99
World		13.2	14.9	28	23	..	—	—	—	—	—	45.1	79	90	73

NOTES

Three-colour coding is used to visualize partial grouping of countries and aggregates by indicator. For each indicator countries are divided into three groups of approximately equal size (terciles): the top third, the middle third and the bottom third. Aggregates are colour coded using the same tercile cutoffs. See *Technical note 6* at http://hdr.undp.org/sites/default/files/hdr2019_technical_notes.pdf for details about partial grouping in this table.

a Estimates modelled by the International Labour Organization.

b Average score for Organisation for Economic Co-operation and Development (OECD) countries is 490.

c Average score for OECD countries is 493.

d Data refer to the most recent year available during the period specified.

e Refers to a year from 2007 to 2009.

f Refers to 2015.

g Refers to the adjudicated region of Ciudad Autónoma de Buenos Aires.

h Refers to 2016.

i Refers to 2013.

j Refers to the provinces of Beijing, Guangdong, Jiangsu and Shanghai.

DEFINITIONS

Lost health expectancy: Relative difference between life expectancy and healthy life expectancy, expressed as a percentage of life expectancy at birth.

Physicians: Number of medical doctors (physicians), both generalists and specialists, expressed per 10,000 people.

Hospital beds: Number of hospital beds available, expressed per 10,000 people.

Pupil–teacher ratio, primary school: Average number of pupils per teacher in primary education.

Primary school teachers trained to teach: Percentage of primary school teachers who have received the minimum organized teacher training (preservice or in-service) required for teaching at the primary level.

Schools with access to the Internet: Percentage of schools at the indicated level with access to the Internet for educational purposes.

Programme for International Student Assessment (PISA) score: Score obtained in testing of skills and knowledge of 15-year-old students in mathematics, reading and science.

Vulnerable employment: Percentage of employed people engaged as unpaid family workers and own-account workers.

Rural population with access to electricity: People living in rural areas with access to electricity, expressed as a percentage of the total rural population. It includes electricity sold commercially (both on grid and off grid) and self-generated electricity but excludes unauthorized connections.

Population using at least basic drinking-water services: Percentage of the population using at least basic drinking-water services—that is, the population that drinks water from an improved source, provided collection time is not more than 30 minutes for a round trip. This indicator encompasses people using basic drinking-water services as well as those using safely managed drinking-water services. Improved water sources include piped water, boreholes or tubewells, protected dug wells, protected springs, and packaged or delivered water.

Population using at least basic sanitation services: Percentage of the population using at least basic sanitation services—that is, improved sanitation facilities that are not shared with other households. This indicator encompasses people using basic sanitation services as well as those using safely managed sanitation services. Improved sanitation facilities include flush/pour flush toilets connected to piped sewer systems, septic tanks or pit latrines; pit latrines with slabs (including ventilated pit latrines); and composting toilets.

MAIN DATA SOURCES

Column 1: HDRO calculations based on data on life expectancy at birth and healthy life expectancy at birth from IHME (2018).

Columns 2, 13 and 14: WHO (2019).

Columns 3 and 12: World Bank (2019a).

Columns 4–7: UNESCO Institute for Statistics (2019).

Columns 8–10: OECD (2017).

Column 11: ILO (2019).

DASHBOARD 2

Life-course gender gap

Country groupings (terciles)

Top third | Middle third | Bottom third

Three-colour coding is used to visualize partial grouping of countries by indicator. For each indicator countries are divided into three groups of approximately equal size (terciles): the top third, the middle third and the bottom third. Aggregates are colour coded using the same tercile cutoffs. See *Notes* after the table.

		SDG 4.2	SDG 4.1	SDG 4.1	SDG 8.5	SDG 4.6	SDG 8.5	SDG 8.3	SDG 5.5	SDG 5.4		SDG 1.3
		Childhood and youth						Adulthood				Older age
		Gross enrolment ratio (female to male ratio)										
	Sex ratio at birth[a]				Youth unemployment rate	Population with at least some secondary education	Total unemployment rate	Share of employment in nonagriculture, female	Share of seats in parliament	Time spent on unpaid domestic chores and care work		Old-age pension recipients
										Women ages 15 and older		
	(male to female births)	Pre-primary	Primary	Secondary	(female to male ratio)	(female to male ratio)	(female to male ratio)	(% of total employment in nonagriculture)	(% held by women)	(% of 24-hour day)	(female to male ratio)	(female to male ratio)
HDI rank	2015–2020[b]	2013–2018[c]	2013–2018[c]	2013–2018[c]	2018	2010–2018[c]	2018	2018	2018	2008–2018[c]	2008–2018[c]	2013–2017[c]
VERY HIGH HUMAN DEVELOPMENT												
1 Norway	1.06	1.00	1.00	0.96	0.72	1.01	0.81	47.9	41.4	15.3	1.2	0.87
2 Switzerland	1.05	0.99	0.99	0.96	0.96	0.99	1.11	46.6	29.3	16.8	1.6	1.04
3 Ireland	1.06	0.98	0.99	1.03	0.84	1.05	0.93	47.4	24.3	..	..	0.61
4 Germany	1.05	0.99	0.99	0.95	0.74	0.99	0.84	46.9	31.5	15.9[d]	1.6[d]	1.00
4 Hong Kong, China (SAR)	1.08	0.99	0.98	0.96	0.87	0.92	0.83	49.4	..	10.8	3.3	..
6 Australia	1.06	0.96	1.00	0.89	0.80	0.99	1.04	46.8	32.7	..	..	1.06
6 Iceland	1.05	1.02	1.00	1.00	0.67	1.00	0.93	48.2	38.1	..	..	1.12
8 Sweden	1.06	1.00	1.03	1.12	0.84	1.00	0.90	48.2	46.1	16.0	1.3	1.00
9 Singapore	1.07	..	1.00	0.99	1.92	0.92	1.17	45.1	23.0	..	..	..
10 Netherlands	1.05	1.00	1.00	1.02	0.84	0.96	1.17	46.4	35.6	14.7[e]	1.6[e]	1.00
11 Denmark	1.06	0.99	0.99	1.03	0.76	1.00	1.08	47.9	37.4	15.6[e]	1.4[e]	1.02
12 Finland	1.05	1.00	1.00	1.10	0.92	1.00	0.96	48.9	42.0	14.5[d]	1.5[d]	1.00
13 Canada	1.05	..	1.00	1.01	0.78	1.00	0.93	47.7	31.7	14.6	1.5	1.00
14 New Zealand	1.06	0.99	1.00	1.06	0.91	1.01	1.12	48.2	38.3	18.1[f]	1.7[f]	1.00
15 United Kingdom	1.05	1.00	1.00	1.11	0.86	0.97	0.98	47.0	28.9	12.7	1.8	1.00
15 United States	1.05	1.00	1.00	0.99	0.74	1.00	0.93	46.4	23.6	15.4	1.6	0.87
17 Belgium	1.05	1.00	1.00	1.12	0.91	0.95	1.02	46.0	41.4	15.9[f]	1.6[f]	1.00
18 Liechtenstein	..	1.06	0.96	0.78	..	..	..	..	12.0	..	..	..
19 Japan	1.06	..	1.00	1.01	0.85	1.03	0.88	43.9	13.7	14.4[d]	4.7[d]	..
20 Austria	1.06	0.99	1.00	0.96	1.02	1.00	0.98	46.9	34.8	18.3[d]	1.9[d]	0.99
21 Luxembourg	1.05	0.97	1.00	1.03	0.72	1.00	1.08	46.1	20.0	14.4[d]	2.0[d]	0.66
22 Israel	1.05	1.00	1.01	1.02	0.97	0.97	1.03	47.3	27.5	..	..	..
22 Korea (Republic of)	1.06	1.00	1.00	1.00	0.99	0.94	0.95	42.3	17.0	14.0[d]	4.2[d]	0.96
24 Slovenia	1.06	0.97	1.00	1.02	1.36	0.99	1.31	46.6	20.0	..	..	..
25 Spain	1.06	1.00	1.01	1.01	0.94	0.93	1.29	46.1	38.6	19.0[e]	2.2[e]	0.47
26 Czechia	1.06	0.97	1.01	1.01	1.13	1.00	1.45	44.8	20.3	..	..	1.00
26 France	1.05	1.00	0.99	1.01	0.93	0.94	1.01	47.4	35.7	15.8	1.7	1.00
28 Malta	1.06	1.03	1.04	1.04	0.85	0.90	1.00	39.8	11.9	..	..	0.43
29 Italy	1.06	0.97	1.00	0.98	1.20	0.91	1.18	42.4	35.6	20.4	2.4	0.83
30 Estonia	1.07	..	1.00	1.01	0.73	1.00	0.86	49.5	26.7	17.2[d]	1.6[d]	1.00
31 Cyprus	1.07	0.99	1.00	0.99	0.59	0.95	1.01	47.0	17.9	..	..	0.77
32 Greece	1.07	1.01	1.00	0.94	1.22	0.84	1.54	41.6	18.7	17.5[d]	2.6[d]	..
32 Poland	1.06	0.97	1.01	0.97	0.97	0.94	1.00	45.6	25.5	17.6[d]	1.8[d]	1.00
34 Lithuania	1.06	1.00	1.00	0.96	0.88	0.95	0.85	52.2	21.3	..	..	1.00
35 United Arab Emirates	1.05	1.08	0.97	0.94	2.00	1.20	4.41	14.9	22.5	..	..	..
36 Andorra	..	..	..	..	..	0.97	..	..	32.1	..	..	..
36 Saudi Arabia	1.03	1.05	0.98	0.77	2.12	0.90	6.77	14.9	19.9	..	..	..
36 Slovakia	1.05	0.98	0.99	1.01	1.03	0.99	1.13	46.1	20.0	..	..	1.00
39 Latvia	1.07	0.99	1.00	0.99	1.06	1.01	0.76	52.0	31.0	..	..	1.00
40 Portugal	1.06	0.98	0.96	0.97	1.13	0.98	1.17	49.7	34.8	17.8	1.7	0.77
41 Qatar	1.05	1.03	0.99	1.25	8.33	1.11	6.00	14.2	9.8	8.2	3.7	0.36
42 Chile	1.04	0.98	0.97	1.01	1.20	0.98	1.16	43.0	22.7	22.1[f]	2.2[f]	1.59
43 Brunei Darussalam	1.06	1.03	0.99	1.02	1.04	0.98	1.17	43.4	9.1	..	..	..
43 Hungary	1.06	0.96	1.00	0.99	1.43	0.98	1.18	46.5	12.6	16.6[d]	2.2[d]	1.00
45 Bahrain	1.04	0.99	1.00	1.01	6.10	1.12	11.67	20.2	18.8	..	..	..
46 Croatia	1.06	0.96	1.01	1.05	1.66	0.98	1.28	46.6	18.5	..	..	..
47 Oman	1.05	1.05	1.03	0.97	4.79	1.15	7.59	12.0	8.8	18.9	2.5	..
48 Argentina	1.04	1.01	1.00	1.04	1.34	1.05	1.27	41.2	39.5	23.4	2.5	..
49 Russian Federation	1.06	0.98	1.01	0.99	1.09	1.01	0.94	49.4	16.1	18.4	2.3	1.00

		SDG 4.2	SDG 4.1	SDG 4.1	SDG 8.5	SDG 4.6	SDG 8.5	SDG 8.3	SDG 5.5	SDG 5.4		SDG 1.3
		Childhood and youth						Adulthood				Older age
			Gross enrolment ratio									
		Sex ratio at birth[a]	(female to male ratio)			Youth unemployment rate	Population with at least some secondary education	Total unemployment rate	Share of employment in nonagriculture, female	Share of seats in parliament	Time spent on unpaid domestic chores and care work		Old-age pension recipients
											Women ages 15 and older		
		(male to female births)	Pre-primary	Primary	Secondary	(female to male ratio)	(female to male ratio)	(female to male ratio)	(% of total employment in nonagriculture)	(% held by women)	(% of 24-hour day)	(female to male ratio)	(female to male ratio)
HDI rank		2015–2020[b]	2013–2018[c]	2013–2018[c]	2013–2018[c]	2018	2010–2018[c]	2018	2018	2018	2008–2018[c]	2008–2018[c]	2013–2017[c]
50	Belarus	1.06	0.96	1.00	0.98	0.66	0.94	0.56	52.4	33.1	19.2[d]	2.0[d]	..
50	Kazakhstan	1.07	1.02	1.02	1.01	1.13	0.99	1.33	48.6	22.1	17.9[d]	3.0[d]	..
52	Bulgaria	1.06	0.99	0.99	0.97	0.84	0.98	0.84	47.9	23.8	18.5[e]	2.0[e]	1.00
52	Montenegro	1.07	0.98	0.99	1.00	0.84	0.90	1.05	44.1	23.5	..	..	..
52	Romania	1.06	1.00	0.99	0.99	0.99	0.94	0.77	44.1	18.7	19.0[d]	2.0[d]	1.00
55	Palau	..	1.09	0.96	1.05	..	1.00	..	..	13.8	..	..	..
56	Barbados	1.04	1.04	0.98	1.04	1.12	1.03	1.10	50.0	27.5	..	..	..
57	Kuwait	1.05	1.00	1.00	1.08	4.18	1.15	5.11	31.8	3.1	..	..	..
57	Uruguay	1.05	1.02	0.98	..	1.43	1.07	1.49	46.9	22.3	19.9	2.4	1.04
59	Turkey	1.05	0.95	0.99	0.98	1.39	0.67	1.42	28.3	17.4	19.2	5.2	..
60	Bahamas	1.06	1.07	1.05	1.06	1.59	0.97	1.28	47.1	21.8	..	..	..
61	Malaysia	1.06	1.04	1.01	1.05	1.13	0.98	1.23	39.9	15.8	..	..	..
62	Seychelles	1.06	1.03	1.01	1.07	..	..	..	..	21.2	..	..	..
HIGH HUMAN DEVELOPMENT													
63	Serbia	1.07	1.00	1.00	1.01	1.17	0.92	1.14	45.2	34.4	19.2	2.2	..
63	Trinidad and Tobago	1.04	..	..	..	1.05	1.05	1.11	43.2	30.1	..	..	..
65	Iran (Islamic Republic of)	1.05	1.00	1.03	1.02	1.85	0.93	1.99	16.5	5.9	21.0	4.0	0.10
66	Mauritius	1.04	1.00	1.02	1.07	1.55	0.96	2.10	38.5	11.6	..	..	..
67	Panama	1.05	1.03	0.98	1.03	1.61	1.09	1.59	41.9	18.3	17.7	2.4	..
68	Costa Rica	1.05	1.00	1.01	1.05	1.47	1.03	1.51	40.7	45.6	21.3[f]	2.6[f]	..
69	Albania	1.09	0.99	0.97	0.94	0.82	1.01	0.90	39.4	27.9	21.7[d]	6.3[d]	..
70	Georgia	1.07	..	1.01	1.02	1.20	0.99	0.83	44.3	16.0	..	..	0.92
71	Sri Lanka	1.04	0.97	0.99	1.05	1.76	0.99	2.33	32.5	5.8	..	..	..
72	Cuba	1.06	1.00	0.95	1.03	0.92	0.98	1.19	42.3	53.2	..	..	..
73	Saint Kitts and Nevis	..	..	..	..	..	..	..	..	13.3	..	..	..
74	Antigua and Barbuda	1.03	1.09	0.97	0.96	..	..	..	..	31.4	..	..	0.95
75	Bosnia and Herzegovina	1.07	..	..	..	1.17	0.81	1.26	37.4	19.3	..	..	..
76	Mexico	1.05	1.02	1.01	1.09	1.09	0.96	1.03	40.1	48.4	28.1[f]	3.0[f]	0.84
77	Thailand	1.06	0.99	1.00	0.96	1.68	0.89	1.17	47.5	5.3	11.8[g]	3.2[g]	..
78	Grenada	1.05	1.06	0.95	1.05	..	..	..	..	39.3	..	..	..
79	Brazil	1.05	1.05	0.97	1.05	1.26	1.06	1.30	44.9	15.0	13.3	4.3	..
79	Colombia	1.05	..	0.97	1.06	1.63	1.04	1.66	46.1	19.0	16.3[d]	3.7[d]	0.99
81	Armenia	1.11	1.10	1.00	1.05	1.50	0.99	1.02	43.6	18.1	21.7	5.0	1.17
82	Algeria	1.05	..	0.95	..	1.73	1.00	2.11	17.2	21.3	21.7[f]	5.8[f]	..
82	North Macedonia	1.06	0.99	1.00	0.98	1.00	0.72	0.91	39.8	38.3	15.4[d]	2.8[d]	..
82	Peru	1.05	1.01	1.00	1.00	1.31	0.84	1.42	46.4	27.7	22.7[f]	2.6[f]	..
85	China	1.13	1.01	1.01	1.02	0.81	0.91	0.78	45.4	24.9	15.3	2.6	..
85	Ecuador	1.05	1.05	1.01	1.03	1.64	1.00	1.56	42.5	38.0	19.8	4.4	..
87	Azerbaijan	1.13	1.00	1.02	..	1.27	0.96	1.39	44.0	16.8	25.4	2.9	1.51
88	Ukraine	1.06	0.97	1.02	0.98	0.88	0.99	0.77	49.3	12.3	..	..	..
89	Dominican Republic	1.05	1.02	0.93	1.08	2.07	1.08	1.95	42.8	24.3	16.7	4.4	..
89	Saint Lucia	1.03	1.08	..	1.01	1.23	1.17	1.26	48.6	20.7	..	..	..
91	Tunisia	1.06	1.00	0.97	1.11	1.12	0.78	1.75	25.3	31.3	..	..	..
92	Mongolia	1.03	1.00	0.98	..	1.42	1.06	0.88	47.3	17.1	17.6[f]	2.8[f]	..
93	Lebanon	1.05	0.96	0.92	0.99	1.34	0.98	1.98	22.8	4.7	..	..	..
94	Botswana	1.03	1.04	0.97	..	1.44	0.99	1.45	47.7	9.5	..	..	..
94	Saint Vincent and the Grenadines	1.03	1.05	0.98	0.96	1.04	..	0.82	47.5	13.0	..	..	..
96	Jamaica	1.05	1.01	..	1.06	1.47	1.12	1.73	48.1	19.0	..	..	..
96	Venezuela (Bolivarian Republic of)	1.05	1.01	0.97	1.08	1.44	1.08	1.13	41.2	22.2	..	..	0.72
98	Dominica	..	1.03	0.97	0.99	..	..	..	..	25.0	..	..	..
98	Fiji	1.06	..	0.99	..	1.92	1.12	1.47	33.2	19.6	15.2	2.9	..
98	Paraguay	1.05	1.01	..	..	1.46	0.98	1.45	41.9	16.0	14.5	3.4	0.80
98	Suriname	1.08	1.01	1.00	1.32	2.37	1.02	2.54	37.6	25.5	..	..	..
102	Jordan	1.05	..	..	1.03	1.64	0.96	1.73	16.5	15.4	..	..	..
103	Belize	1.03	1.05	0.95	1.05	2.83	1.01	2.83	42.9	11.1	..	..	..
104	Maldives	1.07	1.00	1.00	..	0.63	0.91	0.92	28.9	5.9	..	..	..
105	Tonga	1.05	1.01	0.97	1.06	4.50	1.01	5.00	51.7	7.4	..	..	..

DASHBOARD 2 LIFE-COURSE GENDER GAP

HDI rank		SDG 4.2 Childhood and youth: Sex ratio at birth[a] (male to female births) 2015–2020[b]	SDG 4.1 Childhood and youth: Gross enrolment ratio (female to male ratio) Pre-primary 2013–2018[c]	SDG 4.1 Childhood and youth: Gross enrolment ratio (female to male ratio) Primary 2013–2018[c]	SDG 4.1 Childhood and youth: Gross enrolment ratio (female to male ratio) Secondary 2013–2018[c]	SDG 8.5 Childhood and youth: Youth unemployment rate (female to male ratio) 2018	SDG 4.6 Adulthood: Population with at least some secondary education (female to male ratio) 2010–2018[c]	SDG 8.5 Adulthood: Total unemployment rate (female to male ratio) 2018	SDG 8.3 Adulthood: Share of employment in nonagriculture, female (% of total employment in nonagriculture) 2018	SDG 5.5 Adulthood: Share of seats in parliament (% held by women) 2018	SDG 5.4 Adulthood: Time spent on unpaid domestic chores and care work, Women ages 15 and older (% of 24-hour day) 2008–2018[c]	SDG 5.4 Adulthood: Time spent on unpaid domestic chores and care work (female to male ratio) 2008–2018[c]	SDG 1.3 Older age: Old-age pension recipients (female to male ratio) 2013–2017[c]
106	Philippines	1.06	0.99	0.97	1.10	1.19	1.04	1.04	43.4	29.1	..	..	..
107	Moldova (Republic of)	1.06	0.99	1.00	0.99	0.94	0.98	0.79	52.1	22.8	19.5[d]	1.8[d]	..
108	Turkmenistan	1.05	0.97	0.98	0.96	0.55	..	0.42	42.8	24.8	..	..	..
108	Uzbekistan	1.06	0.96	0.98	0.99	1.04	1.00	0.93	39.0	16.4	..	..	..
110	Libya	1.06	..	..	..	1.57	1.54	1.65	22.0	16.0	..	..	..
111	Indonesia	1.05	0.89	0.96	1.03	1.03	0.84	0.93	40.1	19.8	..	..	..
111	Samoa	1.08	1.13	1.00	1.10	1.61	1.11	1.34	38.2	10.0	..	..	..
113	South Africa	1.03	1.00	0.96	1.09	1.22	0.96	1.17	44.6	41.8[h]	15.6[d]	2.4[d]	..
114	Bolivia (Plurinational State of)	1.05	1.00	0.98	0.97	1.52	0.81	1.48	41.5	51.8	..	..	..
115	Gabon	1.03	..	..	..	1.35	1.32	2.01	25.1	17.4[i]	..	..	..
116	Egypt	1.06	0.99	1.00	0.98	1.53	0.83	2.96	17.4	14.9	22.4[d]	9.2[d]	..
MEDIUM HUMAN DEVELOPMENT													
117	Marshall Islands	..	0.93	1.02	1.10	..	0.99	..	..	9.1	..	..	..
118	Viet Nam	1.12	0.98	1.00	..	1.01	0.85	0.90	47.2	26.7	..	..	..
119	Palestine, State of	1.05	1.00	1.00	1.10	1.77	0.97	2.06	14.7	..	17.8[d]	6.0[d]	..
120	Iraq	1.07	..	..	..	1.97	0.70	1.71	13.0	25.2	..	..	..
121	Morocco	1.06	0.83	0.95	0.89	1.03	0.81	1.21	15.7	18.4	20.8	7.0	..
122	Kyrgyzstan	1.06	1.01	0.99	1.00	1.62	1.00	1.48	38.7	19.2	16.8[f]	1.8[f]	..
123	Guyana	1.05	..	..	..	1.65	1.28	1.54	39.1	31.9	..	..	..
124	El Salvador	1.05	1.01	0.97	0.99	1.24	0.86	0.76	49.0	31.0	22.7	2.9	..
125	Tajikistan	1.07	0.86	0.99	0.90	0.90	1.14	0.84	20.6	20.0	..	..	..
126	Cabo Verde	1.03	1.02	0.93	1.10	1.10	0.92	1.08	50.2	20.8[j]	..	..	..
126	Guatemala	1.05	1.02	0.97	0.95	1.82	1.03	1.68	43.3	12.7	17.8	7.5	0.50
126	Nicaragua	1.05	..	..	..	1.99	1.04	1.36	51.1	45.7	..	..	..
129	India	1.10	0.93	1.17	1.02	1.32	0.61	1.57	16.7	11.7	..	..	..
130	Namibia	1.01	1.05	0.97	..	1.32	0.97	1.14	48.5	39.7	..	..	..
131	Timor-Leste	1.05	1.02	0.97	1.08	2.03	..	1.50	31.7	33.8	..	..	1.13
132	Honduras	1.05	1.01	1.00	1.14	2.05	1.05	1.56	48.2	21.1	17.3	4.0	..
132	Kiribati	1.06	..	1.06	..	..	..	..	..	6.5	..	..	..
134	Bhutan	1.04	1.06	1.00	1.10	1.48	0.43	1.76	32.2	15.3	15.0	2.5	..
135	Bangladesh	1.05	1.04	1.07	1.17	1.57	0.92	1.97	20.2	20.3	..	..	..
135	Micronesia (Federated States of)	1.06	0.92	1.00	..	..	..	..	..	0.0	..	..	..
137	Sao Tome and Principe	1.03	1.09	0.96	1.15	2.25	0.69	2.40	38.3	14.5	..	..	..
138	Congo	1.03	..	..	..	0.93	0.91	1.14	47.6	14.0	..	..	..
138	Eswatini (Kingdom of)	1.03	..	0.92	0.98	1.10	0.93	1.15	40.9	12.1	..	..	..
140	Lao People's Democratic Republic	1.05	1.03	0.97	0.93	0.94	0.76	0.86	47.0	27.5	10.4[d]	4.2[d]	..
141	Vanuatu	1.07	0.97	0.98	1.06	1.10	..	1.24	42.6	0.0	..	..	..
142	Ghana	1.05	1.02	1.02	0.99	0.97	0.78	1.00	53.4	12.7	14.4[d]	4.1[d]	..
143	Zambia	1.03	1.07	1.02	..	0.99	0.75	0.92	39.5	18.0	..	..	0.22
144	Equatorial Guinea	1.03	1.02	0.99	..	1.08	..	1.11	36.9	18.0	..	..	..
145	Myanmar	1.03	1.01	0.95	1.10	1.58	1.29	1.75	43.7	10.2	..	..	..
146	Cambodia	1.05	1.04	0.98	..	0.86	0.54	0.75	48.5	19.3	..	..	0.15
147	Kenya	1.03	0.98	1.00	..	0.99	0.80	0.98	41.4	23.3	..	..	..
147	Nepal	1.07	0.94	1.06	1.11	0.62	0.66	0.73	34.6	33.5	..	..	..
149	Angola	1.03	0.88	0.86	0.63	0.99	0.61	1.10	43.6	30.5	..	..	..
150	Cameroon	1.03	1.02	0.90	0.86	1.19	0.80	1.34	41.8	29.3	14.6[d]	3.1[d]	..
150	Zimbabwe	1.02	1.02	0.98	0.98	1.23	0.84	1.23	42.5	34.3	..	..	..
152	Pakistan	1.09	0.87	0.86	0.81	1.57	0.57	2.04	10.0	20.0	..	..	..
153	Solomon Islands	1.07	1.02	0.99	..	0.93	..	0.80	42.3	2.0	..	..	..
LOW HUMAN DEVELOPMENT													
154	Syrian Arab Republic	1.05	0.96	0.97	1.00	2.55	0.86	3.43	12.8	13.2	..	..	..
155	Papua New Guinea	1.08	0.99	0.91	0.73	0.58	0.66	0.38	45.4	0.0	..	..	..
156	Comoros	1.05	1.03	0.96	1.06	0.79	..	1.17	35.9	6.1	..	..	..
157	Rwanda	1.02	1.03	0.99	1.12	1.67	0.72	1.00	36.1	55.7	..	..	..
158	Nigeria	1.06	..	0.94	0.90	0.97	..	1.12	52.6	5.8	..	..	..
159	Tanzania (United Republic of)	1.03	1.01	1.02	1.01	1.41	0.70	1.60	44.3	37.2	16.5[k]	3.9[k]	..
159	Uganda	1.03	1.04	1.03	..	1.41	0.79	1.50	39.2	34.3	..	..	..

		SDG 4.2	SDG 4.1	SDG 4.1	SDG 8.5	SDG 4.6	SDG 8.5	SDG 8.3	SDG 5.5	SDG 5.4		SDG 1.3
		Childhood and youth						Adulthood				Older age
			Gross enrolment ratio									
	Sex ratio at birth[a]	(female to male ratio)			Youth unemployment rate	Population with at least some secondary education	Total unemployment rate	Share of employment in nonagriculture, female	Share of seats in parliament	Time spent on unpaid domestic chores and care work		Old-age pension recipients
										Women ages 15 and older		
HDI rank	(male to female births) 2015–2020[b]	Pre-primary 2013–2018[c]	Primary 2013–2018[c]	Secondary 2013–2018[c]	(female to male ratio) 2018	(female to male ratio) 2010–2018[c]	(female to male ratio) 2018	(% of total employment in nonagriculture) 2018	(% held by women) 2018	(% of 24-hour day) 2008–2018[c]	(female to male ratio) 2008–2018[c]	(female to male ratio) 2013–2017[c]
161 Mauritania	1.05	1.26	1.06	0.96	1.19	0.51	1.42	31.2	20.3	..	..	..
162 Madagascar	1.03	1.09	1.00	1.01	1.25	..	1.20	53.7	19.6	..	..	..
163 Benin	1.04	1.04	0.94	0.76	1.10	0.54	1.10	55.6	7.2	..	..	..
164 Lesotho	1.03	1.05	0.97	1.36	1.38	1.31	1.30	56.2	22.7	..	..	..
165 Côte d'Ivoire	1.03	1.01	0.91	0.75	1.57	0.52	1.55	47.3	9.2[l]	..	..	..
166 Senegal	1.04	1.12	1.16	1.09	1.28	0.52	1.24	41.8	41.8	..	..	..
167 Togo	1.02	1.04	0.95	0.73	0.61	0.51	0.70	53.6	17.6	..	..	..
168 Sudan	1.04	1.02	0.94	1.02	2.16	0.78	2.52	16.8	31.0	..	..	..
169 Haiti	1.05	..	..	..	1.59	0.67	1.49	60.6	2.7	..	..	..
170 Afghanistan	1.06	..	0.69	0.57	1.76	0.36	2.18	25.5	27.4[i]	..	..	..
171 Djibouti	1.04	0.94	0.88	0.84	1.08	..	1.15	41.3	26.2	..	..	..
172 Malawi	1.03	1.01	1.04	0.94	1.18	0.68	1.42	39.5	16.7	..	..	..
173 Ethiopia	1.04	0.95	0.91	0.96	1.80	0.52	1.85	55.6	37.3	19.3[d]	2.9[d]	..
174 Gambia	1.03	1.07	1.09	..	1.92	0.71	1.88	38.7	10.3	..	..	..
174 Guinea	1.02	..	0.82	0.66	0.64	..	0.59	44.4	21.9	..	..	..
176 Liberia	1.05	1.01	0.92	0.78	1.57	0.47	1.05	48.7	11.7	6.3	2.4	..
177 Yemen	1.05	0.90	0.87	0.73	1.37	0.56	1.94	4.4	0.5	..	..	..
178 Guinea-Bissau	1.03	..	..	..	1.03	..	1.08	44.4	13.7	..	..	..
179 Congo (Democratic Republic of the)	1.03	1.07	0.99	0.64	0.60	0.56	0.66	36.1	8.2	..	..	..
180 Mozambique	1.02	..	0.93	0.91	0.89	0.51	1.06	33.2	39.6	..	..	..
181 Sierra Leone	1.02	1.10	1.01	0.95	0.42	0.60	0.69	53.1	12.3	..	..	..
182 Burkina Faso	1.05	0.99	0.98	0.97	2.31	0.50	2.32	48.5	11.0	..	..	0.13
182 Eritrea	1.05	0.98	0.86	0.90	1.09	..	1.11	41.6	22.0	..	..	..
184 Mali	1.05	1.07	0.89	0.81	1.19	0.45	1.38	45.2	8.8	..	..	0.11
185 Burundi	1.03	1.02	1.00	1.02	0.43	0.68	0.55	24.1	38.8	..	..	..
186 South Sudan	1.04	0.95	0.71	0.54	0.87	..	1.21	36.7	26.6	..	..	..
187 Chad	1.03	0.93	0.78	0.46	1.14	0.17	1.37	39.9	15.3	..	..	..
188 Central African Republic	1.03	1.03	0.76	0.66	1.12	0.43	1.20	41.9	8.6	..	..	..
189 Niger	1.05	1.06	0.87	0.73	0.17	0.48	0.50	51.4	17.0	..	..	..
OTHER COUNTRIES OR TERRITORIES												
.. Korea (Democratic People's Rep. of)	1.05	..	1.00	1.01	0.80	..	0.83	41.9	16.3	..	..	..
.. Monaco	..	..	..	..	..	..	..	..	33.3	..	..	..
.. Nauru	..	1.05	1.03	1.03	..	..	..	..	10.5	..	..	..
.. San Marino	..	..	..	..	..	..	..	..	26.7	..	..	..
.. Somalia	1.03	..	..	..	1.12	..	1.13	17.5	24.3	..	..	..
.. Tuvalu	..	1.04	0.97	1.25	..	..	..	..	6.7	..	..	..
Human development groups												
Very high human development	1.05	0.99	1.00	0.99	1.08	0.98	1.15	44.3	27.2	—	—	0.93
High human development	1.08	0.99	0.99	1.03	1.17	0.92	1.15	42.8	24.4	—	—	..
Medium human development	1.08	0.96	1.08	1.00	1.32	0.67	1.51	22.8	20.8	—	—	..
Low human development	1.04	1.01	0.94	0.84	1.20	0.59	1.46	43.5	21.3	—	—	..
Developing countries	1.07	0.98	1.01	0.99	1.24	0.84	1.30	36.8	22.4	—	—	..
Regions												
Arab States	1.05	0.98	0.96	0.93	1.67	0.84	2.46	16.3	18.3	—	—	..
East Asia and the Pacific	1.10	0.99	0.99	1.02	0.90	0.90	0.81	44.8	20.3	—	—	..
Europe and Central Asia	1.06	0.98	1.00	0.98	1.17	0.91	1.09	40.0	21.2	—	—	..
Latin America and the Caribbean	1.05	1.02	0.99	1.05	1.33	1.01	1.31	43.6	31.0	—	—	..
South Asia	1.09	0.94	1.09	1.00	1.41	0.66	1.74	17.0	17.1	—	—	..
Sub-Saharan Africa	1.04	1.00	0.96	0.88	1.06	0.72	1.16	46.9	23.5	—	—	..
Least developed countries	1.04	1.00	0.96	0.92	1.32	0.72	1.52	36.6	22.5	—	—	..
Small island developing states	1.06	..	0.95	1.00	1.55	0.96	1.48	44.1	24.6	—	—	..
Organisation for Economic Co-operation and Development	1.05	0.99	1.00	1.01	0.98	0.97	1.08	44.7	30.1	—	—	0.91
World	1.07	0.98	1.01	0.99	1.20	0.88	1.24	39.2	24.1	—	—	..

NOTES

Three-colour coding is used to visualize partial grouping of countries and aggregates by indicator. For each indicator countries are divided into three groups of approximately equal size (terciles): the top third, the middle third and the bottom third. Aggregates are colour coded using the same tercile cutoffs. Sex ratio at birth is an exception—countries are divided into two groups: the natural group (countries with a value of 1.04–1.07, inclusive), which uses darker shading, and the gender-biased group (all others), which uses lighter shading. See *Technical note 6* at http://hdr.undp.org/sites/default/files/hdr2019_technical_notes.pdf for details about partial grouping in this table.

a The natural sex ratio at birth is commonly assumed and empirically confirmed to be 1.05 male births to 1 female birth.

b Data are average annual estimates for 2015–2020.

c Data refer to the most recent year available during the period specified.

d Refers to the population ages 10 and older.

e Refers to the population ages 20–74.

f Refers to the population ages 12 and older.

g Refers to the population ages 6 and older.

h Excludes the 36 special rotating delegates appointed on an ad hoc basis.

i Refers to 2017.

j Refers to 2013.

k Refers to the population ages 5 and older.

l Refers to 2015.

DEFINITIONS

Sex ratio at birth: Number of male births per female birth.

Gross enrolment ratio, female to male ratio: For a given level of education (pre-primary, primary, secondary), the ratio of the female gross enrolment ratio to the male gross enrolment ratio. The gross enrolment ratio (female or male) is the total enrolment in a given level of education, regardless of age, expressed as a percentage of the official school-age population for the same level of education.

Youth unemployment rate, female to male ratio: Ratio of the percentage of the female labour force population ages 15–24 that is not in paid employment or self-employed but is available for work and is actively seeking paid employment or self-employment to the percentage of the male labour force population ages 15–24 that is not in paid employment or self-employed but is available for work and is actively seeking paid employment or self-employment.

Population with at least some secondary education, female to male ratio: Ratio of the percentage of the female population ages 25 and older that has reached (but not necessarily completed) a secondary level of education to the percentage of the male population ages 25 and older with the same level of education achievement.

Total unemployment rate, female to male ratio: Ratio of the percentage of the female labour force population ages 15 and older that is not in paid employment or self-employed but is available for work and is actively seeking paid employment or self-employment to the percentage of the male labour force population ages 15 and older that is not in paid employment or self-employed but is available for work and is actively seeking paid employment or self-employment.

Share of employment in nonagriculture, female: Share of women in employment in the nonagricultural sector, which comprises industry and services activities.

Share of seats in parliament: Proportion of seats held by women in the national parliament, expressed as a percentage of total seats. For countries with a bicameral legislative system, the share of seats is calculated based on both houses.

Time spent on unpaid domestic chores and care work: The average daily number of hours spent on unpaid domestic and care work, expressed as a percentage of a 24-hour day. Unpaid domestic and care work refers to activities related to the provision of services for own final use by household members or by family members living in other households.

Old-age pension recipients, female to male ratio: Ratio of the percentage of women above the statutory pensionable age receiving an old-age pension (contributory, noncontributory or both) to the percentage of men above the statutory pensionable age receiving an old-age pension (contributory, noncontributory or both).

MAIN DATA SOURCES

Column 1: UNDESA (2019b).

Columns 2–4: UNESCO Institute for Statistics (2019).

Columns 5 and 7: HDRO calculations based on ILO (2019).

Column 6: HDRO calculations based on UNESCO Institute for Statistics (2019) and Barro and Lee (2018).

Column 8: ILO (2019).

Column 9: IPU (2019).

Column 10: United Nations Statistics Division (2019a).

Columns 11 and 12: HDRO calculations based on United Nations Statistics Division (2019a).

Women's empowerment

Country groupings (terciles)

Top third	Middle third	Bottom third

Three-colour coding is used to visualize partial grouping of countries by indicator. For each indicator countries are divided into three groups of approximately equal size (terciles): the top third, the middle third and the bottom third. Aggregates are colour coded using the same tercile cutoffs. See *Notes* after the table.

		SDG 3.1	SDG 3.7, 5.6	SDG 5.6	SDG 5.3	SDG 5.3	SDG 5.2	SDG 5.2			SDG 5.5			SDG 1.3
		Reproductive health and family planning			Violence against girls and women				Socioeconomic empowerment					
					Child marriage		Violence against women ever experienced[a]							
		Antenatal care coverage, at least one visit	Proportion of births attended by skilled health personnel	Contraceptive prevalence, any method	Unmet need for family planning	Women married by age 18	Prevalence of female genital mutilation/ cutting among girls and women	Intimate partner	Nonintimate partner	Share of graduates in science, technology, engineering and mathematics programmes at tertiary level, female	Share of graduates from science, technology, engineering and mathematics programmes in tertiary education who are female	Female share of employment in senior and middle management	Women with account at financial institution or with mobile money-service provider	Mandatory paid maternity leave
		(%)	(%)	(% of married or in-union women of reproductive age, 15–49 years)		(% of women ages 20–24 who are married or in union)	(% of girls and young women ages 15–49)	(% of female population ages 15 and older)		(%)	(%)	(%)	(% of female population ages 15 and older)	(days)
HDI rank		2007–2017[b]	2013–2018[b]	2008–2018[b]	2008–2018[b]	2003–2018[b]	2004–2018[b]	2005–2019[b]	2005–2019[b]	2008–2018[b]	2008–2018[b]	2010–2018[b]	2017	2017
VERY HIGH HUMAN DEVELOPMENT														
1	Norway	..	99.2	..	..	..	..	27.0	..	9.9	28.4	33.5	100.0	..
2	Switzerland	..	..	72.9	..	..	..	..	..	11.1	22.1	31.6	98.9	98
3	Ireland	..	99.7	73.3	..	..	..	15.0	5.0	14.1	29.0	33.5	95.3	182
4	Germany	..	98.7	80.3	..	..	..	22.0	7.0	19.3	27.1	28.6	99.2	98
4	Hong Kong, China (SAR)	..	..	74.8	..	..	..	..	..	..	..	..	94.7	70
6	Australia	98.3	97.0	66.9	..	..	..	22.8	10.0	9.7	31.7	..	99.2	..
6	Iceland	..	97.9	..	..	..	..	22.4	..	10.3	35.2	43.1	..	90
8	Sweden	..	..	..	..	..	..	28.0	12.0	15.0	35.2	39.4	100.0	..
9	Singapore	..	99.6	..	..	..	..	6.1	..	22.3	33.7	..	96.3	105
10	Netherlands	..	..	73.0	..	..	..	25.0	12.0	6.3	25.3	24.8	99.8	112
11	Denmark	..	94.7	..	..	..	..	32.0	11.0	12.7	34.2	27.0	100.0	126
12	Finland	..	99.9	85.5	..	..	..	30.0	11.0	13.5	27.1	32.0	99.6	147
13	Canada	100.0	97.9	..	..	..	..	..	..	11.6	31.4	..	99.9	105
14	New Zealand	..	96.3	..	..	..	..	..	..	12.9	35.0	..	99.3	112[c]
15	United Kingdom	..	..	84.0	..	..	..	29.0	7.0	17.5	38.1	34.2	96.1	42
15	United States	..	99.1	75.9	9.0	..	..	..	..	10.4	34.0	40.5	92.7	..
17	Belgium	..	..	66.8	..	..	..	24.0	8.0	7.9	27.5	33.5	98.8	105
18	Liechtenstein	..	..	..	..	..	..	..	..	33.8	40.7	..	..	..
19	Japan	..	99.9	39.8	..	..	..	..	..	..	..	..	98.1	98
20	Austria	..	98.4	65.7	..	..	..	13.0	4.0	14.3	25.9	28.9	98.4	112
21	Luxembourg	..	..	..	..	..	..	22.0	8.0	9.5	27.6	16.1	98.2	112
22	Israel	..	..	..	..	..	..	..	..	..	..	..	93.7	105
22	Korea (Republic of)	..	100.0	79.6	..	..	..	..	..	15.4	26.4	..	94.7	90
24	Slovenia	..	..	..	..	..	..	13.0	4.0	12.5	29.8	38.2	96.9	105
25	Spain	..	..	70.9	..	..	..	13.0	3.0	12.7	29.7	31.9	91.6	112
26	Czechia	..	99.8	86.3	4.3	..	..	21.0	4.0	13.5	35.4	26.6	78.6	196
26	France	..	98.0	78.4	..	..	..	26.0	9.0	14.5	31.8	34.5	91.3	112
28	Malta	..	99.7	..	..	..	..	15.0	5.0	8.6	28.1	27.6	97.0	126
29	Italy	..	99.9	65.1	..	..	..	19.0	5.0	15.7	39.5	23.2	91.6	150
30	Estonia	..	99.2	..	..	..	..	20.0	9.0	16.4	38.3	33.2	98.4	140
31	Cyprus	99.2	96.0	..	..	..	..	15.0	2.0	10.4	42.2	22.4	90.0	126
32	Greece	..	99.9	..	..	..	..	19.0	1.0	18.9	39.8	30.5	84.5	119
32	Poland	..	99.8	62.3	..	..	..	13.0	2.0	15.3	44.1	39.5	88.0	140
34	Lithuania	..	100.0	..	..	..	..	24.0	5.0	11.4	29.8	38.2	81.0	126
35	United Arab Emirates	100.0	99.9	..	..	..	..	..	..	17.3	43.5	12.2	76.4	45
36	Andorra	..	100.0	..	..	..	..	..	..	4.7	..	..	..	..
36	Saudi Arabia	97.0	99.7	24.6	..	..	..	..	..	17.2	41.7	..	58.2	70
36	Slovakia	..	98.5	..	..	..	..	23.0	4.0	12.0	35.6	30.4	83.1	238
39	Latvia	..	99.9	..	..	..	..	32.0	7.0	10.0	31.9	43.2	92.5	112
40	Portugal	..	98.8	73.9	..	..	..	19.0	1.0	19.3	39.1	32.2	90.6	..
41	Qatar	90.8	100.0	37.5	12.4	4	..	..	..	14.5	41.9	..	61.6[d]	50
42	Chile	..	99.7	76.3	..	..	..	..	..	6.8	18.8	..	71.3	126
43	Brunei Darussalam	99.0	99.8	..	..	..	..	..	..	23.6	51.9	37.0	..	91
43	Hungary	..	99.7	61.6	..	..	..	21.0	3.0	11.7	31.5	37.1	72.2	168
45	Bahrain	100.0	99.7	..	..	..	..	..	..	10.9	44.3	..	75.4	60
46	Croatia	..	99.9	..	..	..	..	13.0	3.0	16.0	37.9	26.1	82.7	208

		SDG 3.1	SDG 3.7, 5.6	SDG 5.6	SDG 5.3	SDG 5.3	SDG 5.2	SDG 5.2	SDG 5.5				SDG 1.3
		Reproductive health and family planning			Violence against girls and women				Socioeconomic empowerment				
					Child marriage		Violence against women ever experienced[a]						
HDI rank		Antenatal care coverage, at least one visit	Proportion of births attended by skilled health personnel	Contraceptive prevalence, any method	Unmet need for family planning	Women married by age 18	Prevalence of female genital mutilation/ cutting among girls and women	Intimate partner	Nonintimate partner	Share of graduates in science, technology, engineering and mathematics programmes at tertiary level, female	Share of graduates from science, technology, engineering and mathematics programmes in tertiary education who are female	Female share of employment in senior and middle management	Women with account at financial institution or with mobile money-service provider	Mandatory paid maternity leave
		(%)	(%)	(% of married or in-union women of reproductive age, 15–49 years)		(% of women ages 20–24 who are married or in union)	(% of girls and young women ages 15–49)	(% of female population ages 15 and older)		(%)	(%)	(%)	(% of female population ages 15 and older)	(days)
		2007–2017[b]	2013–2018[b]	2008–2018[b]	2008–2018[b]	2003–2018[b]	2004–2018[b]	2005–2019[b]	2005–2019[b]	2008–2018[b]	2008–2018[b]	2010–2018[b]	2017	2017
47	Oman	98.6	99.1	29.7	17.8	4	..	..	..	39.8	52.8	..	63.5[d]	50
48	Argentina	98.1	93.9	81.3	..	..	..	26.9	12.1	11.5	46.5	32.6	50.8	90
49	Russian Federation	..	99.7	68.0	8.0	..	..	..	..	..	..	39.3	76.1	140
50	Belarus	99.7	99.8	72.1	7.0	3	..	..	..	15.4	26.7	..	81.3	126
50	Kazakhstan	99.3	99.4	54.8	10.6	7	..	16.5	1.5	14.8	32.9	..	60.3	126
52	Bulgaria	..	99.8	..	..	..	..	23.0	6.0	12.3	38.3	39.3	73.6	410
52	Montenegro	91.7	99.0	23.3	21.8	5	..	17.0	1.0	..	..	23.8	67.6	45
52	Romania	76.3	95.2	..	..	..	..	24.0	2.0	20.3	41.2	30.1	53.6	126
55	Palau	90.3	100.0	..	..	..	..	25.2	15.1	..	..	35.5	..	..
56	Barbados	93.4	99.0	59.2	19.9	11	..	..	..	..	40.5	..	..	84
57	Kuwait	100.0	99.9	..	..	..	..	..	..	..	..	..	73.5	70
57	Uruguay	97.2	99.7	79.6	..	25	..	16.8	..	10.8	44.6	37.3	60.6	98
59	Turkey	97.0	98.0	73.5	5.9	15	..	38.0	..	14.2	34.7	16.3	54.3	112
60	Bahamas	98.0	99.0	..	..	..	..	..	..	..	..	..	..	91
61	Malaysia	97.2	99.5	52.2	..	..	..	..	..	18.1	38.6	..	82.5	60
62	Seychelles	..	..	..	..	..	..	..	..	8.5	38.9	43.8	..	98
HIGH HUMAN DEVELOPMENT														
63	Serbia	98.3	98.4	58.4	14.9	3	..	17.0	2.0	18.1	39.7	29.8	70.1	135
63	Trinidad and Tobago	95.1	100.0	40.3	24.3	11	..	30.2	19.0	..	..	..	73.6	98
65	Iran (Islamic Republic of)	96.9	99.0	77.4	5.7	17	..	..	..	32.1	30.1	..	91.6	270
66	Mauritius	..	99.8	63.8	12.5	..	..	..	..	..	..	30.8	87.1	98
67	Panama	93.4	94.2	62.8	16.4	26	..	14.4	..	12.7	49.0	43.5	42.3	98
68	Costa Rica	98.1	98.7	77.8	7.6	21	..	35.9[e]	..	7.7	33.4	..	60.9	120
69	Albania	97.3	99.8	46.0	15.1	12	..	21.0	1.3	14.8	49.4	29.3	38.1	365
70	Georgia	97.6	99.9	53.4	12.3	14	..	6.0	2.7	15.8	43.7	..	63.6	183
71	Sri Lanka	95.5	..	61.7	7.5	10	..	..	..	..	40.3	25.6	73.4	84
72	Cuba	98.5	99.9	73.7	8.0	26	..	..	..	6.1	39.9	..	..	..
73	Saint Kitts and Nevis	100.0	100.0	..	..	..	..	..	..	..	..	..	..	91
74	Antigua and Barbuda	100.0	100.0	..	..	..	..	..	..	1.8	33.3	..	..	91
75	Bosnia and Herzegovina	87.0	99.9	45.8	9.0	4	..	11.0	1.0	14.8	42.9	24.2	54.7	365
76	Mexico	98.5	97.7	66.9	13.0	26	..	24.6	38.8	14.8	31.1	35.6	33.3	84
77	Thailand	98.1	99.1	78.4	6.2	23	..	..	..	15.0	30.1	29.5	79.8	90
78	Grenada	100.0	98.9	..	..	..	..	..	..	8.2	35.4	..	..	90
79	Brazil	97.2	99.1	80.2	..	26	..	16.7	..	10.7	36.6	..	67.5	120
79	Colombia	97.2	99.2	81.0	6.7	23	..	33.3	..	14.4	34.1	..	42.5	126
81	Armenia	99.6	99.8	57.1	12.5	5	..	8.2	..	8.4	32.8	..	40.9	140
82	Algeria	92.7	96.6	57.1	7.0	3	..	..	..	26.9	55.5	..	29.3	98
82	North Macedonia	98.6	99.9	40.2	17.2	7	..	10.0	2.0	15.7	45.1	28.2	72.9	270
82	Peru	97.0	93.1	75.4	6.5	19	..	31.2	..	13.7	32.9	..	34.4	98
85	China	96.5	99.9	84.5	..	..	..	..	..	..	..	..	76.4	128
85	Ecuador	..	96.4	80.1	8.8	20	..	40.4	..	8.0	29.2	35.3	42.6	84
87	Azerbaijan	91.7	99.8	54.9	..	11	..	13.5	..	16.4	40.1	..	27.7	126
88	Ukraine	98.6	99.9	65.4	4.9	9	..	26.0	5.0	12.5	27.4	..	61.3	126
89	Dominican Republic	98.0	99.8	69.5	11.4	36	..	28.5	..	7.0	40.0	..	54.1	98
89	Saint Lucia	96.9	99.0	55.5	17.0	8	..	..	..	..	..	..	..	91
91	Tunisia	98.1	..	62.5	7.0	2	..	..	..	37.8	58.1	19.3	28.4	30
92	Mongolia	98.7	98.9	54.6	16.0	5	..	31.2	14.0	11.9	33.7	40.0	95.0	120
93	Lebanon	..	..	54.5	..	6	..	..	..	18.0	43.3	..	32.9	70
94	Botswana	94.1	99.7	52.8	9.6	..	..	..	..	..	..	..	46.8	84
94	Saint Vincent and the Grenadines	99.5	98.6	..	..	..	..	..	..	..	..	..	..	91
96	Jamaica	97.7	97.6	72.5	10.0	8	..	27.8	23.0	..	..	..	77.8[f]	56
96	Venezuela (Bolivarian Republic of)	97.5	95.4	75.0	..	..	..	..	..	..	..	..	70.0	182
98	Dominica	100.0	97.0	..	..	..	..	..	..	..	..	..	..	84

		SDG 3.1	SDG 3.7, 5.6	SDG 5.6	SDG 5.3	SDG 5.3	SDG 5.2	SDG 5.2			SDG 5.5		SDG 1.3
		Reproductive health and family planning			Violence against girls and women				Socioeconomic empowerment				
					Child marriage		Violence against women ever experienced[a]						
HDI rank		Antenatal care coverage, at least one visit (%) 2007–2017[b]	Proportion of births attended by skilled health personnel (%) 2013–2018[b]	Contraceptive prevalence, any method (% of married or in-union women of reproductive age, 15–49 years) 2008–2018[b]	Unmet need for family planning (% of married or in-union women of reproductive age, 15–49 years) 2008–2018[b]	Women married by age 18 (% of women ages 20–24 who are married or in union) 2003–2018[b]	Prevalence of female genital mutilation/cutting among girls and women (% of girls and young women ages 15–49) 2004–2018[b]	Intimate partner (% of female population ages 15 and older) 2005–2019[b]	Nonintimate partner (% of female population ages 15 and older) 2005–2019[b]	Share of graduates in science, technology, engineering and mathematics programmes at tertiary level, female (%) 2008–2018[b]	Share of graduates from science, technology, engineering and mathematics programmes in tertiary education who are female (%) 2008–2018[b]	Female share of employment in senior and middle management (%) 2010–2018[b]	Women with account at financial institution or with mobile money-service provider (% of female population ages 15 and older) 2017	Mandatory paid maternity leave (days) 2017
98	Fiji	100.0	99.8	..	..	..	..	64.1	8.5	..	..	38.6	..	84
98	Paraguay	98.7	97.3	68.4	12.1	22	..	20.4	..	..	..	..	46.0	98
98	Suriname	90.9	80.0	47.6	16.9	19	..	..	..	..	..	..	..	..
102	Jordan	99.1	99.7	51.8	14.2	8	..	19.0	..	..	..	..	26.6	70
103	Belize	97.2	92.2	51.4	22.2	34	..	22.2	..	11.7	41.8	41.7	52.3[f]	98
104	Maldives	99.1	95.6	34.7	28.6	4	..	16.3	..	..	..	19.5	..	60
105	Tonga	99.0	..	34.1	25.2	6	..	39.6	6.3	..	..	..	..	..
106	Philippines	95.4	84.4	54.1	16.7	17	..	14.8	..	17.8	36.3	25.5	38.9	60
107	Moldova (Republic of)	98.8	99.7	59.5	9.5	12	..	34.0	4.0	12.1	32.2	..	44.6	126
108	Turkmenistan	99.6	100.0	50.2	12.1	6	..	..	..	..	..	..	35.5	..
108	Uzbekistan	99.4	100.0	..	..	7	..	..	..	..	..	..	36.0	126
110	Libya	93.0	99.9	27.7	40.2	..	..	..	..	..	..	..	59.6	98
111	Indonesia	95.4	93.6	61.0	14.8	11	..	18.3	..	12.2	37.1	19.4	51.4	90
111	Samoa	93.3	82.5	26.9	34.8	11	..	46.1	10.6	..	..	41.6	..	28
113	South Africa	93.7	96.7	54.6	14.9	6	..	21.3	..	12.7	41.9	33.9	70.0	120
114	Bolivia (Plurinational State of)	90.1	71.3	66.5	23.2	20	..	58.5	..	..	..	26.8	53.9	90
115	Gabon	94.7	..	31.1	26.5	22	..	48.6	5.0	..	..	..	53.7	98
116	Egypt	90.3	91.5	58.5	12.6	17	87.2	25.6	..	7.7	36.9	..	27.0	90
MEDIUM HUMAN DEVELOPMENT														
117	Marshall Islands	81.2	92.4	..	..	26	..	50.9	13.0	..	..	..	..	..
118	Viet Nam	95.8	93.8	75.7	6.1	11	..	34.4	2.3	15.4	36.5	..	30.4	180
119	Palestine, State of	99.4	99.6	57.2	10.9	15	..	..	..	11.7	44.9	17.8	15.9	84
120	Iraq	77.7	95.6	52.8	13.3	28	7.4	..	..	..	..	..	19.5	98
121	Morocco	77.1	86.6	70.8	13.8	13	..	..	..	17.5	45.2	..	16.8	98
122	Kyrgyzstan	98.4	98.4	42.0	19.1	12	..	26.6	0.1	13.3	38.7	..	38.9	126
123	Guyana	90.7	85.7	33.9	28.0	30	..	..	..	5.2	27.2	35.4	..	91
124	El Salvador	96.0	99.9	72.0	11.1	26	..	14.3	..	9.4	23.5	32.7	24.4	112
125	Tajikistan	78.8	94.8	29.3	16.5	9	..	26.4	..	..	..	..	42.1	140
126	Cabo Verde	..	92.6	..	..	18	..	12.6	..	8.0	30.6	..	..	60
126	Guatemala	91.3	69.2	60.6	13.9	30	..	21.2	..	5.4	34.7	34.5	42.1	84
126	Nicaragua	94.7	89.6	80.4	5.8	35	..	22.5	..	..	..	..	24.8	84
129	India	..	81.4	53.5	12.9	27	..	28.8	..	27.7	43.9	13.0	76.6	182
130	Namibia	96.6	88.2	56.1	17.5	7	..	26.7	..	8.1	41.9	48.2	80.7	84
131	Timor-Leste	84.4	56.7	26.1	25.3	15	..	58.8	13.9	..	..	..	..	84
132	Honduras	96.6	74.0	73.2	10.7	34	..	27.8	..	8.6	37.5	41.0	41.0	84
132	Kiribati	88.4	..	22.3	28.0	20	..	67.6	9.8	..	..	..	..	84
134	Bhutan	97.9	96.4	65.6	11.7	26	..	15.1	5.8	..	..	..	27.7[f]	56
135	Bangladesh	63.9	67.8	62.3	12.0	59	..	54.2	3.0	7.9	19.8	11.5	35.8	112
135	Micronesia (Federated States of)	80.0	..	..	..	..	..	32.8	8.0	..	..	18.2	..	..
137	Sao Tome and Principe	97.5	92.5	40.6	33.7	35	..	27.9	..	..	..	..	..	98
138	Congo	93.5	91.2	30.1	17.9	27	..	..	..	..	..	..	21.0	105
138	Eswatini (Kingdom of)	98.5	88.3	66.1	15.2	5	..	..	..	..	..	54.6	27.4[d]	14
140	Lao People's Democratic Republic	54.2	64.4	54.1	14.3	33	..	15.3	5.3	8.6	25.2	23.4	31.9	105
141	Vanuatu	75.6	89.4	49.0	24.2	21	..	60.0	33.0	..	..	..	..	84
142	Ghana	90.5	78.1	33.0	26.3	21	3.8	24.4	4.0	7.4	22.5	..	53.7	84
143	Zambia	95.7	63.3	49.0	21.1	31	..	45.9	..	..	..	28.5	40.3	84
144	Equatorial Guinea	91.3	..	12.6	33.8	30	..	56.9	..	..	..	..	..	84
145	Myanmar	80.7	60.2	52.2	16.2	16	..	17.3	..	47.3	64.9	31.5	26.0	98
146	Cambodia	95.3	89.0	56.3	12.5	19	..	20.9	3.8	6.0	16.7	..	21.5	90
147	Kenya	93.7	61.8	60.5	14.9	23	21.0	40.7	..	11.2	30.7	..	77.7	90
147	Nepal	83.6	58.0	52.6	23.7	40	..	25.0	..	..	..	13.9	41.6	52
149	Angola	81.6	46.6	13.7	38.0	30	..	34.8	..	9.9	38.4	..	22.3[f]	90
150	Cameroon	82.8	64.7	34.4	18.0	31	1.4	51.1	5.0	..	..	..	30.0	98

HDI rank		SDG 3.1 Reproductive health and family planning		SDG 3.7, 5.6	SDG 5.6	SDG 5.3 Violence against girls and women	SDG 5.3	SDG 5.2	SDG 5.2	SDG 5.5 Socioeconomic empowerment				SDG 1.3
		Antenatal care coverage, at least one visit	Proportion of births attended by skilled health personnel	Contraceptive prevalence, any method	Unmet need for family planning	Child marriage: Women married by age 18	Prevalence of female genital mutilation/ cutting among girls and women	Violence against women ever experienced[a]: Intimate partner	Violence against women ever experienced[a]: Nonintimate partner	Share of graduates in science, technology, engineering and mathematics programmes at tertiary level, female	Share of graduates from science, technology, engineering and mathematics programmes in tertiary education who are female	Female share of employment in senior and middle management	Women with account at financial institution or with mobile money-service provider	Mandatory paid maternity leave
		(%)	(%)	(% of married or in-union women of reproductive age, 15–49 years)		(% of women ages 20–24 who are married or in union)	(% of girls and young women ages 15–49)	(% of female population ages 15 and older)		(%)	(%)	(%)	(% of female population ages 15 and older)	(days)
		2007–2017[b]	2013–2018[b]	2008–2018[b]	2008–2018[b]	2003–2018[b]	2004–2018[b]	2005–2019[b]	2005–2019[b]	2008–2018[b]	2008–2018[b]	2010–2018[b]	2017	2017
150	Zimbabwe	93.3	78.1	66.8	10.4	32	..	37.6	..	20.9	28.8	..	51.7	98
152	Pakistan	73.1	69.3	34.2	17.3	21	..	24.5	..	..	..	4.2	7.0	84
153	Solomon Islands	88.5	86.2	29.3	34.7	21	..	63.5	18.0	..	..	25.1	..	84
LOW HUMAN DEVELOPMENT														
154	Syrian Arab Republic	87.7	..	53.9	16.4	13	..	..	..	19.2	49.5	..	19.6[d]	120
155	Papua New Guinea	..	..	..	..	21	..	..	..	..	..	19.3	..	0
156	Comoros	92.1	..	19.4	31.6	32	..	6.4	1.5	..	..	..	17.9[d]	98
157	Rwanda	99.0	90.7	53.2	18.9	7	..	37.1	..	9.2	32.2	36.3	45.0	84
158	Nigeria	65.8	43.0	27.6	23.1	44	18.4	17.4	1.5	..	..	28.9	27.3	84
159	Tanzania (United Republic of)	91.4	63.5	38.4	22.1	31	10.0	46.2	..	..	..	17.3	42.2	84
159	Uganda	97.3	74.2	41.8	26.0	34	0.3	49.9	..	..	..	..	52.7	84
161	Mauritania	86.9	69.3	17.8	33.6	37	66.6	..	..	29.4	28.9	..	15.5	98
162	Madagascar	82.1	44.3	47.9	16.4	41	..	..	..	13.6	28.1	24.5	16.3	98
163	Benin	82.8	78.1	15.5	32.3	26	9.2	23.8	..	19.1	54.9	..	28.6	98
164	Lesotho	95.2	77.9	60.2	18.4	17	..	..	..	4.5	23.4	..	46.5	84
165	Côte d'Ivoire	93.2	73.7	23.3	26.5	27	36.7	25.9	..	..	..	..	35.6	98
166	Senegal	95.0	68.4	27.8	21.9	29	24.0	21.5	..	..	..	..	38.4	98
167	Togo	72.7	44.6	19.9	33.6	22	4.7	25.1	..	..	..	..	37.6	98
168	Sudan	79.1	77.7	12.2	26.6	34	86.6	..	..	27.8	47.2	..	10.0[f]	56
169	Haiti	91.0	41.6	34.3	38.0	15	..	26.0	..	..	..	..	30.0	42
170	Afghanistan	58.6	58.8	22.5	24.5	35	..	50.8	..	..	..	4.3	7.2	90
171	Djibouti	87.7	..	19.0	..	5	93.1	..	..	..	..	..	8.8[d]	98
172	Malawi	94.8	89.8	59.2	18.7	42	..	37.5	..	..	..	..	29.8	56
173	Ethiopia	62.4	27.7	40.1	20.6	40	65.2	28.0	..	7.6	17.3	21.1	29.1	90
174	Gambia	86.2	57.2	9.0	24.9	30	74.9	20.1	..	53.1	45.7	33.7	..	180
174	Guinea	84.3	55.3	8.7	27.6	51	96.8	..	..	..	..	..	19.7	98
176	Liberia	95.9	61.1	31.2	31.1	36	44.4	38.5	2.6	..	..	20.1	28.2	98
177	Yemen	64.4	44.7	33.5	28.7	32	18.5	..	..	..	..	..	1.7[f]	70
178	Guinea-Bissau	92.4	45.0	16.0	22.3	24	44.9	..	..	..	..	..	..	60
179	Congo (Democratic Republic of the)	88.4	80.1	20.4	27.7	37	..	50.7	..	11.0	25.1	..	24.2	98
180	Mozambique	90.6	73.0	27.1	23.1	53	..	21.7	..	5.1	26.7	22.2	32.9	60
181	Sierra Leone	97.1	81.6	22.5	26.3	30	86.1	48.8	..	..	..	..	15.4	84
182	Burkina Faso	92.8	79.8	31.7	22.8	52	75.8	11.5	..	7.0	15.1	..	34.5	98
182	Eritrea	88.5	..	8.4	27.4	41	83.0	..	..	21.8	27.8	..	..	60
184	Mali	75.6	67.3	15.6	17.2	50	82.7	35.5	..	..	..	..	25.7	98
185	Burundi	99.2	85.1	28.5	29.7	19	..	48.5	..	10.4	18.2	..	6.7[f]	84
186	South Sudan	61.9	..	4.0	26.3	52	..	..	..	..	..	..	4.7	56
187	Chad	54.7	20.2	5.7	22.9	67	38.4	28.6	..	..	..	..	14.9	98
188	Central African Republic	68.2	..	15.2	27.0	68	24.2	29.8	..	..	..	..	9.7	98
189	Niger	82.8	39.7	11.0	15.0	76	2.0	..	..	6.4	29.1	..	10.9	98
OTHER COUNTRIES OR TERRITORIES														
..	Korea (Democratic People's Rep. of)	100.0	99.5	78.2	7.0	..	..	..	..	22.2	19.3	..	..	..
..	Monaco	..	..	..	..	..	..	..	..	..	..	..	..	..
..	Nauru	94.5	..	..	..	27	..	48.1	47.3	..	..	..	..	..
..	San Marino	..	..	..	..	..	..	..	..	..	..	..	..	630
..	Somalia	..	..	..	..	45	97.9	..	..	..	..	..	33.7[f]	..
..	Tuvalu	97.4	..	..	..	10	..	36.8	..	..	..	36.7	..	..

	Reproductive health and family planning (SDG 3.1, SDG 3.7, 5.6, SDG 5.6)				Violence against girls and women (SDG 5.3, SDG 5.3, SDG 5.2, SDG 5.2)				Socioeconomic empowerment (SDG 5.5)				SDG 1.3
	Antenatal care coverage, at least one visit	Proportion of births attended by skilled health personnel	Contraceptive prevalence, any method	Unmet need for family planning	Child marriage: Women married by age 18	Prevalence of female genital mutilation/cutting among girls and women	Violence against women ever experienced[a]: Intimate partner	Violence against women ever experienced[a]: Nonintimate partner	Share of graduates in science, technology, engineering and mathematics programmes at tertiary level, female	Share of graduates from science, technology, engineering and mathematics programmes in tertiary education who are female	Female share of employment in senior and middle management	Women with account at financial institution or with mobile money-service provider	Mandatory paid maternity leave
	(%)	(%)	(% of married or in-union women of reproductive age, 15–49 years)		(% of women ages 20–24 who are married or in union)	(% of girls and young women ages 15–49)	(% of female population ages 15 and older)		(%)	(%)	(%)	(% of female population ages 15 and older)	(days)
HDI rank	2007–2017[b]	2013–2018[b]	2008–2018[b]	2008–2018[b]	2003–2018[b]	2004–2018[b]	2005–2019[b]	2005–2019[b]	2008–2018[b]	2008–2018[b]	2010–2018[b]	2017	2017
Human development groups													
Very high human development	..	98.9	69.1	..	..	..	..	..	13.2	33.5	—	86.8	112
High human development	96.3	97.7	75.4	..	..	..	..	..	..	..	—	65.4	116
Medium human development	..	78.1	53.0	13.9	28	..	30.7	..	26.0	43.7	—	58.2	94
Low human development	77.8	56.5	29.4	23.7	39	36.7	31.5	..	..	..	—	26.1	86
Developing countries	90.1	85.2	60.5	15.0	27	..	..	..	..	..	—	58.2	99
Regions													
Arab States	86.5	88.5	47.9	15.8	20	..	..	..	19.0	48.1	—	27.0	75
East Asia and the Pacific	95.8	96.6	77.2	..	..	..	..	..	..	..	—	..	88
Europe and Central Asia	97.1	98.9	63.3	8.2	10	..	27.8	..	14.0	32.9	—	53.4	165
Latin America and the Caribbean	97.1	95.1	74.5	..	25	..	23.8	..	11.6	33.6	—	52.1	96
South Asia	..	78.8	52.9	13.3	29	..	31.0	..	..	..	—	65.0	110
Sub-Saharan Africa	81.8	60.6	34.0	22.3	36	30.3	31.4	..	..	..	—	36.0	89
Least developed countries	77.9	61.5	38.2	21.4	40	..	38.3	..	..	..	—	28.4	87
Small island developing states	95.2	83.6	54.1	20.1	23	..	..	..	..	..	—	..	79
Organisation for Economic Co-operation and Development	..	98.8	70.7	..	..	..	..	..	12.9	32.6	—	86.2	114
World	..	87.0	61.9	..	..	..	..	..	..	..	—	64.6	107

NOTES

Three-colour coding is used to visualize partial grouping of countries and aggregates by indicator. For each indicator countries are divided into three groups of approximately equal size (terciles): the top third, the middle third and the bottom third. Aggregates are colour coded using the same tercile cutoffs. See *Technical note 6* at http://hdr.undp.org/sites/default/files/hdr2019_technical_notes.pdf for details about partial grouping in this table.

a Data collection methods, age ranges, sampled women (ever-partnered, ever-married or all women) and definitions of the forms of violence and of perpetrators vary by survey. Thus data are not necessarily comparable across countries.

b Data refer to the most recent year available during the period specified.

c Refers to 2015.

d Refers to 2011.

e Refers to 2003.

f Refers to 2014.

DEFINITIONS

Antenatal care coverage, at least one visit: Percentage of women ages 15–49 attended at least once during pregnancy by skilled health personnel (doctor, nurse or midwife).

Proportion of births attended by skilled health personnel: Percentage of deliveries attended by skilled health personnel (generally doctors, nurses or midwives) trained in providing lifesaving obstetric care—including giving the necessary supervision, care and advice to women during pregnancy, labour and the postpartum period, conducting deliveries on their own and caring for newborns. Traditional birth attendants, even if they receive a short training course, are not included.

Contraceptive prevalence, any method: Percentage of married or in-union women of reproductive age (15–49 years) currently using any contraceptive method.

Unmet need for family planning: Percentage of married or in-union women of reproductive age (15–49 years) who are fecund have an unmet need if they want to have no (more) births, or if they want to postpone or are undecided about the timing of their next birth, yet they are not using any method of contraception.

Child marriage, women married by age 18: Percentage of women ages 20–24 who were first married or in union before age 18.

Prevalence of female genital mutilation/cutting among girls and women: Percentage of girls and women ages 15–49 who have undergone female genital mutilation/cutting.

Violence against women ever experienced, intimate partner: Percentage of the female population ages 15 and older that has ever experienced physical and/or sexual violence from an intimate partner.

Violence against women ever experienced, nonintimate partner: Percentage of the female population ages 15 and older that has ever experienced sexual violence from a nonintimate partner.

Share of graduates in science, technology, engineering and mathematics programmes at tertiary level, female: Share of female tertiary graduates in science, technology, engineering and mathematics programmes among all female tertiary graduates.

Share of graduates from science, technology, engineering and mathematics programmes in tertiary education who are female: Share of female graduates among all graduates of tertiary programmes in science, technology, engineering and mathematics.

Female share of employment in senior and middle management: Proportion of women in total employment in senior and middle management.

Women with account at financial institution or with mobile money-service provider: Percentage of women ages 15 and older who report having an account alone or jointly with someone else at a bank or other type of financial institution or who report personally using a mobile money service in the past 12 months.

Mandatory paid maternity leave: Number of days of paid time off work to which a female employee is entitled in order to take care of a newborn child.

MAIN DATA SOURCES

Column 1: UNICEF (2019b).

Columns 2, 5 and 6: United Nations Statistics Division (2019a).

Columns 3 and 4: UNDESA (2019a).

Columns 7 and 8: UN Women (2019).

Columns 9 and 10: UNESCO Institute for Statistics (2019).

Column 11: ILO (2019).

Columns 12 and 13: World Bank (2019b).

DASH BOARD 3

DASHBOARD 4

Environmental sustainability

Country groupings (terciles)

Top third | Middle third | Bottom third

Three-colour coding is used to visualize partial grouping of countries by indicator. For each indicator countries are divided into three groups of approximately equal size (terciles): the top third, the middle third and the bottom third. Aggregates are colour coded using the same tercile cutoffs. See *Notes* after the table.

HDI rank	SDG 12.c Fossil fuel energy consumption (% of total energy consumption) 2010–2015[b]	SDG 7.2 Renewable energy consumption (% of total final energy consumption) 2015	SDG 9.4 Carbon dioxide emissions Per capita (tonnes) 2016	SDG 9.4 Carbon dioxide emissions (kg per 2010 US$ of GDP) 2016	SDG 15.1 Forest area (% of total land area[a]) 2016	SDG 15.1 Forest area Change (%) 1990/2016	SDG 6.4 Fresh water withdrawals (% of total renewable water resources) 2007–2017[b]	SDG 12.2 Natural resource depletion (% of GNI) 2012–2017[b]	SDG 3.9 Environmental threats Mortality rate attributed to Household and ambient air pollution (per 100,000 population) 2016	SDG 3.9 Environmental threats Mortality rate attributed to Unsafe water, sanitation and hygiene services (per 100,000 population) 2016	SDG 15.3 Degraded land (% of total land area) 2015	SDG 15.5 Red List Index (value) 2018
VERY HIGH HUMAN DEVELOPMENT												
1 Norway	57.0	57.8	6.8	0.11	33.2	–0.1	0.8	4.4	9	0.2	..	0.940
2 Switzerland	50.2	25.3	4.5	0.08	31.8	9.3	3.8	0.0	10	0.1	..	0.974
3 Ireland	85.3	9.1	7.9	0.12	11.0	63.4	1.5	0.1	12	0.1	..	0.925
4 Germany	78.9	14.2	8.9	0.21	32.7	1.0	16.5	0.0	16	0.6	..	0.983
4 Hong Kong, China (SAR)	93.2	0.9	6.2	0.11	..	..	..	..	..	..	..	0.821
6 Australia	89.6	9.2	16.2	0.35	16.3	–2.8	3.2	3.0	8	0.1	..	0.825
6 Iceland	11.3	77.0	6.2	0.14	0.5	213.7	0.2	0.0	9	0.1	..	0.861
8 Sweden	25.1	53.2	3.9	0.08	68.9	0.8	1.6	0.2	7	0.2	..	0.993
9 Singapore	90.6	0.7	8.0	0.10	23.1	–5.5	..	0.0	26	0.1	..	0.860
10 Netherlands	93.5	5.9	9.2	0.20	11.2	9.4	9.8	0.3	14	0.2	..	0.943
11 Denmark	64.9	33.2	5.9	0.13	14.7	14.7	10.6	0.4	13	0.3	..	0.972
12 Finland	40.2	43.2	8.3	0.21	73.1	1.8	..	0.1	7	0.1[c]	1	0.990
13 Canada	74.1	22.0	14.9	0.35	38.2	–0.4	1.2	0.7	7	0.4	..	0.969
14 New Zealand	59.7	30.8	6.5	0.19	38.6	5.1	1.6	0.5	7	0.1	..	0.626
15 United Kingdom	80.4	8.7	5.6	0.15	13.1	13.8	5.7	0.4	14	0.2	..	0.783
15 United States	82.4	8.7	15.0	0.29	33.9	2.7	14.5	0.2	13	0.2	..	0.836
17 Belgium	75.9	9.2	8.1	0.20	22.6	..	32.8	0.0	16	0.3	11	0.986
18 Liechtenstein	..	63.1	..	..	43.1	6.2	..	..	..	..	..	0.993
19 Japan	93.0	6.3	9.0	0.24	68.5	0.0	18.9	0.0	12	0.2	..	0.781
20 Austria	65.7	34.4	7.2	0.17	46.9	2.6	4.5	0.1	15	0.1	..	0.894
21 Luxembourg	80.6	9.0	14.6	0.16	35.7	..	1.3	0.0	12	0.1[c]	4	0.987
22 Israel	97.4	3.7	7.9	0.23	7.7	26.7	..	0.1	15	0.2	..	0.758
22 Korea (Republic of)	81.0	2.7	11.6	0.33	63.4	–4.1	..	0.0	20	1.8	..	0.733
24 Slovenia	61.1	20.9	6.5	0.23	62.0	5.1	2.8	0.0	23	0.1[c]	5	0.937
25 Spain	73.0	16.3	5.1	0.16	36.9	33.6	28.7	0.0	10	0.2	18	0.843
26 Czechia	77.7	14.8	9.5	0.31	34.6	1.6	12.4	0.1	30	0.2	6	0.971
26 France	46.5	13.5	4.5	0.12	31.2	18.5	13.9	0.0	10	0.3	12	0.873
28 Malta	97.8	5.4	3.1	0.09	1.1	0.0	83.0	..	20	0.1[c]	..	0.883
29 Italy	79.9	16.5	5.4	0.16	31.8	23.2	17.9	0.0	15	0.1	13	0.902
30 Estonia	13.1	27.5	12.4	0.47	51.3	–1.4	13.4	0.2	25	0.1[c]	..	0.986
31 Cyprus	92.9	9.9	5.4	0.24	18.7	7.2	28.0	0.0	20	0.3	19	0.983
32 Greece	82.6	17.2	5.9	0.25	31.7	23.8	14.0	0.1	28	0.1[c]	16	0.848
32 Poland	90.3	11.9	7.7	0.31	30.9	6.5	17.5	0.4	38	0.1	5	0.971
34 Lithuania	68.0	29.0	3.7	0.14	34.8	12.3	11.3	..	34	0.1	3	0.989
35 United Arab Emirates	86.1	0.1	20.5	0.31	4.6	32.1	..	4.0	55	0.1[c]	1	0.863
36 Andorra	..	19.7	..	..	34.0	0.0	..	..	..	..	..	0.917
36 Saudi Arabia	99.9	0.0	16.3	0.33	0.5	0.0	871.7	7.9	84	0.1	4	0.908
36 Slovakia	64.1	13.4	5.6	0.19	40.4	1.0	1.1	0.0	34	0.1[c]	4	0.963
39 Latvia	56.7	38.1	3.4	0.15	54.0	5.8	0.6	0.0	41	0.1[c]	13	0.988
40 Portugal	77.0	27.2	4.6	0.17	34.6	–7.8	11.8	0.1	10	0.2	32	0.854
41 Qatar	100.0	0.0	29.8	0.27	0.0	0.0	..	7.4	47	0.1[c]	6	0.826
42 Chile	74.6	24.9	4.7	0.22	24.3	18.2	..	6.5	25	0.2	1	0.755
43 Brunei Darussalam	100.0	0.0	15.1	0.21	72.1	–8.0	..	10.9	13	0.1[c]	..	0.825
43 Hungary	69.5	15.6	4.5	0.18	22.9	14.3	4.9	0.2	39	0.2	13	0.930
45 Bahrain	99.4	0.0	20.8	0.49	0.8	145.9	132.2	3.2	40	0.1[c]	..	0.844
46 Croatia	70.7	33.1	3.8	0.19	34.4	3.8	0.6	0.3	35	0.1	..	0.901
47 Oman	100.0	0.0	14.1	0.37	0.0	0.0	..	18.1	54	0.1[c]	7	0.885
48 Argentina	87.7	10.0	4.4	0.24	9.8	–22.9	4.3	1.0	27	0.4	39	0.861
49 Russian Federation	92.1	3.3	9.9	0.45	49.8	0.8	1.5	5.8	49	0.1	6	0.955
50 Belarus	92.4	6.8	5.6	0.34	42.6	11.1	2.5	0.6	61	0.1	1	0.972

HDI rank	SDG 12.c Fossil fuel energy consumption (% of total energy consumption) 2010–2015[b]	SDG 7.2 Renewable energy consumption (% of total final energy consumption) 2015	SDG 9.4 Carbon dioxide emissions Per capita (tonnes) 2016	SDG 9.4 Carbon dioxide emissions (kg per 2010 US$ of GDP) 2016	SDG 15.1 Forest area (% of total land area[a]) 2016	SDG 15.1 Forest area Change (%) 1990/2016	SDG 6.4 Fresh water withdrawals (% of total renewable water resources) 2007–2017[b]	SDG 12.2 Natural resource depletion (% of GNI) 2012–2017[b]	SDG 3.9 Environmental threats Mortality rate attributed to Household and ambient air pollution (per 100,000 population) 2016	SDG 3.9 Environmental threats Mortality rate attributed to Unsafe water, sanitation and hygiene services (per 100,000 population) 2016	SDG 15.3 Degraded land (% of total land area) 2015	SDG 15.5 Red List Index (value) 2018
50 Kazakhstan	99.2	1.6	12.9	0.56	1.2	–3.3	19.8	8.7	63	0.4	36	0.871
52 Bulgaria	71.0	17.7	5.7	0.33	35.4	17.6	26.4	0.7	62	0.1	..	0.944
52 Montenegro	64.7	43.0	3.4	0.22	61.5	32.1	..	0.5	79	0.1[c]	6	0.813
52 Romania	72.5	23.7	3.4	0.17	30.1	8.4	3.0	0.5	59	0.4	2	0.949
55 Palau	..	0.0	..	..	87.6	..	..	..	..	..	..	0.732
56 Barbados	..	2.8	..	..	14.7	0.0	..	0.0	31	0.2	..	0.914
57 Kuwait	93.7	0.0	22.8	0.33	0.4	81.2	..	8.1	104	0.1[c]	64	0.845
57 Uruguay	46.3	58.0	1.8	0.09	10.7	134.1	..	1.2	18	0.4	26	0.832
59 Turkey	86.8	13.4	4.2	0.18	15.4	22.8	27.8	0.2	47	0.3	9	0.875
60 Bahamas	..	1.2	..	..	51.4	0.0	..	0.0	20	0.1	..	0.702
61 Malaysia	96.6	5.2	7.0	0.28	67.6	–0.7	..	3.1	47	0.4	16	0.677
62 Seychelles	..	1.4	..	..	88.4	0.0	..	0.0	49	0.2	12	0.664
HIGH HUMAN DEVELOPMENT												
63 Serbia	83.9	21.2	5.1	0.49	31.1	9.9	2.9	0.4	62	0.7	6	0.958
63 Trinidad and Tobago	99.9	0.3	15.3	0.52	46.0	–1.9	8.8	6.9	39	0.1	..	0.813
65 Iran (Islamic Republic of)	99.0	0.9	7.1	0.39	6.6	17.8	..	4.6	51	1.0	23	0.837
66 Mauritius	84.5	11.5	3.2	0.17	19.0	–6.0	..	0.0	38	0.6	27	0.396
67 Panama	80.7	21.2	2.5	0.12	61.9	–8.7	0.9	0.1	26	1.9	14	0.733
68 Costa Rica	49.9	38.7	1.5	0.10	54.6	8.7	2.8	0.3	23	0.9	9	0.818
69 Albania	61.4	38.6	1.3	0.12	28.1	–2.3	..	1.1	68	0.2	8	0.844
70 Georgia	72.2	28.7	2.2	0.26	40.6	2.6	2.9	0.7	102	0.2	6	0.864
71 Sri Lanka	50.5	52.9	1.0	0.09	32.9	–9.7	..	0.1	80	1.2	36	0.564
72 Cuba	85.6	19.3	2.1	0.10	31.3	63.2	18.3	0.5	50	1.0	..	0.651
73 Saint Kitts and Nevis	..	1.6	..	..	42.3	0.0	51.3	..	..	..	..	0.731
74 Antigua and Barbuda	..	0.0	..	..	22.3	–4.9	8.5	..	30	0.1	..	0.888
75 Bosnia and Herzegovina	77.5	40.8	6.5	0.58	42.7	–1.1	0.9	0.4	80	0.1	4	0.905
76 Mexico	90.4	9.2	3.6	0.21	33.9	–5.5	18.6	2.2	37	1.1	47	0.677
77 Thailand	79.8	22.9	3.5	0.23	32.2	17.3	13.1	1.6	61	3.5	21	0.795
78 Grenada	..	10.9	..	..	50.0	0.0	7.1	..	45	0.3	..	0.763
79 Brazil	59.1	43.8	2.0	0.15	58.9	–9.9	0.7	1.9	30	1.0	27	0.902
79 Colombia	76.7	23.6	1.8	0.14	52.7	–9.2	0.5	3.4	37	0.8	7	0.737
81 Armenia	74.6	15.8	1.7	0.21	11.7	–0.8	36.7	2.9	55	0.2	2	0.846
82 Algeria	100.0	0.1	3.1	0.23	0.8	17.8	77.8	9.3	50	1.9	1	0.904
82 North Macedonia	79.4	24.2	3.3	0.26	39.6	10.3	8.6	1.2	82	0.1	..	0.972
82 Peru	79.6	25.5	1.7	0.14	57.7	–5.3	0.7	5.5	64	1.3	..	0.724
85 China	87.7	12.4	6.4	0.47	22.4	33.6	20.9	0.9	113	0.6	27	0.744
85 Ecuador	86.9	13.8	2.1	0.21	50.2	–5.0	..	2.9	25	0.6	30	0.679
87 Azerbaijan	98.4	2.3	3.2	0.21	14.1	37.7	36.9	13.4	64	1.1	..	0.912
88 Ukraine	75.3	4.1	4.4	0.62	16.7	4.4	5.6	1.0	71	0.3	25	0.946
89 Dominican Republic	86.6	16.5	2.2	0.15	41.7	82.5	30.4	1.6	43	2.2	..	0.734
89 Saint Lucia	..	2.1	..	..	33.2	–7.2	14.3	0.0	30	0.6	..	0.842
91 Tunisia	88.9	12.6	2.2	0.21	6.8	63.5	103.3	1.6	56	1.0	13	0.974
92 Mongolia	93.2	3.4	5.9	0.53	8.0	–0.6	1.3	22.8	156	1.3	13	0.948
93 Lebanon	97.6	3.6	3.5	0.30	13.4	4.9	40.2	0.0	51	0.8	..	0.961
94 Botswana	74.7	28.9	3.2	0.20	18.9	–21.7	1.7	0.5	101	11.8	51	0.979
94 Saint Vincent and the Grenadines	..	5.8	..	..	69.2	8.0	7.9	0.0	48	1.3	..	0.772
96 Jamaica	81.0	16.8	2.5	0.31	30.9	–2.8	12.5	0.3	25	0.6	..	0.724
96 Venezuela (Bolivarian Republic of)	88.4	12.8	4.3	0.33	52.7	–10.6	1.7	1.0	35	1.4	15	0.825
98 Dominica	..	7.8	..	..	57.4	–13.9	10.0	0.0	..	..	..	0.672
98 Fiji	..	31.3	..	..	55.9	7.3	..	0.8	99	2.9	..	0.669
98 Paraguay	33.7	61.7	0.9	0.11	37.7	–29.1	0.6	1.6	57	1.5	52	0.948
98 Suriname	76.3	24.9	3.4	0.25	98.3	–0.7	..	28.1	57	2.0	21	0.983
102 Jordan	97.6	3.2	2.5	0.31	1.1	–0.6	96.4	0.1	51	0.6	4	0.963
103 Belize	..	35.0	..	..	59.7	–15.8	..	0.5	69	1.0	81	0.743
104 Maldives	..	1.0	..	..	3.3	0.0	15.7	0.0	26	0.3	..	0.843
105 Tonga	..	1.9	..	..	12.5	0.0	..	0.0	73	1.4	..	0.725
106 Philippines	62.4	27.5	1.1	0.16	27.8	26.3	17.8	0.7	185	4.2	38	0.644
107 Moldova (Republic of)	88.7	14.3	1.9	0.45	12.6	29.6	8.7	0.2	78	0.1	29	0.969

HDI rank	SDG 12.c Fossil fuel energy consumption (% of total energy consumption) 2010–2015[b]	SDG 7.2 Renewable energy consumption (% of total final energy consumption) 2015	SDG 9.4 Carbon dioxide emissions Per capita (tonnes) 2016	SDG 9.4 Carbon dioxide emissions (kg per 2010 US$ of GDP) 2016	SDG 15.1 Forest area (% of total land area[a]) 2016	SDG 15.1 Forest area Change (%) 1990/2016	SDG 6.4 Fresh water withdrawals (% of total renewable water resources) 2007–2017[b]	SDG 12.2 Natural resource depletion (% of GNI) 2012–2017[b]	SDG 3.9 Environmental threats Mortality rate attributed to Household and ambient air pollution (per 100,000 population) 2016	SDG 3.9 Environmental threats Mortality rate attributed to Unsafe water, sanitation and hygiene services (per 100,000 population) 2016	SDG 15.3 Degraded land (% of total land area) 2015	SDG 15.5 Red List Index (value) 2018
108 Turkmenistan	..	0.0	12.2	0.79	8.8	0.0	..	..	79	4.0	22	0.975
108 Uzbekistan	97.7	3.0	2.7	0.45	7.5	5.4	108.1	9.4	81	0.4	29	0.969
110 Libya	99.1	2.0	6.7	0.96	0.1	0.0	822.9	6.7	72	0.6	..	0.969
111 Indonesia	66.1	36.9	1.7	0.17	49.9	–23.8	11.0	1.9	112	7.1	21	0.754
111 Samoa	..	34.3	..	..	60.4	31.5	..	0.0	85	1.5	..	0.806
113 South Africa	86.8	17.2	7.4	0.62	7.6	0.0	30.2	2.7	87	13.7	78	0.772
114 Bolivia (Plurinational State of)	84.2	17.5	1.8	0.28	50.3	–13.2	0.4	5.8	64	5.6	18	0.870
115 Gabon	22.8	82.0	1.7	0.10	90.0	5.5	..	10.5	76	20.6	16	0.961
116 Egypt	97.9	5.7	2.2	0.21	0.1	67.3	114.1	4.0	109	2.0	1	0.909
MEDIUM HUMAN DEVELOPMENT												
117 Marshall Islands	..	11.2	..	..	70.2	..	..	..	..	..	..	0.839
118 Viet Nam	69.8	35.0	2.0	0.35	48.1	67.1	..	1.0	64	1.6	31	0.733
119 Palestine, State of	..	10.5	..	..	1.5	1.0	42.8	..	..	..	15	0.780
120 Iraq	96.0	0.8	3.8	0.24	1.9	3.4	42.9	10.9	75	3.0	26	0.799
121 Morocco	88.5	11.3	1.6	0.22	12.6	13.5	35.7	0.3	49	1.9	19	0.887
122 Kyrgyzstan	75.5	23.3	1.5	0.47	3.3	–24.8	..	6.3	111	0.8	24	0.984
123 Guyana	..	25.3	..	..	83.9	–0.9	0.5	13.3	108	3.6	16	0.922
124 El Salvador	48.4	24.4	1.1	0.14	12.6	–30.9	..	1.0	42	2.0	16	0.826
125 Tajikistan	46.0	44.7	0.6	0.20	3.0	1.9	..	3.5	129	2.7	97	0.985
126 Cabo Verde	..	26.6	..	..	22.5	57.3	..	0.5	99	4.1	17	0.890
126 Guatemala	37.4	63.7	1.0	0.14	32.7	–26.2	..	1.7	74	6.3	24	0.721
126 Nicaragua	40.7	48.2	0.8	0.17	25.9	–31.0	0.9	2.9	56	2.2	..	0.852
129 India	73.6	36.0	1.6	0.26	23.8	10.8	33.9	1.0	184	18.6	30	0.678
130 Namibia	66.7	26.5	1.7	0.17	8.3	–21.9	..	2.6	145	18.3	19	0.966
131 Timor-Leste	..	18.2	..	..	45.4	–30.1	..	29.7	140	9.9	..	0.885
132 Honduras	52.5	51.5	1.0	0.23	40.0	–45.0	..	1.6	61	3.6	..	0.743
132 Kiribati	..	4.3	..	..	15.0	0.0	..	0.0	140	16.7	..	0.760
134 Bhutan	..	86.9	..	..	72.5	35.1	0.4	2.7	124	3.9	10	0.799
135 Bangladesh	73.8	34.7	0.5	0.14	11.0	–4.5	2.9	0.6	149	11.9	65	0.760
135 Micronesia (Federated States of)	..	1.2	..	..	91.9	..	..	..	152	3.6	..	0.686
137 Sao Tome and Principe	..	41.1	..	..	55.8	–4.3	1.9	0.0	162	11.4	..	0.785
138 Congo	40.5	62.4	0.5	0.10	65.4	–1.8	..	31.4	131	38.7	10	0.983
138 Eswatini (Kingdom of)	..	66.1	..	..	34.3	25.1	..	1.7	137	27.9	13	0.817
140 Lao People's Democratic Republic	..	59.3	..	..	82.1	7.4	..	6.3	188	11.3	..	0.810
141 Vanuatu	..	36.1	..	..	36.1	0.0	..	0.0	136	10.4	..	0.662
142 Ghana	52.5	41.4	0.4	0.12	41.2	8.6	..	11.4	204	18.8	14	0.844
143 Zambia	10.6	88.0	0.2	0.06	65.2	–8.2	..	8.3	127	34.9	7	0.879
144 Equatorial Guinea	..	7.8	..	..	55.5	–16.3	..	22.9	178	22.3	19	0.813
145 Myanmar	44.3	61.5	0.4	0.08	43.6	–27.3	..	2.7	156	12.6	23	0.806
146 Cambodia	30.6	64.9	0.6	0.17	52.9	–27.9	..	1.0	150	6.5	33	0.816
147 Kenya	17.4	72.7	0.3	0.11	7.8	–5.8	13.1	2.5	78	51.2	40	0.797
147 Nepal	15.5	85.3	0.3	0.13	25.4	–24.7	..	0.9	194	19.8	..	0.825
149 Angola	48.3	49.6	0.7	0.12	46.3	–5.3	..	12.8	119	48.8	20	0.934
150 Cameroon	38.3	76.5	0.3	0.08	39.3	–23.5	..	2.5	208	45.2	0	0.836
150 Zimbabwe	29.1	81.8	0.7	0.35	35.5	–38.0	17.9	3.1	133	24.6	36	0.789
152 Pakistan	61.6	46.5	0.8	0.17	1.9	–43.5	74.4	0.8	174	19.6	5	0.859
153 Solomon Islands	..	63.3	..	..	77.9	–6.2	..	20.9	137	6.2	..	0.767
LOW HUMAN DEVELOPMENT												
154 Syrian Arab Republic	97.8	0.5	1.5	0.77	2.7	32.1	..	..	75	3.7	..	0.943
155 Papua New Guinea	..	52.5	..	..	74.1	–0.2	..	14.0	152	16.3	21	0.839
156 Comoros	..	45.3	..	..	19.7	–25.3	..	1.8	172	50.7	22	0.764
157 Rwanda	..	86.7	..	..	19.7	53.1	..	5.4	121	19.3	12	0.848
158 Nigeria	18.9	86.6	0.5	0.09	7.2	–61.8	4.4	4.4	307	68.6	32	0.874
159 Tanzania (United Republic of)	14.4	85.7	0.2	0.08	51.6	–18.3	..	2.2	139	38.4	..	0.689
159 Uganda	..	89.1	..	..	9.7	–59.3	1.1	14.1	156	31.6	22	0.751
161 Mauritania	..	32.2	..	..	0.2	–46.7	..	12.4	169	38.6	3	0.977
162 Madagascar	..	70.2	..	..	21.4	–9.1	..	0.8	160	30.2	30	0.788
163 Benin	36.7	50.9	0.5	0.27	37.8	–26.0	..	1.8	205	59.7	53	0.910

HDI rank	SDG 12.c Fossil fuel energy consumption (% of total energy consumption) 2010–2015[b]	SDG 7.2 Renewable energy consumption (% of total final energy consumption) 2015	SDG 9.4 Carbon dioxide emissions Per capita (tonnes) 2016	SDG 9.4 Carbon dioxide emissions (kg per 2010 US$ of GDP) 2016	SDG 15.1 Forest area (% of total land area[a]) 2016	SDG 15.1 Forest area Change (%) 1990/2016	SDG 6.4 Fresh water withdrawals (% of total renewable water resources) 2007–2017[b]	SDG 12.2 Natural resource depletion (% of GNI) 2012–2017[b]	SDG 3.9 Environmental threats Mortality rate attributed to Household and ambient air pollution (per 100,000 population) 2016	SDG 3.9 Environmental threats Mortality rate attributed to Unsafe water, sanitation and hygiene services (per 100,000 population) 2016	SDG 15.3 Degraded land (% of total land area) 2015	SDG 15.5 Red List Index (value) 2018
164 Lesotho	..	52.1	..	..	1.6	25.0	..	5.1	178	44.4	20	0.953
165 Côte d'Ivoire	26.5	64.5	0.4	0.13	32.7	1.7	1.4	2.2	269	47.2	14	0.888
166 Senegal	53.9	42.7	0.5	0.23	42.8	–11.9	..	1.0	161	23.9	6	0.943
167 Togo	17.8	71.3	0.3	0.19	3.1	–75.4	..	13.4	250	41.6	12	0.854
168 Sudan	31.7	61.6	0.5	0.11	..	..	71.2	2.8	185	17.3	12	0.933
169 Haiti	22.0	76.1	0.3	0.18	3.5	–17.1	10.3	1.2	184	23.8	..	0.721
170 Afghanistan	..	18.4	..	..	2.1	0.0	..	0.3	211	13.9	8	0.837
171 Djibouti	..	15.4	..	..	0.2	0.0	..	0.7	159	31.3	..	0.816
172 Malawi	..	83.6	..	..	33.2	–19.7	..	8.2	115	28.3	17	0.808
173 Ethiopia	6.6	92.2	0.1	0.07	12.5	..	8.7	9.4	144	43.7	29	0.842
174 Gambia	..	51.5	..	..	48.4	10.8	..	5.7	237	29.7	14	0.981
174 Guinea	..	76.3	..	..	25.8	–12.9	..	13.0	243	44.6	11	0.894
176 Liberia	..	83.8	..	..	43.1	–15.8	..	19.2	170	41.5	29	0.887
177 Yemen	98.5	2.3	0.3	0.15	1.0	0.0	..	0.2	194	10.2	..	0.884
178 Guinea-Bissau	..	86.9	..	..	69.8	–11.5	..	11.4	215	35.3	15	0.960
179 Congo (Democratic Republic of the)	5.4	95.8	0.0	0.03	67.2	–5.0	..	23.2	164	59.8	6	0.891
180 Mozambique	12.6	86.4	0.3	0.23	48.0	–13.0	0.7	1.3	110	27.6	..	0.825
181 Sierra Leone	..	77.7	..	..	43.1	–0.3	..	12.9	324	81.3	18	0.911
182 Burkina Faso	..	74.2	..	..	19.3	–22.7	..	15.0	206	49.6	19	0.988
182 Eritrea	23.1	79.8	0.2	0.08	14.9	–7.1	..	..	174	45.6	35	0.907
184 Mali	..	61.5	..	..	3.8	–30.7	..	9.5	209	70.7	3	0.981
185 Burundi	..	95.7	..	..	10.9	–2.9	..	15.7	180	65.4	29	0.921
186 South Sudan	72.2	39.1	0.2	0.08	..	..	1.3	14.0	165	63.3	..	0.931
187 Chad	..	89.4	..	..	3.8	–29.2	..	13.1	280	101.0	34	0.920
188 Central African Republic	..	76.6	..	..	35.6	–1.8	..	0.1	212	82.1	13	0.943
189 Niger	24.1	78.9	0.1	0.11	0.9	–41.9	5.1	11.9	252	70.8	7	0.936
OTHER COUNTRIES OR TERRITORIES												
.. Korea (Democratic People's Rep. of)	62.1	23.1	1.0	0.25	40.7	–40.2	..	..	207	1.4	..	0.899
.. Monaco	..	..	..	..	..	..	..	..	..	..	..	0.759
.. Nauru	..	0.1	..	..	0.0	0.0	..	..	..	..	..	0.772
.. San Marino	..	..	..	..	0.0	0.0	..	..	..	..	..	0.992
.. Somalia	..	94.3	..	..	10.0	–24.1	..	8.9	213	86.6	23	0.900
.. Tuvalu	..	0.0	..	..	33.3	0.0	..	..	..	..	..	0.840
Human development groups												
Very high human development	82.4	10.5	9.6	0.25	32.9	1.2	6.4	0.7	25	0.3	..	—
High human development	84.9	15.8	4.7	0.36	31.6	–4.3	5.9	1.5	94	1.9	25	—
Medium human development	69.0	39.8	1.3	0.23	30.9	–7.7	..	2.2	164	18.0	23	—
Low human development	..	81.0	..	..	24.9	–12.0	..	6.4	202	46.5	16	—
Developing countries	80.5	23.5	3.1	0.32	27.1	–6.4	..	2.1	133	14.0	23	—
Regions												
Arab States	95.5	4.0	4.4	0.29	1.8	–1.9	76.1	6.6	101	7.0	7	—
East Asia and the Pacific	..	15.9	..	..	29.8	3.9	..	1.1	115	2.2	..	—
Europe and Central Asia	87.0	9.1	4.6	0.29	9.2	8.6	20.3	2.1	67	0.5	28	—
Latin America and the Caribbean	74.5	27.7	2.6	0.19	46.2	–9.6	1.5	2.3	40	1.7	28	—
South Asia	76.9	31.1	1.6	0.26	14.7	7.8	25.0	1.3	174	17.1	23	—
Sub-Saharan Africa	39.2	70.2	0.8	0.25	28.1	–11.9	..	6.1	187	47.8	22	—
Least developed countries	..	73.2	..	..	29.1	–11.3	..	5.7	167	34.3	16	—
Small island developing states	..	17.8	..	..	69.4	1.3	..	1.5	92	8.9	..	—
Organisation for Economic Co-operation and Development	79.6	12.0	9.0	0.24	31.4	1.6	9.1	0.4	19	0.4	..	—
World	80.6	18.2	4.3	0.27	31.2	–3.0	7.7	1.1	114	11.7	20	—

NOTES

Three-colour coding is used to visualize partial grouping of countries and aggregates by indicator. For each indicator countries are divided into three groups of approximately equal size (terciles): the top third, the middle third and the bottom third. Aggregates are colour coded using the same tercile cutoffs. See *Technical note 6* at http://hdr.undp.org/sites/default/files/hdr2019_technical_notes.pdf for details about partial grouping in this table.

a This column is intentionally left without colour because it is meant to provide context for the indicator on change in forest area.

b Data refer to the most recent year available during the period specified.

c Less than 0.1.

DEFINITIONS

Fossil fuel energy consumption: Percentage of total energy consumption that comes from fossil fuels, which consist of coal, oil, petroleum and natural gas products.

Renewable energy consumption: Share of renewable energy in total final energy consumption. Renewable sources include hydroelectric, geothermal, solar, tides, wind, biomass and biofuels.

Carbon dioxide emissions: Human-originated carbon dioxide emissions stemming from the burning of fossil fuels, gas flaring and the production of cement. Carbon dioxide emitted by forest biomass through depletion of forest areas is included. Data are expressed in tonnes per capita (based on midyear population) and in kilograms per unit of gross domestic product (GDP) in constant 2010 US dollars.

Forest area: Land spanning more than 0.5 hectare with trees taller than 5 metres and a canopy cover of more than 10 percent or trees able to reach these thresholds in situ. It excludes land predominantly under agricultural or urban land use, tree stands in agricultural production systems (for example, in fruit plantations and agroforestry systems) and trees in urban parks and gardens. Areas under reforestation that have not yet reached but are expected to reach a canopy cover of 10 percent and a tree height of 5 metres are included, as are temporarily unstocked areas resulting from human intervention or natural causes that are expected to regenerate.

Fresh water withdrawals: Total fresh water withdrawn, expressed as a percentage of total renewable water resources.

Natural resource depletion: Monetary valuation of energy, mineral and forest depletion, expressed as a percentage of gross national income (GNI).

Mortality rate attributed to household and ambient air pollution: Deaths resulting from exposure to ambient (outdoor) air pollution and household (indoor) air pollution from solid fuel use for cooking, expressed per 100,000 population. Ambient air pollution results from emissions from industrial activity, households, cars and trucks.

Mortality rate attributed to unsafe water, sanitation and hygiene services: Deaths attributable to unsafe water, sanitation and hygiene focusing on inadequate wash services, expressed per 100,000 population.

Degraded land: Rain-fed cropland, irrigated cropland, or range, pasture, forest and woodlands that have experienced the reduction or loss of biological or economic productivity and complexity resulting from a combination of pressures, including land use and management practices.

Red List Index: Measure of the aggregate extinction risk across groups of species. It is based on genuine changes in the number of species in each category of extinction risk on the International Union for Conservation of Nature Red List of Threatened Species. It ranges from 0, all species categorized as extinct, to 1, all species categorized as least concern.

MAIN DATA SOURCES

Columns 1, 2, 5 and 8: World Bank (2019a).

Columns 3, 4, 11 and 12: United Nations Statistics Division (2019a).

Column 6: HDRO calculations based on data on forest area from World Bank (2019a).

Column 7: FAO (2019b).

Columns 9 and 10: WHO (2019).

Socioeconomic sustainability

Country groupings (terciles)

Top third | Middle third | Bottom third

Three-colour coding is used to visualize partial grouping of countries by indicator. For each indicator countries are divided into three groups of approximately equal size (terciles): the top third, the middle third and the bottom third. Aggregates are colour coded using the same tercile cutoffs. See *Notes* after the table.

		SDG 17.4				SDG 9.5				SDG 10.1	SDG 5	SDG 10.1
	Economic sustainability						Social sustainability					
	Adjusted net savings	Total debt service	Gross capital formation	Skilled labour force	Concentration index (exports)	Research and development expenditure	Dependency ratio	Education and health expenditure versus military expenditure		Overall loss in HDI value due to inequality[c]	Gender Inequality Index[c]	Income share of the poorest 40 percent
							Old age (65 and older)	Military expenditure[a]	Ratio of education and health expenditure to military expenditure[b]	Average annual change (%)		
	(% of GNI)	(% of exports of goods, services and primary income)	(% of GDP)	(% of labour force)	(value)	(% of GDP)	(per 100 people ages 15–64)	(% of GDP)				
HDI rank	2015–2017[d]	2015–2017[d]	2015–2018[d]	2010–2018[d]	2018	2010–2017[d]	2030[e]	2010–2018[d]	2010–2016[f]	2010/2018[g]	2005/2018[g]	2005/2017
VERY HIGH HUMAN DEVELOPMENT												
1 Norway	16.9	..	27.6	84.3	0.368	2.0	31.9[h]	1.6	11.7	0.3	–3.7	0.3
2 Switzerland	16.4	..	23.2	86.5	0.246[i]	3.4	37.9	0.7	25.5	–0.4	–3.8	0.8
3 Ireland	16.0	..	25.4	84.9	0.269	1.2	27.8	0.3	32.7	–2.3	–4.0	0.4
4 Germany	14.1	..	21.3	87.4	0.093	2.9	44.0	1.2	13.5	0.5	–2.2	0.0
4 Hong Kong, China (SAR)	..	..	21.7	77.0	0.286	0.8	43.2	..	..	..	..	..
6 Australia	5.6	..	24.3	78.9	0.291	1.9	31.0[j]	1.9	7.5	0.4	–2.0	–0.6
6 Iceland	16.6	..	22.6	74.5	0.461	2.1	31.8	..	..	–1.7	–4.2	0.2
8 Sweden	19.1	..	26.5	86.8	0.097	3.3	36.4	1.0	17.2	–0.4	–1.8	–0.4
9 Singapore	36.8	..	26.6	65.9	0.269	2.2	34.5	3.1	2.1	..	–4.7	..
10 Netherlands	18.4	..	21.2	78.4	0.082	2.0	40.8	1.2	13.9	–2.1	–3.9	0.3
11 Denmark	18.3	..	22.7	78.7	0.101	2.9	37.1	1.2	15.5	–0.7	–2.9	–0.5
12 Finland	10.2	..	23.7	89.9	0.143	2.7	43.1[k]	1.4	11.5	–3.6	–3.3	0.0
13 Canada	6.5	..	23.1	91.8	0.147	1.5	36.7	1.3	13.0	0.2	–2.9	–0.3
14 New Zealand	13.9	..	23.5	82.2	0.175	1.3	33.3	1.2	13.2	..	–2.2	..
15 United Kingdom	5.5	..	17.2	83.6	0.111	1.7	34.8	1.8	8.5	–1.9	–3.2	0.3
15 United States	6.1	..	20.6	96.4	0.099	2.7	32.5	3.2	6.2	2.2	–2.4	–0.4
17 Belgium	12.0	..	25.4	85.5	0.096	2.5	37.6	0.9	18.1	–1.2	–4.3	0.1
18 Liechtenstein	..	..	..	..	..	..	..	..	..	..	..	..
19 Japan	7.3	..	23.9	99.9	0.139	3.1	53.2	0.9	15.3	..	–2.5	..
20 Austria	14.1	..	25.3	87.4	0.061	3.1	38.5	0.7	22.6	0.4	–2.9	–0.5
21 Luxembourg	20.9	..	18.3	78.3	0.106	1.2	27.1	0.6	20.9	0.7	–3.8	–0.9
22 Israel	15.6	..	20.8	90.6	0.223	4.3	22.5	4.3	2.3	–1.8	–3.2	0.7
22 Korea (Republic of)	20.1	..	30.2	85.7	0.175	4.2	38.2	2.6	4.7	–1.8	–3.5	0.1
24 Slovenia	10.1	..	21.9	91.1	0.177	2.0	41.8	1.0	14.4	–3.9	–3.9	–0.2
25 Spain	9.1	..	21.9	66.9	0.096	1.2	39.8[l]	1.3	10.6	5.9	–2.8	–1.2
26 Czechia	10.3	..	26.2	95.7	0.128	1.7	35.3	1.1	13.7	–3.0	–0.8	0.2
26 France	9.3	..	23.5	84.8	0.089	2.2	40.4	2.3	7.5	–0.1	–4.8	–0.5
28 Malta	..	..	18.4	63.4	0.292	0.6	41.9	0.5	29.8	..	–2.8	–0.3
29 Italy	6.0	..	18.0	69.6	0.053	1.3	45.8	1.3	10.8	0.1	–4.7	–0.6
30 Estonia	15.2	..	27.0	89.8	0.099	1.3	38.3	2.1	5.8	–3.2	–4.4	0.0
31 Cyprus	3.2	..	19.1	85.1	0.401	0.5	27.0[m]	1.6	7.9	–2.0	–3.0	–0.9
32 Greece	–3.1	..	13.1	78.3	0.295	1.0	42.5	2.4	..	2.4	–2.4	–0.7
32 Poland	10.6	..	20.7	95.1	0.063	1.0	37.0	2.0	5.2	–3.2	–2.1	0.9
34 Lithuania	..	..	18.2	96.2	0.116	0.8	45.2	2.0	9.4	–0.6	–2.5	–0.7
35 United Arab Emirates	..	..	22.4	52.8	0.276	1.0	6.4	5.6	..	..	–6.2	..
36 Andorra	..	..	..	..	0.189	..	..	..	..	..	..	..
36 Saudi Arabia	13.4	..	25.9	58.6	0.515	0.8	8.3	8.8	1.1[n]	..	–5.1	..
36 Slovakia	5.6	..	23.6	95.5	0.216	0.8	32.7	1.2	10.3	–1.0	0.1	0.2
39 Latvia	6.0	..	24.2	92.5	0.084	0.4	42.3	2.0	10.5	–2.2	–1.7	1.2
40 Portugal	3.4	..	17.5	54.1	0.080	1.3	44.3	1.8	7.7	0.8	–4.3	0.4
41 Qatar	26.8	..	44.6	43.9	0.450	0.5	5.7	1.5	4.2	..	..	..
42 Chile	3.6	..	22.7	70.3	0.325	0.4	26.0	1.9	7.2	1.0	–1.9	1.4
43 Brunei Darussalam	34.6	..	41.1	79.2	0.623	..	14.4	2.4	1.9	..	..	..
43 Hungary	13.2	..	27.1	88.6	0.108	1.2	34.5	1.1	12.7	–0.9	0.0	0.7
45 Bahrain	20.4	..	32.9	19.3	0.372	0.1	7.1	3.6	1.6	..	–2.8	..
46 Croatia	10.8	..	21.4	91.5	0.071	0.8	40.5	1.5	6.9	–5.7	–1.9	0.6
47 Oman	–11.3	..	31.3	..	0.447	0.2	6.0	8.2	0.9	..	–1.7	..
48 Argentina	5.4	..	20.8	65.8	0.227	0.5	19.7	0.9	16.1	–3.6	–0.4	2.0
49 Russian Federation	8.0	26.0	22.7	96.4	0.327	1.1	31.1	3.9	1.9	–1.8	–2.2	1.2

HDI rank	Adjusted net savings (% of GNI) 2015–2017[d]	Total debt service (% of exports of goods, services and primary income) 2015–2017[d]	Gross capital formation (% of GDP) 2015–2018[d]	Skilled labour force (% of labour force) 2010–2018[d]	Concentration index (exports) (value) 2018	Research and development expenditure (% of GDP) 2010–2017[d]	Dependency ratio: Old age (65 and older) (per 100 people ages 15–64) 2030[e]	Education and health expenditure versus military expenditure: Military expenditure[a] (% of GDP) 2010–2018[d]	Education and health expenditure versus military expenditure: Ratio of education and health expenditure to military expenditure[b] 2010–2016[f]	Overall loss in HDI value due to inequality[c] (Average annual change (%)) 2010/2018[g]	Gender Inequality Index[c] (Average annual change (%)) 2005/2018[g]	Income share of the poorest 40 percent (Average annual change (%)) 2005/2017
	SDG 17.4					SDG 9.5				SDG 10.1	SDG 5	SDG 10.1
	Economic sustainability						Social sustainability					
50 Belarus	21.2	11.8	27.5	98.6	0.183	0.6	32.5	1.3	8.9	–3.9	..	0.5
50 Kazakhstan	5.8	47.9	26.6	74.0	0.601	0.1	17.4	1.0	6.8	–5.9	–3.4	3.1
52 Bulgaria	14.8	21.3	20.7	88.8	0.092	0.8	37.2	1.7	7.4	1.4	–1.1	–0.3
52 Montenegro	..	13.4	31.4	90.7	0.218	0.4	30.1	1.5	..	–1.6	..	–0.4
52 Romania	3.4	22.4	24.2	81.0	0.114	0.5	32.6	1.9	5.5	–1.0	–0.8	0.8
55 Palau	..	..	28.5	92.6	0.499	..	..	..	..	..	..	..
56 Barbados	–6.8[o]	..	18.3	..	0.160	..	35.4	..	..	..	–2.0	..
57 Kuwait	14.6	..	29.1	..	0.303	0.1	10.0	5.1	..	..	–2.5	..
57 Uruguay	10.2	..	16.5	26.4	0.226	0.4	27.0	2.0	7.6	–2.4	–2.0	1.7
59 Turkey	11.4	40.2	29.2	44.2	0.076	0.9	18.5	2.5	4.6	–3.9	–3.5	0.2
60 Bahamas	7.1	..	27.1	..	0.423	..	17.1	..	..	..	–0.1	..
61 Malaysia	10.0	..	23.6	66.9	0.218	1.3	14.7[p]	1.0	6.1	..	–1.2	1.5
62 Seychelles	..	..	32.5	94.2	0.469	0.2	19.2	1.4	4.5	..	..	..
HIGH HUMAN DEVELOPMENT												
63 Serbia	–3.2[q]	22.0	21.5	83.2	0.081	0.9	32.7[r]	1.9	7.0	0.4	..	2.0
63 Trinidad and Tobago	..	..	..	71.9	0.348	0.1	24.1	0.8	..	..	–0.6	..
65 Iran (Islamic Republic of)	..	0.4	34.7	18.0[s]	0.523	0.3	14.1	2.7	3.9	..	–0.3	1.0
66 Mauritius	–6.4	19.8	19.1	61.1	0.219	0.2	26.7[t]	0.2	57.3	..	0.0	–0.1
67 Panama	25.3	..	41.7	53.3	0.143	0.1	17.4	0.0	..	–3.1	–0.2	1.5
68 Costa Rica	15.9	14.8	18.6	39.1	0.262	0.5	22.6	0.0	..	–0.7	–1.3	–0.1
69 Albania	8.2	10.4	25.0	54.6	0.292	0.2[n]	32.7	1.2	9.7	–1.7	–2.2	0.5
70 Georgia	12.5	29.4	33.3	92.5	0.209	0.3	29.5[u]	1.9	5.6	–3.7	–0.7	0.0
71 Sri Lanka	28.5	21.2	28.6	38.1	0.194	0.1	24.2	1.9	3.4	–3.7	–1.0	0.3
72 Cuba	..	..	10.3	69.4	0.235	0.3	33.8	2.9	7.1	..	–0.6	..
73 Saint Kitts and Nevis	..	..	..	..	0.283	..	..	..	..	..	..	..
74 Antigua and Barbuda	..	..	..	..	0.416	..	20.7	..	..	..	..	..
75 Bosnia and Herzegovina	..	15.6	21.7	85.0	0.100	0.2	37.5	1.1	..	–3.7	..	0.2
76 Mexico	7.5	14.0	23.0	40.9	0.137	0.5	15.2	0.5	16.5	0.9	–1.7	1.6
77 Thailand	14.0	4.7	25.0	38.0	0.079	0.8	29.6	1.3	5.4	–2.5	0.6	1.2
78 Grenada	..	9.4	..	..	0.208	..	18.8	..	..	..	..	..
79 Brazil	6.1	36.2	15.4	64.1	0.159	1.3	19.9	1.5	13.0	–1.2	–1.4	1.0
79 Colombia	2.8	41.6	21.2	58.1	0.341	0.2	19.3	3.2	3.4	–2.4	–1.3	1.0
81 Armenia	1.5	27.0	22.4	95.7	0.264	0.2	26.1	4.8	3.1	–1.2	–2.8	0.4
82 Algeria	21.2	0.6	48.4	40.4	0.483	0.5	14.0	5.3	2.8[n]	..	–1.6	..
82 North Macedonia	15.4	13.7	33.0	81.4	0.221	0.4	27.4	1.0	..	–2.7	..	3.3
82 Peru	7.1	21.7	21.7	82.8	0.295	0.1	17.5	1.2	6.9	–4.6	–1.3	2.0
85 China	20.1	7.6	44.3	..	0.094	2.1	25.0	1.9	..	–3.7	–2.3	0.7
85 Ecuador	11.4	29.3	26.0	46.3	0.393	0.4	15.5	2.4	5.2	–0.2	–1.2	2.4
87 Azerbaijan	9.5	10.7	20.1	93.3	0.827	0.2	17.3[v]	3.8	2.6	–4.0	–0.1	..
88 Ukraine	3.5	20.7	18.8	98.3	0.140	0.4	30.2[w]	3.8	3.2	–2.5	–1.8	0.9
89 Dominican Republic	17.3	15.6	24.4	43.8	0.188	..	15.7	0.7	10.0[x]	–1.7	–0.4	1.2
89 Saint Lucia	–2.3	4.6	21.8	..	0.268	..	21.1	..	..	..	..	..
91 Tunisia	–9.6	17.2	19.8	54.9	0.137	0.6	19.0	2.1	6.0	–2.2	–0.9	1.3
92 Mongolia	–10.3	56.2	42.2	79.3	0.445	0.1	10.5	0.8	10.4	–1.3	–1.7	0.2
93 Lebanon	–16.9	70.6	17.2	..	0.117	..	17.9	5.0	2.4	..	..	..
94 Botswana	26.6	2.5	29.4	34.0	0.891	0.5	8.6	2.8	5.1[y]	..	–0.9	3.6
94 Saint Vincent and the Grenadines	0.4	11.6	26.4	..	0.524	..	20.0	..	..	..	..	..
96 Jamaica	15.9	27.3	22.6	..	0.498	..	17.9	1.4	11.9	0.1	–1.0	..
96 Venezuela (Bolivarian Republic of)	7.2[q]	57.4	24.8	42.3	0.734	0.1	15.0	0.5	11.2[y]	–2.3	–0.3	..
98 Dominica	..	11.7	..	..	0.409	..	..	..	..	..	..	..
98 Fiji	8.1	2.3	..	62.5	0.220	..	12.5	0.9	5.3	..	–1.2	0.5
98 Paraguay	14.5	12.4	23.1	43.7	0.348	0.2	13.0	0.9	13.2	–1.1	–0.8	0.9
98 Suriname	22.9[z]	..	36.2	45.0	0.668	..	15.1	..	..	–0.8	–0.8	..
102 Jordan	4.4	12.4	18.2	..	0.163	0.3	8.2	4.7	2.0	–2.9	–1.3	1.2
103 Belize	–0.9	9.7	17.9	43.5	0.311	..	10.5	1.3	10.6	–2.7	–1.2	..
104 Maldives	..	3.5	..	32.7	0.617	..	9.0	..	..	4.4	–1.2	–0.1
105 Tonga	9.3[aa]	9.9	33.4	..	0.297	..	10.8	..	..	..	–1.1	0.4

		SDG 17.4				SDG 9.5				SDG 10.1	SDG 5	SDG 10.1
	Economic sustainability						Social sustainability					
							Education and health expenditure versus military expenditure					
HDI rank	Adjusted net savings (% of GNI) 2015–2017[d]	Total debt service (% of exports of goods, services and primary income) 2015–2017[d]	Gross capital formation (% of GDP) 2015–2018[d]	Skilled labour force (% of labour force) 2010–2018[d]	Concentration index (exports) (value) 2018	Research and development expenditure (% of GDP) 2010–2017[d]	Dependency ratio Old age (65 and older) (per 100 people ages 15–64) 2030[a]	Military expenditure[a] (% of GDP) 2010–2018[d]	Ratio of education and health expenditure to military expenditure[b] 2010–2016[f]	Overall loss in HDI value due to inequality[c] Average annual change (%) 2010/2018[g]	Gender Inequality Index[c] Average annual change (%) 2005/2018[g]	Income share of the poorest 40 percent Average annual change (%) 2005/2017
106 Philippines	28.5	11.3	26.9	29.9	0.250	0.1	11.5	1.1	5.6[y]	–0.5	–0.7	0.3
107 Moldova (Republic of)	14.7	10.7	25.3	60.0	0.189	0.3	24.6[ab]	0.3	35.8	–2.9	–1.7	2.2
108 Turkmenistan	..	..	47.2	..	0.645	..	10.8	..	..	–3.7	..	..
108 Uzbekistan	..	..	40.2	..	0.349	0.2	11.3	3.6	..	..	..	..
110 Libya	..	..	29.8[n]	..	0.798	..	9.0	15.5	..	..	–3.3	..
111 Indonesia	12.0	34.0	34.6	39.8	0.134	0.1	13.5	0.7	7.4	–0.2	–1.2	–1.4
111 Samoa	..	8.9	..	66.6	0.366	..	11.4	..	..	..	–1.6	0.5
113 South Africa	0.6	12.2	18.0	51.2	0.151	0.8	9.9	1.0	13.1	1.3	0.0	–0.2
114 Bolivia (Plurinational State of)	0.8	10.5	20.6	44.0	0.379	0.2[y]	13.7	1.5	6.9	–4.6	–1.5	4.4
115 Gabon	8.9[aa]	3.8[aa]	21.4	35.5	0.546	0.6[y]	6.4	1.5	4.5	0.8	–0.7	0.5
116 Egypt	1.2	15.1	16.7	54.9	0.154	0.6	10.2	1.2	3.8[n]	1.0	–1.7	0.1
MEDIUM HUMAN DEVELOPMENT												
117 Marshall Islands	..	..	22.4	..	0.752	..	..	..	..	..	..	..
118 Viet Nam	13.4	5.9	27.5	32.3	0.188	0.4	17.9	2.3	5.5	–0.1	–0.1	0.1
119 Palestine, State of	..	..	24.2	46.9	0.176	0.5	6.7[ac]	..	..	..	..	0.0
120 Iraq	–7.0	..	17.8	28.3	0.958	0.0	6.1	2.7	..	..	..	–0.6
121 Morocco	20.9	9.8	33.4	18.7[s]	0.174	0.7	17.1	3.1	3.4[y]	..	–1.2	0.3
122 Kyrgyzstan	12.9	29.9	35.4	92.7	0.364	0.1	11.3	1.6	7.5	–4.6	–3.4	1.1
123 Guyana	14.1	5.0	31.1	42.0	0.452	..	16.1	1.7	6.8	–0.1	–0.6	..
124 El Salvador	6.4	20.2	20.4	37.4	0.213	0.1	16.3	1.0	10.5	–2.6	–1.4	2.9
125 Tajikistan	6.3	26.1	27.2	80.1[y]	0.265	0.1	8.4	1.2	9.9	–4.3	0.0	–0.2
126 Cabo Verde	11.7	5.9	40.4	59.8	0.315	0.1	10.4	0.6	17.1	..	..	..
126 Guatemala	1.9	28.6	12.1	18.1	0.136	0.0	9.5	0.4	20.4	–2.3	–1.1	1.4
126 Nicaragua	14.4	19.8	22.9	30.5	0.221	0.1	12.0	0.6	20.0	–0.8	–1.2	0.8
129 India	16.3	10.1	31.0	17.6	0.139	0.6	12.5	2.4	3.1	–5.4	–1.6	–0.5
130 Namibia	4.5	..	12.6	66.7	0.265	0.3	6.6	3.3	2.7	–2.5	–1.0	0.3
131 Timor-Leste	–14.6	0.1	22.5	28.2	0.467	..	8.2	0.6	6.9	–2.0	..	1.5
132 Honduras	19.5	23.9	25.5	24.3	0.222	0.0	10.0	1.7	8.8	–2.1	–0.5	3.2
132 Kiribati	..	..	..	48.3	0.907	..	10.1	..	..	..	..	..
134 Bhutan	23.3	10.5	51.3	19.5	0.392	..	11.1	..	..	..	..	0.4
135 Bangladesh	24.5	5.5	31.2	25.8	0.404	..	10.7	1.4	2.8	–2.2	–1.2	0.0
135 Micronesia (Federated States of)	..	..	..	65.0	0.805	..	9.7	..	..	..	..	0.6
137 Sao Tome and Principe	..	3.4	..	..	0.688	..	6.7	..	..	..	..	0.5
138 Congo	–40.4	3.2	18.2	..	0.613	..	5.9	2.5	1.3	–2.7	–0.5	–1.4
138 Eswatini (Kingdom of)	0.8	2.2	11.7	17.9	0.331	0.3	6.0	1.5	8.1	–2.2	–0.5	–0.5
140 Lao People's Democratic Republic	–1.2	13.4	29.0	34.2	0.231	..	8.5	0.2	29.7	0.1	–1.2	–0.9
141 Vanuatu	20.8[q]	2.1	26.4	..	0.450	..	7.0	..	..	..	..	..
142 Ghana	–8.4	10.4	22.0	28.6	0.459	0.4	6.8	0.4	26.7	1.5	–0.4	–0.5
143 Zambia	9.2	18.1	38.2	40.3	0.681	0.3[n]	4.3	1.4	3.3[n]	0.7	–1.0	–1.4
144 Equatorial Guinea	..	..	15.1	..	0.641	..	3.5	0.2	..	..	..	..
145 Myanmar	23.1	5.2	32.8	17.5	0.216	..	12.4	2.9	..	..	..	..
146 Cambodia	13.1	3.9	23.4	13.5	0.296	0.1	10.1	2.2	5.2	–3.8	–1.2	..
147 Kenya	–2.2	14.8	18.4	40.5	0.232	0.8	5.4	1.2	7.5	–2.2	–1.3	1.6
147 Nepal	38.1	8.5	51.8	41.9	0.141	0.3	10.2	1.4	6.3	–2.4	–2.1	3.3
149 Angola	–16.3	13.4	24.1	10.2	0.933	..	4.6	1.8	1.5	–2.5	..	4.5
150 Cameroon	4.5	10.7	22.4	19.8	0.336	..	5.0	1.3	5.6	0.1	–1.1	–1.7
150 Zimbabwe	–22.2	8.4	12.6	13.0	0.325	..	5.4	2.2	7.0	–3.0	–0.8	..
152 Pakistan	12.7	22.8	16.4	27.9	0.204	0.2	8.3	4.0	1.5	–0.2	–0.7	–0.2
153 Solomon Islands	..	3.9	..	18.7	0.676	..	7.6	..	..	..	..	3.4
LOW HUMAN DEVELOPMENT												
154 Syrian Arab Republic	..	3.1[z]	27.8[x]	..	0.235	0.0	9.4	4.1	2.2[y]	..	0.0	..
155 Papua New Guinea	..	27.1	..	26.7	0.293	0.0	6.9	0.3	..	..	0.7	..
156 Comoros	5.8[aa]	1.9	17.5	..	0.560	..	6.3	..	..	0.4	..	2.1
157 Rwanda	–4.4	3.9	24.4	17.1	0.390	..	7.3	1.2	8.0	–2.8	–1.2	2.1
158 Nigeria	1.4	6.8	15.5	35.2	0.783	0.2[x]	5.2	0.5	..	–2.1	..	–1.1
159 Tanzania (United Republic of)	23.1	8.4	34.0	5.0	0.288	0.5	5.3[ad]	1.2	7.3	–1.5	–0.7	0.2
159 Uganda	–9.5	3.8	24.6	37.1	0.250	0.2	4.1	1.4	6.9	–2.1	–0.8	–0.1

HDI rank	Economic sustainability: Adjusted net savings (% of GNI) 2015–2017[d]	Total debt service (% of exports of goods, services and primary income) 2015–2017[d]	Gross capital formation (% of GDP) 2015–2018[d]	Skilled labour force (% of labour force) 2010–2018[d]	Concentration index (exports) (value) 2018	Research and development expenditure (% of GDP) 2010–2017[d]	Social sustainability: Dependency ratio, Old age (65 and older) (per 100 people ages 15–64) 2030[e]	Education and health expenditure versus military expenditure: Military expenditure[a] (% of GDP) 2010–2018[d]	Ratio of education and health expenditure to military expenditure[b] 2010–2016[f]	Overall loss in HDI value due to inequality[c] Average annual change (%) 2010/2018[g]	Gender Inequality Index[c] Average annual change (%) 2005/2018[g]	Income share of the poorest 40 percent Average annual change (%) 2005/2017
	SDG 17.4					SDG 9.5				SDG 10.1	SDG 5	SDG 10.1
161 Mauritania	–10.3	13.2	55.3	5.8	0.308	..	6.2	3.0	2.4	–1.1	..	1.5
162 Madagascar	7.7	3.2	15.2	18.5	0.213	0.0	6.4	0.6	12.1	–1.4	..	–1.5
163 Benin	–3.4	4.2	25.8	17.1	0.346	..	6.3	0.9	8.5	0.7	–0.5	–2.8
164 Lesotho	8.2	3.6	27.9	..	0.288	0.0	8.7	1.8	13.2[n]	–0.5	–0.5	–1.1
165 Côte d'Ivoire	16.6	17.6	19.8	25.5	0.361	..	5.3	1.4	5.5	–0.1	–0.4	–0.4
166 Senegal	12.3[q]	14.2	28.7	10.9	0.239	0.8	5.8	1.9	5.9	–1.3	–1.3	–0.5
167 Togo	–7.5	5.8	25.3	47.6	0.235	0.3	5.5	2.0	6.3	–0.4	–0.8	–0.9
168 Sudan	0.2	4.2	19.3	22.8	0.440	..	7.1	2.3	1.4[y]	..	–1.2	..
169 Haiti	17.6	1.5	29.0	9.4	0.508	..	9.7	0.0	..	–0.1	0.3	..
170 Afghanistan	2.7	4.0	19.2	19.2	0.387	..	5.1	1.0	15.1	..	–1.1	..
171 Djibouti	–1.8	11.1	57.8	..	0.222	..	9.4	3.7[n]	3.2[x]	..	..	–0.3
172 Malawi	–16.7	5.7	13.4	17.6	0.558	..	4.8	0.8	22.8	–1.3	–0.5	–0.7
173 Ethiopia	9.3	20.8	34.1	6.8	0.288	0.6	6.4	0.6	12.4	–2.2	–1.3	–2.2
174 Gambia	–12.7[aa]	16.9	17.0	12.3	0.449	0.1	4.8	1.1	4.9	–0.6	–0.4	2.9
174 Guinea	–6.5	1.4	36.2	..	0.493	..	5.4	2.5	3.2	–1.6	..	2.4
176 Liberia	–99.0	3.5	13.0	21.1	0.394	..	6.4	0.8	19.5	–1.7	–0.3	0.3
177 Yemen	..	14.6	..	29.7	0.319	..	5.4	4.0	2.5[n]	–0.9	0.2	–0.6
178 Guinea-Bissau	–11.0	2.4	10.9	..	0.875	..	5.1	1.6	3.3	–1.4	..	–4.8
179 Congo (Democratic Republic of the)	–4.4	3.0	25.8	43.1	0.505	0.1[y]	5.9	0.7	6.3	–1.8	–0.1	–0.1
180 Mozambique	–13.5	5.0	37.7	7.1	0.305	0.3	5.1	1.0	12.0	–4.0	–0.7	–1.8
181 Sierra Leone	–33.5	3.8	18.5	15.2	0.255	..	5.2	0.8	17.2	–1.2	–0.3	1.9
182 Burkina Faso	–9.0	3.7	25.7	3.9	0.658	0.2	4.8	2.1	7.5	–2.1	–0.4	2.3
182 Eritrea	..	..	10.0	..	0.319	..	7.0	..	..	..	..	..
184 Mali	–2.3[q]	4.5	23.8	4.7	0.670	0.3	4.5	2.9	2.7	–2.3	–0.3	2.4
185 Burundi	–19.0	14.4	9.2	2.5	0.425	0.1	5.2	1.9	5.1	–2.4	–0.7	1.0
186 South Sudan	..	..	1.6	..	..	..	6.2	1.3	..	..	..	..
187 Chad	..	..	19.7	..	0.774	0.3	4.7	2.1	1.4	–0.5	..	–1.7
188 Central African Republic	..	..	11.4	..	0.313	..	5.0	1.4	2.2	–0.1	–0.1	–6.7
189 Niger	5.0	15.6	33.7	1.8	0.352	..	5.2	2.5	4.6	–2.2	–0.6	2.6
OTHER COUNTRIES OR TERRITORIES												
.. Korea (Democratic People's Rep. of)	..	..	..	..	0.255	..	18.7	..	..	..	..	..
.. Monaco	..	..	..	..	..	..	..	..	..	..	..	..
.. Nauru	..	..	..	96.5	0.512	..	..	..	..	..	..	..
.. San Marino	..	..	..	55.7	..	..	..	..	..	..	..	..
.. Somalia	..	..	..	..	0.552	..	5.6	..	..	..	..	..
.. Tuvalu	..	..	..	50.1	0.554	..	..	..	..	..	..	..
Human development groups												
Very high human development	8.9	..	22.1	84.7	—	2.3	33.2	2.3	7.0	–1.1	–2.4	—
High human development	16.2	12.9	36.5	..	—	1.5	20.4	1.7	..	–2.5	–1.2	—
Medium human development	13.2	10.0	28.1	21.6	—	0.5	11.4	2.3	3.3	–3.9	–1.2	—
Low human development	2.7	8.9	21.9	22.2	—	..	5.7	1.0	4.0	–1.7	–0.6	—
Developing countries	14.9	13.7	33.5	32.5	—	1.3	14.7	2.1	4.5	–2.8	–0.9	—
Regions												
Arab States	10.4	16.8	27.0	41.1	—	0.6	9.7	5.5	1.7	–1.3	–1.0	—
East Asia and the Pacific	19.7	9.0	41.6	..	—	..	21.7	1.8	..	–3.0	–0.8	—
Europe and Central Asia	9.7	31.8	28.1	71.8	—	0.6	20.1	2.4	4.6	–3.5	–2.1	—
Latin America and the Caribbean	6.8	24.0	20.1	54.6	—	0.7	17.8	1.2	10.8	–1.4	–1.1	—
South Asia	17.1	10.7	30.3	20.0	—	0.5	11.9	2.5	3.0	–4.5	–1.2	—
Sub-Saharan Africa	–0.1	10.6	21.0	25.6	—	0.5	5.7	1.1	7.0	–1.7	–0.6	—
Least developed countries	9.8	8.1	29.5	20.6	—	..	7.0	1.6	3.7	–1.8	–0.8	—
Small island developing states	..	..	24.0	44.3	—	..	17.1	..	..	–2.1	—	—
Organisation for Economic Co-operation and Development	8.6	..	21.9	81.9	—	2.4	34.1	2.1	7.8	–0.6	–2.3	—
World	10.9	14.8	26.2	46.3	—	2.0	18.0	2.2	6.7	–2.6	–0.8	—

NOTES

Three-colour coding is used to visualize partial grouping of countries and aggregates by indicator. For each indicator countries are divided into three groups of approximately equal size (terciles): the top third, the middle third and the bottom third. Aggregates are colour coded using the same tercile cutoffs. See *Technical note 6* at http://hdr.undp.org/sites/default/files/hdr2019_technical_notes.pdf for details about partial grouping in this table.

a This column is intentionally left without colour because it is meant to provide context for the indicator on education and health expenditure.

b Data on government expenditure on health and education are available in tables 8 and 9 and at http://hdr.undp.org/en/data.

c A negative value indicates that inequality declined over the period specified.

d Data refer to the most recent year available during the period specified.

e Projections based on medium-fertility variant.

f Data refer to the most recent year for which all three types of expenditure (education, health and military) are available during the period specified.

g The trend data used to calculate the change are available at http://hdr.undp.org/en/data.

h Includes Svalbard and Jan Mayen Islands.

i Includes Liechtenstein.

j Includes Christmas Island, Cocos (Keeling) Islands and Norfolk Island.

k Includes Åland Islands.

l Includes Canary Islands, Ceuta and Melilla.

m Includes Northern Cyprus.

n Refers to 2008.

o Refers to 2013.

p Includes Sabah and Sarawak.

q Refers to 2014.

r Includes Kosovo.

s Includes only intermediate education.

t Includes Agalega, Rodrigues and Saint Brandon.

u Includes Abkhazia and South Ossetia.

v Includes Nagorno-Karabakh.

w Includes Crimea.

x Refers to 2007.

y Refers to 2009.

z Refers to 2010.

aa Refers to 2012.

ab Includes Transnistria.

ac Includes East Jerusalem.

ad Includes Zanzibar.

DEFINITIONS

Adjusted net savings: Net national savings plus education expenditure and minus energy depletion, mineral depletion, net forest depletion, and carbon dioxide and particulate emissions damage. Net national savings are equal to gross national savings less the value of consumption of fixed capital.

Total debt service: Sum of principal repayments and interest actually paid in currency, goods or services on long-term debt; interest paid on short-term debt; and repayments (repurchases and charges) to the International Monetary Fund. It is expressed as a percentage of exports of goods, services and primary income.

Gross capital formation: Outlays on additions to the fixed assets of the economy plus net changes in inventories. Fixed assets include land improvements (such as fences, ditches and drains); plant, machinery and equipment purchases; and construction of roads, railways and the like, including schools, offices, hospitals, private residential dwellings and commercial and industrial buildings. Inventories are stocks of goods held by firms to meet temporary or unexpected fluctuations in production or sales as well as goods that are work in progress. Net acquisitions of valuables are also considered capital formation. Gross capital formation was formerly known as gross domestic investment.

Skilled labour force: Percentage of the labour force ages 15 and older with intermediate or advanced education, as classified by the International Standard Classification of Education.

Concentration index (exports): A measure of the degree of product concentration in exports from a country (also referred to as the Herfindahl-Hirschmann Index). A value closer to 0 indicates that a country's exports are more homogeneously distributed among a series of products (reflecting a well diversified economy); a value closer to 1 indicates that a country's exports are highly concentrated among a few products.

Research and development expenditure: Current and capital expenditures (both public and private) on creative work undertaken systematically to increase knowledge, including knowledge of humanity, culture and society, and the use of knowledge for new applications. Research and development covers basic research, applied research and experimental development.

Old-age dependency ratio: Ratio of the population ages 65 and older to the population ages 15–64, expressed as the number of dependants per 100 people of working age (ages 15–64).

Military expenditures: All current and capital expenditures on the armed forces, including peacekeeping forces; defence ministries and other government agencies engaged in defence projects; paramilitary forces, if these are judged to be trained and equipped for military operations; and military space activities.

Ratio of education and health expenditure to military expenditure: Sum of government expenditure on education and health divided by military expenditure.

Overall loss in HDI value due to inequality, average annual change: Percentage change in overall loss in Human Development Index (HDI) value due to inequality over 2010–2018, divided by the respective number of years.

Gender Inequality Index, average annual change: Percentage change in Gender Inequality Index value over 2005–2018, divided by the respective number of years.

Income share of the poorest 40 percent, average annual change: Percentage change of the income share of the poorest 40 percent of the population over 2005–2017, divided by the respective number of years.

MAIN DATA SOURCES

Columns 1–3, 6 and 8: World Bank (2019a).

Column 4: ILO (2019).

Column 5: UNCTAD (2019).

Column 7: UNDESA (2019b).

Columns 9 and 12: HDRO calculations based on data from World Bank (2019a).

Column 10: HDRO calculations based on the Inequality-adjusted HDI time series.

Column 11: HDRO calculations based on the Gender Inequality Index time series.

Developing regions

Arab States (20 countries or territories)
Algeria, Bahrain, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, State of Palestine, Oman, Qatar, Saudi Arabia, Somalia, Sudan, Syrian Arab Republic, Tunisia, United Arab Emirates, Yemen

East Asia and the Pacific (26 countries)
Brunei Darussalam, Cambodia, China, Fiji, Indonesia, Kiribati, Democratic People's Republic of Korea, Lao People's Democratic Republic, Malaysia, Marshall Islands, Federated States of Micronesia, Mongolia, Myanmar, Nauru, Palau, Papua New Guinea, Philippines, Samoa, Singapore, Solomon Islands, Thailand, Timor-Leste, Tonga, Tuvalu, Vanuatu, Viet Nam

Europe and Central Asia (17 countries)
Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Georgia, Kazakhstan, Kyrgyzstan, Republic of Moldova, Montenegro, North Macedonia, Serbia, Tajikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan

Latin America and the Caribbean (33 countries)
Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Plurinational State of Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, Bolivarian Republic of Venezuela

South Asia (9 countries)
Afghanistan, Bangladesh, Bhutan, India, Islamic Republic of Iran, Maldives, Nepal, Pakistan, Sri Lanka

Sub-Saharan Africa (46 countries)
Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cabo Verde, Central African Republic, Chad, Comoros, Congo, Democratic Republic of the Congo, Côte d'Ivoire, Equatorial Guinea, Eritrea, Kingdom of Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tomé and Príncipe, Senegal, Seychelles, Sierra Leone, South Africa, South Sudan, United Republic of Tanzania, Togo, Uganda, Zambia, Zimbabwe

Note: All countries listed in developing regions are included in aggregates for developing countries. Countries included in aggregates for Least Developed Countries and Small Island Developing States follow UN classifications, which are available at www.unohrlls.org. Countries included in aggregates for Organisation for Economic Co-operation and Development are listed at www.oecd.org/about/membersandpartners/list-oecd-member-countries.htm.

Statistical references

Note: Statistical references relate to all statistical material in the 2019 Report, including the statistical tables posted at http://hdr.undp.org/en/human-development-report-2019.

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Key to HDI countries and ranks, 2018

Afghanistan	170
Albania	69
Algeria	82
Andorra	36
Angola	149
Antigua and Barbuda	74
Argentina	48
Armenia	81
Australia	6
Austria	20
Azerbaijan	87
Bahamas	60
Bahrain	45
Bangladesh	135
Barbados	56
Belarus	50
Belgium	17
Belize	103
Benin	163
Bhutan	134
Bolivia (Plurinational State of)	114
Bosnia and Herzegovina	75
Botswana	94
Brazil	79
Brunei Darussalam	43
Bulgaria	52
Burkina Faso	182
Burundi	185
Cabo Verde	126
Cambodia	146
Cameroon	150
Canada	13
Central African Republic	188
Chad	187
Chile	42
China	85
Colombia	79
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Costa Rica	68
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Croatia	46
Cuba	72
Cyprus	31
Czechia	26
Denmark	11
Djibouti	171
Dominica	98
Dominican Republic	89
Ecuador	85
Egypt	116
El Salvador	124
Equatorial Guinea	144
Eritrea	182
Estonia	30
Eswatini (Kingdom of)	138
Ethiopia	173
Fiji	98
Finland	12
France	26
Gabon	115
Gambia	174
Georgia	70
Germany	4
Ghana	142
Greece	32
Grenada	78
Guatemala	126
Guinea	174
Guinea-Bissau	178
Guyana	123
Haiti	169
Honduras	132
Hong Kong, China (SAR)	4
Hungary	43
Iceland	6
India	129
Indonesia	111
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Iraq	120
Ireland	3
Israel	22
Italy	29
Jamaica	96
Japan	19
Jordan	102
Kazakhstan	50
Kenya	147
Kiribati	132
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Korea (Republic of)	22
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Kyrgyzstan	122
Lao People's Democratic Republic	140
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Nauru	..
Nepal	147
Netherlands	10
New Zealand	14
Nicaragua	126
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Nigeria	158
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Norway	1
Oman	47
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Philippines	106
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Portugal	40
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Sao Tome and Principe	137
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South Africa	113
South Sudan	186
Spain	25
Sri Lanka	71
Sudan	168
Suriname	98
Sweden	8
Switzerland	2
Syrian Arab Republic	154
Tajikistan	125
Tanzania (United Republic of)	159
Thailand	77
Timor-Leste	131
Togo	167
Tonga	105
Trinidad and Tobago	63
Tunisia	91
Turkey	59
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In every country many people have little prospect for a better future. They are without hope, purpose or dignity, watching from society's sidelines as they see others pulling ahead to ever greater prosperity. Worldwide many have escaped extreme poverty. But even more have neither the opportunities nor the resources to control their lives. Far too often a person's place in society is still determined by ethnicity, gender or his or her parents' wealth.

Inequalities. The evidence is everywhere. Inequalities do not always reflect an unfair world, but when they have little to do with rewarding effort, talent or entrepreneurial risk-taking, they can be an affront to human dignity. Under the shadow of sweeping technological change and the climate crisis, such inequalities in human development hurt societies, weakening social cohesion and people's trust in government, institutions and each other. Most hurt economies, wastefully preventing people from reaching their full potential at work and in life. They often make it harder for political decisions to reflect the aspirations of the whole of society and to protect the planet, if the few pulling ahead flex their power to shape decisions in their interests. In the extreme, people can take to the streets.

These inequalities in human development are a roadblock to achieving the 2030 Agenda for Sustainable Development. They are not just about disparities in income and wealth. They cannot be accounted for simply by using summary measures of inequality that focus on a single dimension. And they will shape the prospects of people that may live to see the 22nd century. This Report explores inequalities in human development by going beyond income, beyond averages and beyond today. It asks what forms of inequality matter and what drives them, recognizing that pernicious inequalities are generally better thought of as a symptom of broader problems in a society and economy. It also asks what policies can tackle those drivers—policies that can simultaneously help nations to grow their economies, improve human development and reduce inequality.

It is hard to get a clear picture of inequalities in human development and how they are changing. In part because they are as broad and multifaceted as life itself. In part because the measures we rely on, and the data that underpin them, are often inadequate. Yet important patterns repeat again and again.

In every country the goalposts are moving. Inequality in human development is high or increasing in the areas expected to become more important in the future. There has been some progress worldwide in fundamental areas, such as escaping from poverty and receiving a basic education, though important gaps remain. Yet at the same time, inequalities are widening higher up the ladder of progress.

A human development approach opens new windows on inequalities—why they matter, how they manifest themselves and what to do about them—that help create concrete action. The Report suggests the importance of realigning existing policy goals: emphasizing, for instance, the quality education at all ages—including at the preprimary level—in addition to focusing on primary and secondary enrolment rates. Many of these aspirations are already reflected in the 2030 Agenda for Sustainable Development. It also means addressing power imbalances that are at the heart of many inequalities, such as leveling the economic playing field through antitrust measures. In some cases, addressing inequalities means tackling social norms embedded deep with a nation's history and culture. Many policies comprise options that would enhance both equity and efficiency. The main reason why they often are not pursued may be linked with the power of entrenched interests who do not stand to gain from change.

The future of inequalities in human development in the 21st century is in our hands. But we cannot be complacent. The climate crisis shows that the price of inaction compounds over time, as it feeds further inequality, which can in turn make action on climate more difficult. Technology is already changing labour markets and lives, but not yet locked-in is the extent to which machines may replace people. We are, however, approaching a precipice beyond which it will be difficult to recover. We do have a choice, and we must exercise it now.