Citi GPS

ELIMINATING POVERTY

The Importance of a Multidimensional Approach in Tackling SDG 1

Citi GPS: Global Perspectives & Solutions

February 2022

Citi Global Insights and Citi Global Data Insights

Jason Channell
Global Head of Sustainable Finance
Citi Global Insights

+44 (20) 7986 8661 | jason.channell@citi.com

Helen Krause
Head of Data Science
Citi Global Data Insights

+44 (20) 7986 8653 | helen.krause@citi.com

Ying Qin, Ph.D.
Global Thematic Analyst
Citi Global Insights

+44 (20) 7986 8325 | ying.qin@citi.com

SOPHIA Oxford

Nardin Baker
Chief Quantitative Analyst
SOPHIA Oxford

nardin.baker@sophiaoxford.org

Jamie Coats
President & CEO
SOPHIA Oxford

+44 (0) 1865 600 625 | +1 (781) 483-4111 |
jamie.coats@sophiaoxford.org

Ana Vaz
Chief Research Officer
SOPHIA Oxford

ana.vaz@sophiaoxford.org

ELIMINATING POVERTY

The Importance of a Multidimensional Approach in Tackling SDG 1

The first of the United Nation's Sustainable Development Goals (UN SDGs) is to end poverty. While one of the benefits of globalization over the past 30 years has been the reduction in absolute rates of poverty worldwide, poverty is often still simply measured in terms of income levels. Yet poverty is multifaceted and reflects more than a deficiency of income and productive resources. It encompasses economic, social, cultural, and political elements and is inherently interwoven with a lack of fundamental human rights. According to the UN, its manifestations include hunger and malnutrition, inequality, social discrimination and exclusion, deprivation, inadequate access to education and basic services, as well as lack of participation in decision-making. To make progress towards poverty reduction, we need to consider ways to mobilize more investors and businesses to adopt this goal.

This report represents an exciting collaboration between Citi and SOPHIA Oxford, which was formed by Oxford University as a not-for-profit partner of the Oxford Poverty and Human Development Initiative (OPHI). Over the past decade, OPHI has developed the field of multidimensional measurement, focused primarily on poverty and well-being, expanding its research and social policy uses. The OPHI multidimensional poverty approach has been adopted in official measures of poverty by the United Nations Development Programme, the World Bank, and more than 30 countries.

In this report, Citi's researchers and data scientists have partnered with the SOPHIA Oxford team to help bring this world class methodology more broadly to the business world. Eliminating poverty and reducing inequalities can deliver substantial growth, and the private sector has a key role to play in making this happen. The good news is that investors are increasingly embracing the UN SDGs and aligning their investment strategies to the 17 goals. The challenge is for these funds to be effectively targeted and their impact measured. This is more important than ever as the world starts to recover from the COVID-19 crisis because the pandemic has increased the gap to achieving several SDGs, including SDG 1 — No Poverty.

We provide an overview of measures of poverty in the global economy and then address how the OPHI methodology allows for more nuanced and effective interventions, which can drive both economic growth and social inclusion. We include case studies of where the OPHI approach has been used successfully at a country level and at the corporate level, and in the last chapter we propose using it to harness finance to realize the ambition of SDG 1.

We hope you gain fresh insights from this Citi GPS report and are challenged to consider how you can support the adoption of SDG 1. We look forward to sharing the results of the collaboration between Citi and SOPHIA Oxford in future reports and events.

Andrew Pitt
Global Head of Research
Citi Institutional Clients Group

Jamie Coats
President & CEO
SOPHIA Oxford

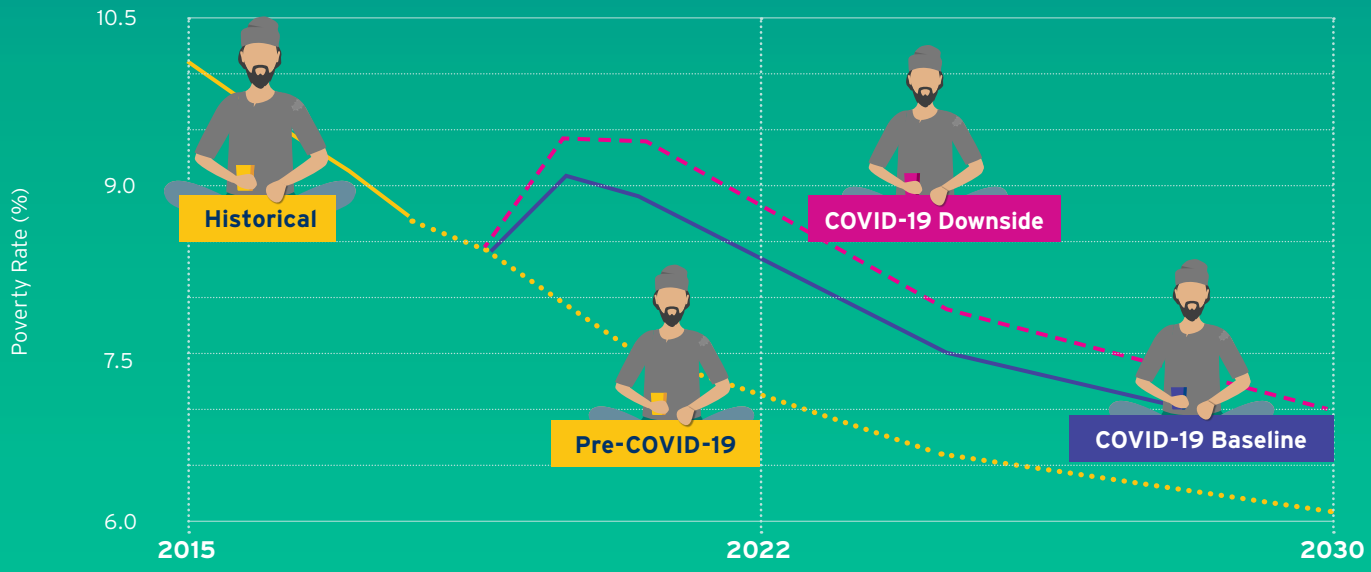
Time for a Better Approach

DESPITE PROGRESS TOWARDS ELIMINATING POVERTY, THERE IS STILL WORK TO DO

Over the past few decades, the world has made remarkable progress in the reduction of extreme poverty. But the recent slowdown in poverty reduction, now compounded by COVID-19 implications, has made a number of regions and individual groups especially vulnerable to falling into extreme poverty, rather than moving out of it.

Projection of Global Extreme Poverty, up to 2030

Source: Lakner ek al. (2020), PovcalNet, World Bank

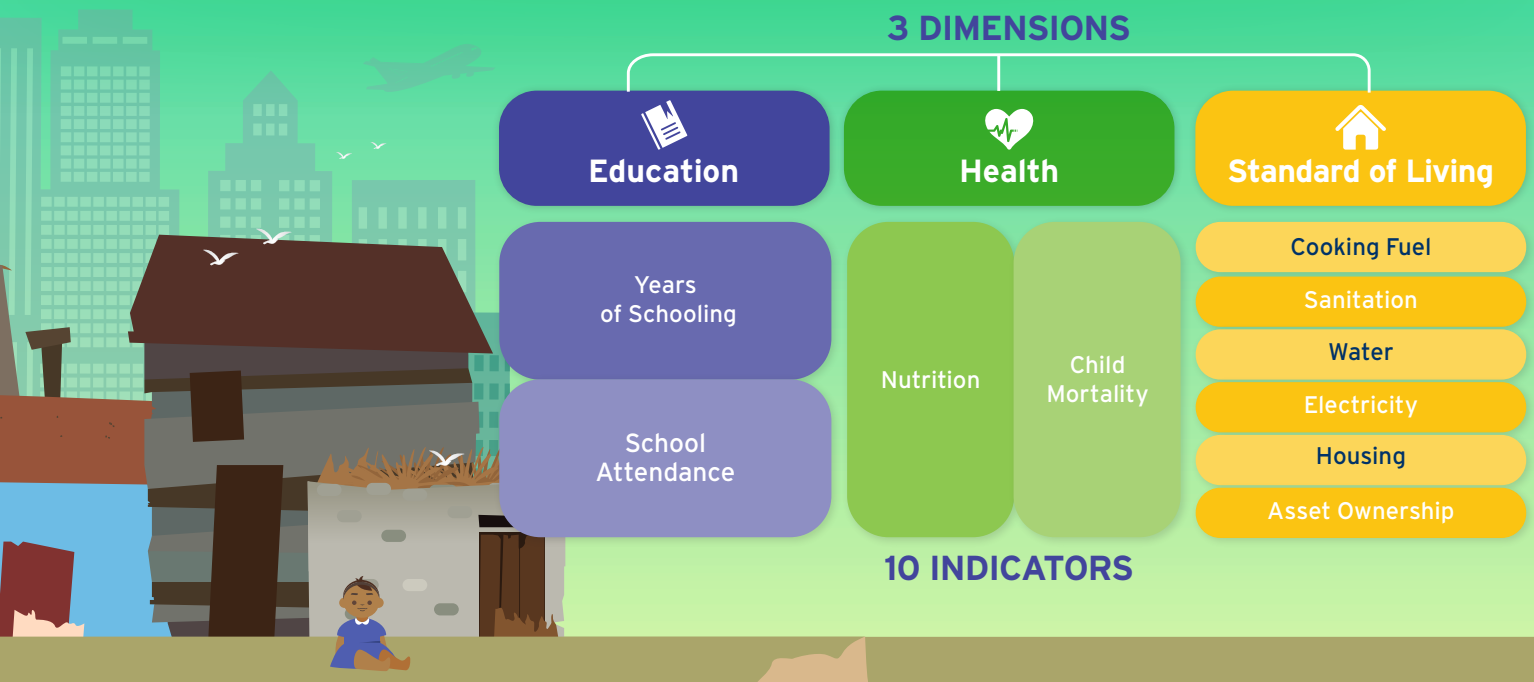


A MULTIDIMENSIONAL APPROACH IS KEY

Recognizing and embracing data and metrics on poverty that are beyond monetary deprivation will help create a sustainable and progressive route out of extreme poverty. The Global Multidimensional Poverty Index (MPI) captures deprivations across three dimensions – education, health, and living standards.

Structure of the Global Multidimensional Poverty Index (MPI)

Source: Oxford Poverty and Human Development Initiative (OPHI)



$1.6 TRILLION IN INCREMENTAL SPEND

By assessing both the human and financial cost of the elements that make up a multidimensional poverty index, we can estimate the human opportunity and quantify the annual incremental spend for targeted investments to help fix the root causes of poverty. If undertaken correctly, the multiplier effect of the capital deployed toward many of these measures can also provide a useful spur to growth.

	Human Cost	Financial Cost	Multiplier
Education	773	340	2.4x
Health			
Nutriton	765	198	7.2x
Access to Healthcare	1,000	328	4.3x
Standard of Living			
Electricity	771	35	3.2x
Water and Sanitation	2,000	79	5.5x
Housing	3,000	650	2.1x
Average			4.1x
Total		1,631	

MATCHING CAPITAL WITH OPPORTUNITY IS ESSENTIAL

Tens of trillions of dollars are looking to invest with positive impact, but capital is not getting to where it is needed the most because of a mismatch in risk appetite of the capital. Sustainability-linked bonds could offer an attractive solution for the providers of capital, as well as those seeking access to it.

Potential Key Performance Indicators (KPI) for Sustainability-Linked Bonds

Education

Schooling
% of children completing 6 years of education

Literacy
Adult literacy rates

Health

Nutrition
% of population undernourished

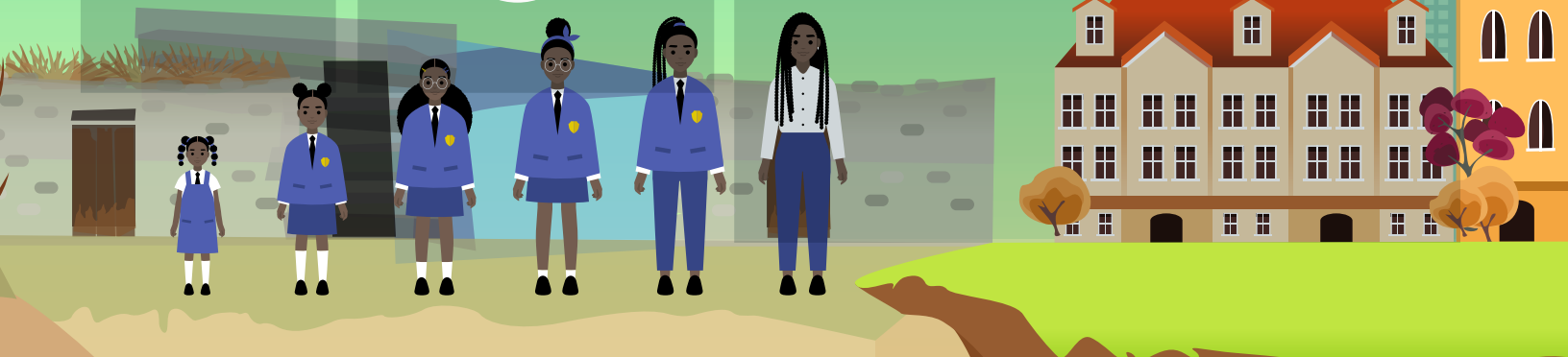
Child Mortality
% of children dying less than 5-years old

Standard of Living

Electricity
% of population with access to electricity

Water and Sanitation
% of population with access to clean water and basic sanitation

Housing
% of population in adequate housing



Contents

Summary

What exactly *is* poverty? The word tends to get bandied around liberally, but do we ever stop to consider exactly what it means? For most people, chances are the answer is a resounding "no." If you were to ask someone not in poverty to define poverty, it is more than likely their simple answer would be something along the lines of "not having enough money to live on."

Traditional approaches to assessing poverty do indeed tend to focus on monetary methods, most notably the World Bank's International Poverty Line (IPL) of $1.90 per day, below which an individual is deemed to be in extreme poverty. The numbers even on this basic approach remain sobering; in 2017 there were still 689 million people below this poverty line — equating to almost one in every ten people on this planet. The effects of COVID-19 are likely to have pushed more back into poverty. This would reverse the significant progress of the last 30 years, which saw the number of people in poverty drop from a shocking 1.9 billion in 1990, or 36% of the global population at the time — more than a third of humanity. Poverty effects tend to be concentrated both geographically and demographically. Much of this poverty is found in Sub-Saharan Africa and Southern Asia, and tends to be focused on rural, young, and undereducated individuals and disproportionately on females. But as the numbers show, this remains a far from niche problem affecting few of us.

A simple approach, such as the IPL, misses much of the nuance of poverty — it does not tell us *how* poor someone is (i.e., how far below the poverty line they stand); similarly, if a person just surpasses the IPL, they do not suddenly stop being poor. Moreover, poverty is not just an absolute concept — it is also a relative one. One might have significantly more than $1.90 to live on per day, but if the median income in that country is dramatically higher than that, an individual is likely to feel — and indeed experience — significant deprivation.

Methods such as the IPL are useful, if relatively blunt, instruments. Perhaps the most important failing of these linear methods is that poverty is not just about money. It inevitably encompasses economic elements, but it is equally about social factors such as a lack of access to education; health factors such as hunger or malnutrition; and physical elements such as access to electricity, clean cooking fuels, water and sanitation, and of course adequate housing. Moreover, it encompasses cultural aspects such as inequality, social discrimination, and exclusion and even political elements, such as a lack of participation in decision-making processes. It is inextricably linked with a lack or absence of fundamental human rights. A linear approach does not tell us how someone is experiencing poverty. You might have significantly more than $1.90 a day to live on, but if you simply cannot get access to healthcare or education, you are still very much deprived. Moreover, a "helicopter drop" of cash to breach the $1.90 level would not fix these underlying deficiencies.

A one-dimensional, linear approach to assessing poverty, beyond being potentially misleading, does not provide us with any idea of how a person is poor, or to what extent. We need something better and more sophisticated. This quest led to the birth of the multidimensional approach to poverty — the subject of this report.

A multidimensional poverty index (MPI), such as the Global MPI developed by the Oxford Poverty and Human Development Initiative (OPHI) and the United Nations Development Programme (UNDP), can pinpoint the indicators on which a person is poor using a variety of situationally-appropriate metrics. The value of this approach is most vividly demonstrated by revisiting the earlier IPL statistics, which suggested that 689 million around the world were in extreme poverty.

Taking independent 2018 data from a few potential components of an MPI, we can see that 258 million children and youths were out of school — representing around 20% of children of that age group — and some 773 million adults were classed as illiterate. In 2019, 771 million people still lacked access to electricity, which pales in significance to the 2.65 billion people around the world who lack access to clean cooking fuels. Consider this for a minute — one in three of us on this planet still cook with biomass, coal, or kerosene. Four billion people live under water scarcity for at least one month a year and two billion lack access to basic sanitation, while 673 million — one in 10 of us — still practice open defecation.

Considering these metrics, the basic IPL indication of 689 million people being in extreme poverty does not begin to capture the magnitude of the problem. Instead, multiples of this number are undoubtedly being deprived in some of these significant ways.

The benefits of an MPI do not stop with the understanding provided by this granularity; by allowing us to understand how a person is poor, policymakers are able to develop programs that (1) can target specific areas of deprivation; and (2) will inherently provide much more effective (and cost-effective) solutions, rather than just trying to "fix everything."

In this report, as well as examining the methodology behind forming an MPI, we look at case studies from where MPIs have been applied successfully by national governments and the private sector.

It is obvious why eradicating poverty should matter to us as individuals and members of society, and hence to governments — it is a basic moral duty as a human being. But why should it matter to the business and financial community? Beyond just being the unarguably right thing to do, eradicating poverty can (1) materially boost economic growth; (2) lead to a larger, better educated, healthier, and more engaged workforce and hence more successful companies; and (3) increase consumer purchasing power and generate entirely new sources of customers and demand — a virtuous circle both socially and economically.

Many businesses, especially those in developed markets who may feel they have little interaction with poverty, need to consider the impact of their operations globally, including their supply chains. As we have seen with the rise of the "Scope 3" emissions targets (which essentially measure all emissions from a corporates' own operations, as well as from their supply chain and from the end use of their products), companies today have a responsibility for their actions both up and down their supply chains. Do we accept the excuse from a clothes retailer who sells t-shirts manufactured in a sweat shop using child labor and says, "I only sell the things, it's not my problem how they are made?" Of course not, nor should we. Beyond the moral imperative, from a reputational risk perspective, especially in these days of ubiquitous social media, all it takes is one photo from the dim, dark, distant end of a supply chain to completely destroy a brand, its pricing power, and consumer propensity to purchase.

Beyond bearing a responsibility and wanting to avoid reputational damage, the business and financial communities can play a vital role in tackling poverty. An MPI can be equally used by corporates as well as the public sector. In this report we highlight examples of progressive businesses, in both developed and emerging markets, which are using MPIs to develop human resource policies that can help their workforce, and in turn, the company.

Creating employment opportunities for the poor will be critical, especially following the impacts of COVID-19 on jobs and markets. Corporates are well placed to take action against poverty across their global supply chains; approximately two-thirds of the world's extreme poor work in agriculture, which supplies essential raw materials to the global food and agriculture industry, as well as many others. According to Business Fights Poverty, companies need to recognize that poverty exists in their own operations, and that sustainability encompasses human rights, fair wages, and equity.[1] Building inclusive and resilient supply chains not only makes good business sense, it also helps companies meet the increasing desire of investors for social and environmental impacts from their investments.

To take this point further, the rise of sustainable, responsible, and impact investing provides another tailwind and offers an enormous opportunity to direct capital towards the granular eradication of poverty. Assets under management that are screened for environmental, social, and governance (ESG) factors stand at more than $35 trillion, with the signatories of the UN-backed Principles for Responsible Investment now representing more than $100 trillion. Investors are increasingly embracing the UN SDGs and aligning their investment strategies to the 17 goals, which is more important than ever as the world recovers from the COVID-19 crisis. While the pandemic has increased the gap to achieving several of the SDGs, not least SDG 1 — No Poverty, the UN and governments around the world have recognized that the SDGs can serve as a roadmap for recovering from the crisis. The financial community has a vital role to play in achieving the SDGs, as the UN Secretary-General António Guterres highlighted in an opinion piece for the *Financial Times*:[2]

"Overall, we are seriously off track. One reason for the faltering progress is the lack of financing."

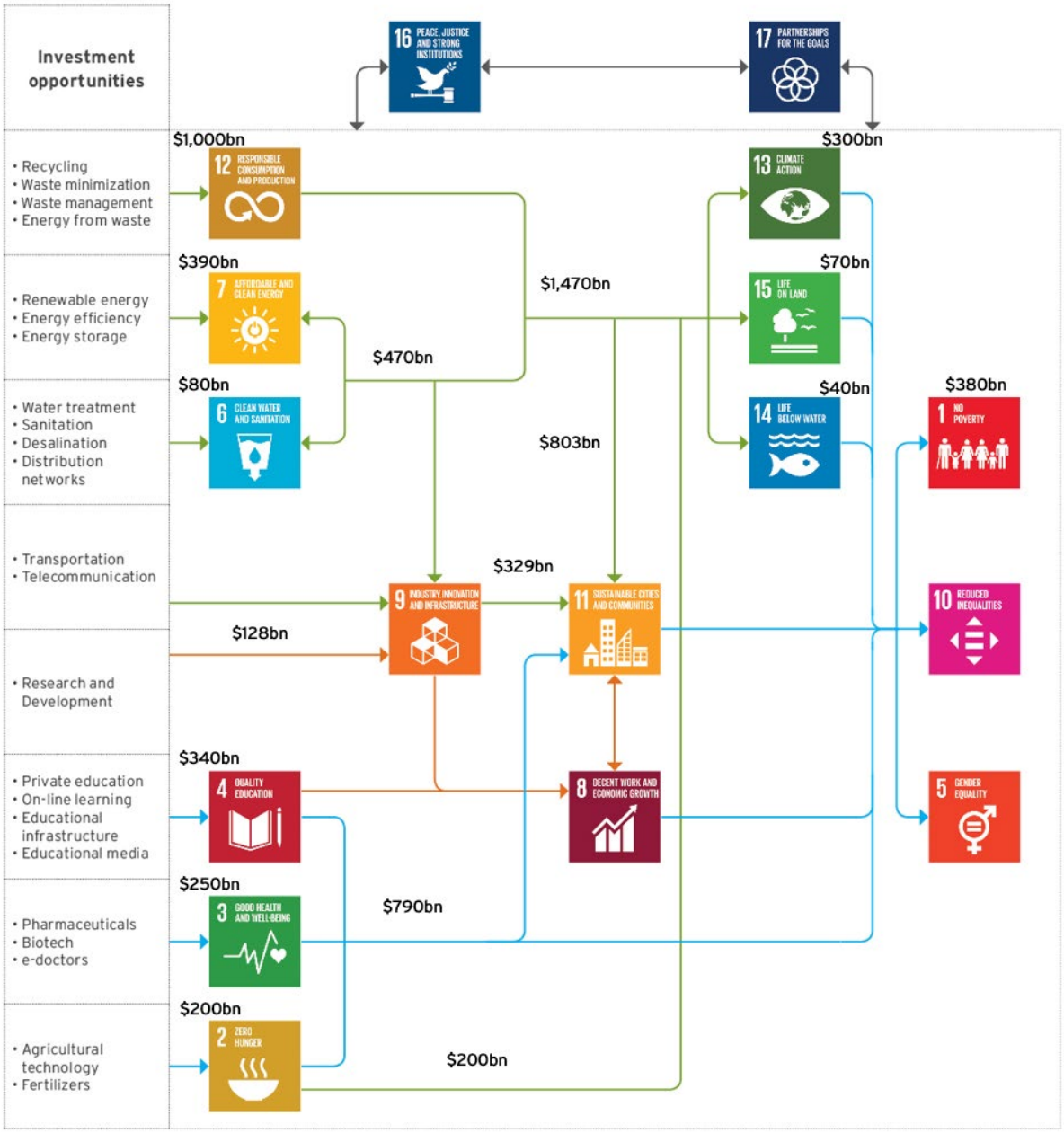
But as the prior statistics show, the capital is there and it not only wants to invest sustainably but it wants to demonstrate how it is investing sustainably — another area where metrics from an MPI could prove a game changer. The task for the financial community is to mobilize this capital by creating the appropriate investment vehicles that allow this capital to flow, the lack of which is largely the reason for the current impasse.

Blended finance, which blends different sources of capital with different risk appetites (e.g., government, development finance, and private capital) offers enormous potential to harness developed market pension and insurance funds with lower-risk appetites into higher sovereign risk jurisdictions where the capital needs to be deployed. Innovative new financial instruments such as social and sustainability bonds may also help emerging markets access the capital needed to tackle poverty, and to direct it toward the appropriate measures. Perhaps most interestingly, the advent of KPI-linked bonds, where the achievement of a key performance indicator (KPI) can effectively change the coupon on a bond, offers enormous opportunities. An MPI could help identify the most pressing areas to be tackled in a poverty eradication program, and with the correct choice of KPIs (for example, one of the metrics directly from an MPI) could source and direct that capital to the most effective areas of investment.

[1] "Rebuilding Better for an Equitable and Resilient Future," Business Fights Poverty Magazine, Issue 6, 2021.
[2] António Guterres, "Progress towards sustainable development is seriously off-track," *FT*, November 4, 2019.

The investment opportunity is vast. In our Citi GPS report *UN Sustainable Development Goals (SDGs): Pathways to Success — A Systematic Framework for Aligning Investments*, we provided a set of critical pathways that can lead quickly and most effectively to the achievement of the goals. It allowed us to identify who is best placed to do what — from the public sector to the private sector to the investment community — and what their best route might be. It is not by accident that all roads on our "pathways to success" lead to the eradication of poverty.

Figure 1. Critical Pathways for Investing in the UN SDGs



Source: Citi GPS *UN Sustainable Development Goals*

In that report we highlighted investment opportunities for the private sector of around $1.5 trillion per year in the “environmental/physical” goals of energy, water, and responsible consumption and $800 billion per year in the “social” goals of education, health, and hunger. We revisit many of these figures in this report, delving into greater granularity for certain elements of the Global MPI, identifying an aggregated investment requirement/opportunity of $1.6 trillion per year. (This should not be interpreted as if the scale of the challenge has decreased — if anything it has grown as a result of COVID-19. The smaller quantum simply reflects a more precise and focused subset of metrics than those captured by the more broad-brush SDGs.)

We must not fall into the trap of seeing tackling poverty as a cost. At a macroeconomic level, the investments used in tackling poverty can have dramatic effects on economic growth via their significant multiplier effects. As we examine later in the report, educational investments can have a multiplier on the economy of 2.4x, healthcare 4.3x, electricity ~3x, water 5.5x, and affordable housing at least 2x. Accordingly, each of these areas of investment, assuming they are done efficiently, offers a compelling financial investment case in their own right, before we even consider the overriding social benefits.

But it is not just about the carrot of opportunity — there is also a stick. As ESG investing continues its inexorable expansion, it will inevitably move to encompass sovereign credit, which is likely to shine a light on deprivations in some countries and communities. Ultimately as reporting requirements on portfolios grow, it may become harder, more expensive, or ultimately impossible to provide capital to sovereigns, or investments therein, where efforts are not being made to improve social factors and eradicate poverty. For example, will investors be willing to hold sovereign bonds — which by implication finance a defense program — while millions live in poverty and health, education or sanitation take a back seat? Or at the extreme, where ethnic groups or demographic elements of the populace are being actively discriminated against? If sovereigns represent the largest segment of the largest asset class, and investors are now more universally applying ESG screening to their portfolios, it seems hard to argue that ultimately they will not have to report, and potentially act, on some of these considerations. As this report shows, investors will find it much easier to report and analyze investments as better data is made available through the increasing adoption of OPHI’s methodology to create standard social factors and SOPHIA Oxford’s approach to improve the frequency, resolution, and accessibility of these factors.

This report has five chapters. The first chapter introduces traditional metrics of monetary poverty, showing the level and trends in income and consumption poverty as measured by the World Bank’s $1.90/day and related international poverty lines. Chapter 2 looks to the future of poverty, in which monetary poverty metrics will always be complemented by multidimensional poverty measures that include health, education and standard of living as well as work, security, or other relevant dimensions. Chapter 3 moves from concept to measurement, showing how a rigorous multidimensional poverty index (MPI) is constructed, and presenting the ‘Global MPI’ which measures acute poverty across the developing world, and explaining actual and estimated updates. Chapter 4 provides a toolbox of case studies of how governments and businesses have used the MPI and its information platform to reduce poverty more cost-effectively around the world, explaining how National and Business MPIs can be tailored to context. Chapter 5 then articulates how Finance can be harnessed to reduce multidimensional poverty, for example, how Sovereign bonds linked to Key Performance Indicators and to ESG can dismantle interlinked deprivations of multidimensional poverty.

To conclude, poverty is not a niche, isolated, or specific problem. It is all around us, takes many forms, and still blights far too many lives — indeed, more than half of us on this planet are deprived in at least one element of the Global MPI, while close to half of us live below the upper-middle income International Poverty Line. More granular approaches such as MPIs can help us to understand not just how many people are in poverty, but crucially in what way they are experiencing deprivation, and the depth of that poverty. It can help us (1) formulate more targeted programs to eradicate poverty, (2) allow progress monitoring and even help to raise and target the capital needed to tackle these issues, and (3) allow investors to demonstrate "additionality" from their investments. We should not see the eradication of poverty as a purely moral duty that comes at vast financial cost. Rather, we should see it as an enormous financial and social opportunity. The benefits of eliminating poverty for business are incontrovertible. For the financial community, investment opportunities running into the trillions of dollars per year, which can offer economic multiplier effects of 5x plus, present enormous scope to deploy the trillions of dollars of capital that wants to invest sustainably, and are just waiting for the appropriate vehicles to allow it to deploy that capital.

How often are we faced with an investment opportunity in the trillions of dollars, with the money ready to go, attractive returns, and multiplier effects on offer, which can achieve immeasurable benefits for society and dramatically improve the quality of life for billions of individuals around the world? Tackling poverty represents just such an opportunity. We have a moral obligation to embrace that challenge and to build a better and more inclusive future where no one is left behind.

A Recent History of Monetary Poverty: A One-Dimensional Approach

"*Poverty is not an accident … it is man-made and can be removed by the actions of human beings.*" — Nelson Mandela

Eliminating poverty in all its dimensions remains one of the greatest challenges facing humanity. The first goal of the UN Sustainable Development Goals (UN SDGs) in essence calls for an end to poverty in all its forms, everywhere, by 2030. The World Bank has a similar target of reducing global extreme monetary poverty to 3% of the world's population by 2030. As of 2017, an estimated 689 million people (9.2% of the global population) live in extreme monetary poverty and struggle to meet basic needs such as health, access to clean water and sanitation, and education.[3] The world as a whole has made significant progress on monetary poverty in the past 30 years, and the World Bank has recognized the reduction of extreme poverty in the last few decades as one of the success stories of global development. The majority of the extreme poor today live in Sub-Saharan Africa and Southern Asia, but monetary poverty is an issue affecting countries around the world in both developing and emerging economies as well as more developed nations. More broadly, there has recently been an increased focus on the level of inequality within countries and Goal 10 of the UN SDGs seeks to reduce inequality within and among countries.

The COVID-19 pandemic threatens to unravel decades of progress in monetary poverty reduction, and it is more important than ever that concerted efforts are made to get the world back on track to eradicate poverty. The importance and benefits of eliminating poverty should not be underestimated — it is not only the right thing to do, it is an economic growth generator. As countries around the world put together and enact their COVID-19 recovery plans, "build back better" is a common catch phrase, which calls for a more inclusive and sustainable recovery. Using this opportunity to address broader developmental challenges can help countries achieve the most optimal results in economic growth, recovery, and poverty reduction.

This chapter seeks to discuss the historical progress made in combating monetary poverty, the main challenges before the COVID-19 pandemic, and the newfound challenges in eradicating monetary poverty as a result of the crisis. In particular, it focuses on historical, one-dimensional approaches to poverty, while in the next chapters we examine the limitations of this approach, and why, if we are truly serious about tackling poverty, we need to complement monetary metrics with a more sophisticated, multidimensional approach to defining and analyzing poverty.

[3] "Goal 1: End Poverty in All Its Forms Everywhere," UN Sustainable Development Goals, accessed December 20, 2021.

Defining Poverty

Poverty is a multifaceted status reflecting more than just a deficiency of income and productive resources. It encompasses economic, social, cultural, and political elements, and is inherently interwoven with the lack of, or absence of, fundamental human rights. According to the UN, its manifestations include hunger and malnutrition, inequality, social discrimination and exclusion, deprivation, inadequate access to education and basic services, as well as lack of participation in decision-making. This clearly demonstrates the interconnected nature of SDG 1 — No Poverty with other SDGs. Economists often use the terms "cycle of poverty" or "poverty trap" to describe the self-reinforcing mechanisms that drive poverty and make it difficult to escape. Poverty very often passes from one generation to the next, and children born into poverty are likely to remain there. Professor Jeffrey Sachs highlights in his book, the *End of Poverty: Economic Possibilities for Our Time*, that the extreme poor lack six types of capital — human capital, business capital, infrastructure, natural capital, public institutional capital, and intellectual capital.

Figure 2. The United Nations Sustainable Development Goals

Source: United Nations

It is difficult to discuss poverty without talking about metrics. Despite broad agreement that we cannot consider only the economic facets of poverty, the most widely-used measure of global poverty traditionally was monetary deprivation. International organizations such as the World Bank continue to use monetary poverty as the main data point in monitoring global poverty. But the use of multidimensional poverty datasets — the focus of this report — which recognize the many different ways in which people can be deprived and provides a more holistic view of poverty, is fast gaining traction.

Monetary poverty can be defined in either absolute or relative terms. Absolute poverty considers poverty in terms of the amount of money necessary to meet basic needs, whereas relative poverty is explained with reference to the economic status of other members in society. The international standard for measuring absolute poverty is the International Poverty Line (IPL), which the World Bank updated in 2015 from $1.25 to $1.90 per day (in 2011 purchasing power parity U.S. dollars). The IPL represents a monetary threshold that is considered the minimum income required to meet basic needs, below which an individual is considered to be living in "extreme poverty."

However, monetary poverty does not simply "end" when an individual's income exceeds the $1.90 per day threshold, and in 2018 the World Bank introduced two additional poverty lines to complement the extreme IPL — a lower middle-income IPL of $3.20 per day, and an upper middle-income IPL set at $5.50 per day. The IPLs allow comparison across countries and benchmarking, but national poverty lines should be considered when assessing a particular country as they are specific to that country's individual economic and social circumstances.

The efficacy of using an absolute poverty measure is often debated, questioning whether the yardstick for measuring monetary poverty should be the same around the world, given that poverty is a profoundly contextual and relative experience. Studies have found that as countries get richer, the value of what they consider to be "basic needs" increases.[4] This is where measuring relative or partly-relative monetary poverty can be useful, with the World Bank coining the term "societal poverty," and introducing a new set of poverty lines called Societal Poverty Lines (SPLs). An individual is considered to be suffering from societal poverty if they live on less than $1 plus half of what the median person in that country consumes per day. The SPL increases in value as countries get richer and median consumption levels grow. Societal poverty is relevant around the world, even across high-income countries. The Organisation for Economic Co-operation and Development (OECD) and European Union (EU) have traditionally used relative poverty lines, which are set at 50%-60% of national median incomes.[5]

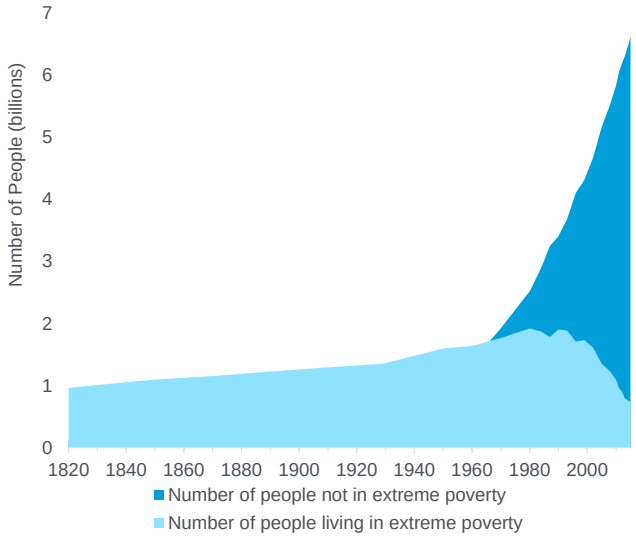
Progress in Monetary Poverty Over the Past 30 Years and Current Landscape

Over the past few decades, the world has made remarkable progress at the global level in the reduction of extreme poverty (living on less than $1.90 a day). The global population grew from 5.31 billion in 1990 to 7.5 billion in 2017, and over the same period, the number of people living in extreme poverty decreased from 1.9 billion to 689 million, representing a remaining 9.2% of the global population. Between 1990 and 2015, extreme poverty decreased by an average of 1% per year, and if this trend continued up to 2030, we would have been on track to meet UN SDG target 1.1 of eradicating extreme poverty. However, poverty reduction in recent years has been slowing; from 2015 to 2017 the rate of decline slowed to 0.5% per year. Even before the COVID-19 pandemic, the World Bank's baseline projections suggested that 6% of the global population would still be living in extreme poverty by 2030, far above their 3% target. If we also consider the other two poverty lines, data shows that almost a quarter of the global population lived below the $3.20 poverty line, and 44% below the $5.50 in 2017 — translating to 1.8 billion and 3.3 billion people, respectively. It is worth emphasizing that this means almost half of the world's population still struggle to meet basic needs. Similarly, there is evidence there has also been a slowdown of poverty reduction (in absolute terms) at the two higher poverty lines, though admittedly less pronounced.

[4] Dean Jolliffe and Espen Beer Prydz, Societal Poverty: A Relative and Relevant Measure, World Bank, Policy Research Working Paper, No. 8073, May 2017.
[5] The disadvantage of relative poverty lines is that if the situation of all population worsens, then the lives of people may have changed but their poverty status has not. For example, in Greece after 2008 crisis, relative monetary poverty did not increase even when the lives of people became much harder.

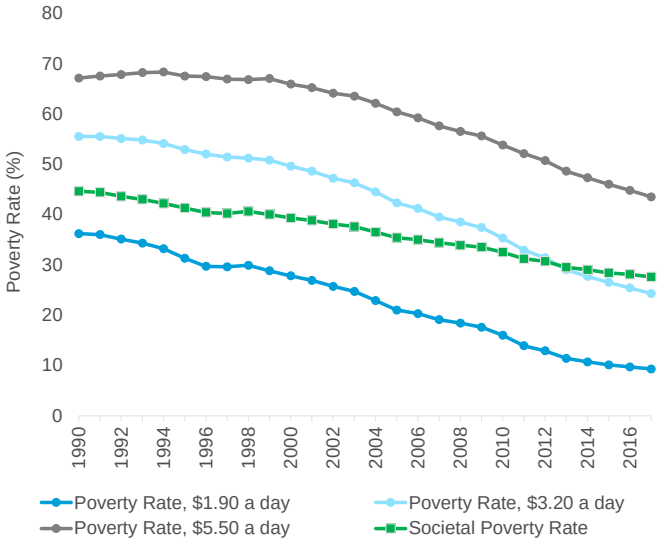
Adding in the Societal Poverty Line, we can see that it has declined at a slower pace than extreme poverty, and in 2017, there were around 2 billion people living below their countries' respective SPL. The latest data from the World Bank shows that richer regions, such as Europe and Central Asia, make up a larger share of global societal poverty compared with the absolute poverty lines.[6]

Figure 3. World Population Living in Extreme Monetary Poverty (1820-2015)



Source: Our World in Data

Figure 4. Global Monetary Poverty at the International Poverty Line and Society Poverty Line



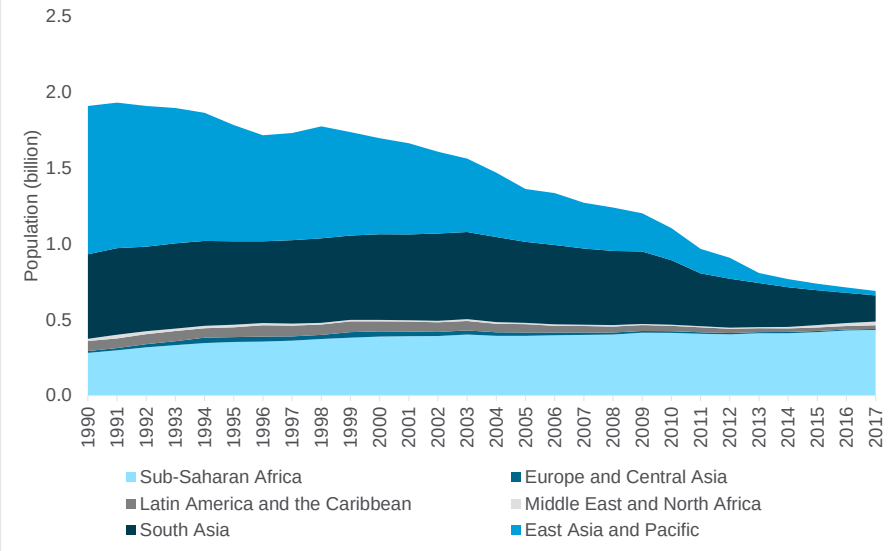
Source: PovcalNet, World Bank

The global trend is helpful, but it masks an uneven distribution of poverty across regions and countries. Since the 1990s, reduction in global poverty has been largely driven by two countries — China and India. Out of the 1.2 billion people who were lifted out of extreme poverty from 1993 to 2017, 80% were in China and India.[7] In 2021, China declared victory in eradicating extreme poverty on a multidimensional basis, which included a monetary national benchmark of $2.30 a day, (slightly higher than the IPL), as well as the "two no-worries and three guarantees" (food, clothing, health, education, and housing). India has also made significant achievements over the past few decades, but there is still plenty of room for further reduction. The latest estimates from 2017 show that India still has an extreme poverty rate of 10.4% which translates to around 139 million people — much less than its figure in 2015-16 of 27.9% and 381 million people, according to the Global MPI.[8]

[6] World Bank, *Poverty and Shared Prosperity 2020: Reversals of Fortune*, 2020.
[7] "1. No Poverty," Atlas of Sustainable Development Goals 2020 From World Development Indicators, World Bank, accessed December 20, 2021.
[8] World Bank PovcalNet website; See Table 1.1 of Sabine Alkire, Usha Kanagaratnam, and Nicolai Suppa, The Global Multidimensional Poverty Index (MPI) 2021, OPHI MPI Methodological Notes 51, Oxford Poverty and Human Development Initiative, University of Oxford, 2021.

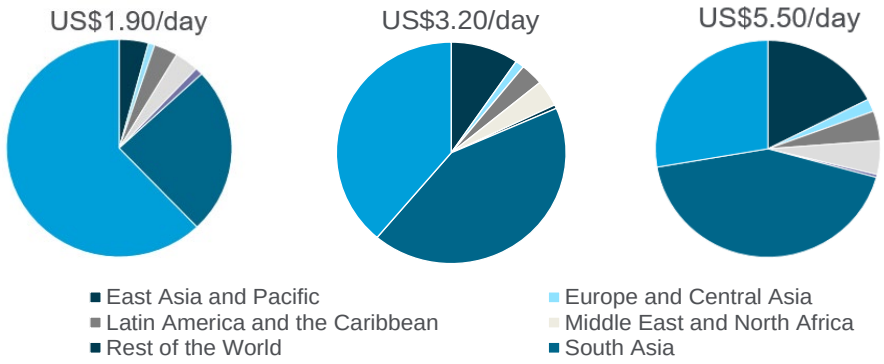
The landscape of extreme poverty on a purely monetary basis has shifted over the years from Asia to Africa (while on an MPI basis it remains more equally spread between the two), with a high concentration in Sub-Saharan Africa, which is considered a region of specific concern. Despite extreme poverty rates decreasing across the region, rapid population growth has led to an increase in the number of extreme poor — from 284 million in 1990 to 431 million in 2017. Overall, monetary poverty is becoming increasingly concentrated in a smaller number of countries, and the disparity between those nations with and those without extreme poverty is anticipated to only become more enhanced.[9]

Figure 5. Population Living in Extreme Monetary Policy by Region



Source: Our World In Data, PovcalNet, World Bank

Figure 6. Distribution of Poor Living on Less than $1.90, $3.20, and $5.50 Per Person Per Day



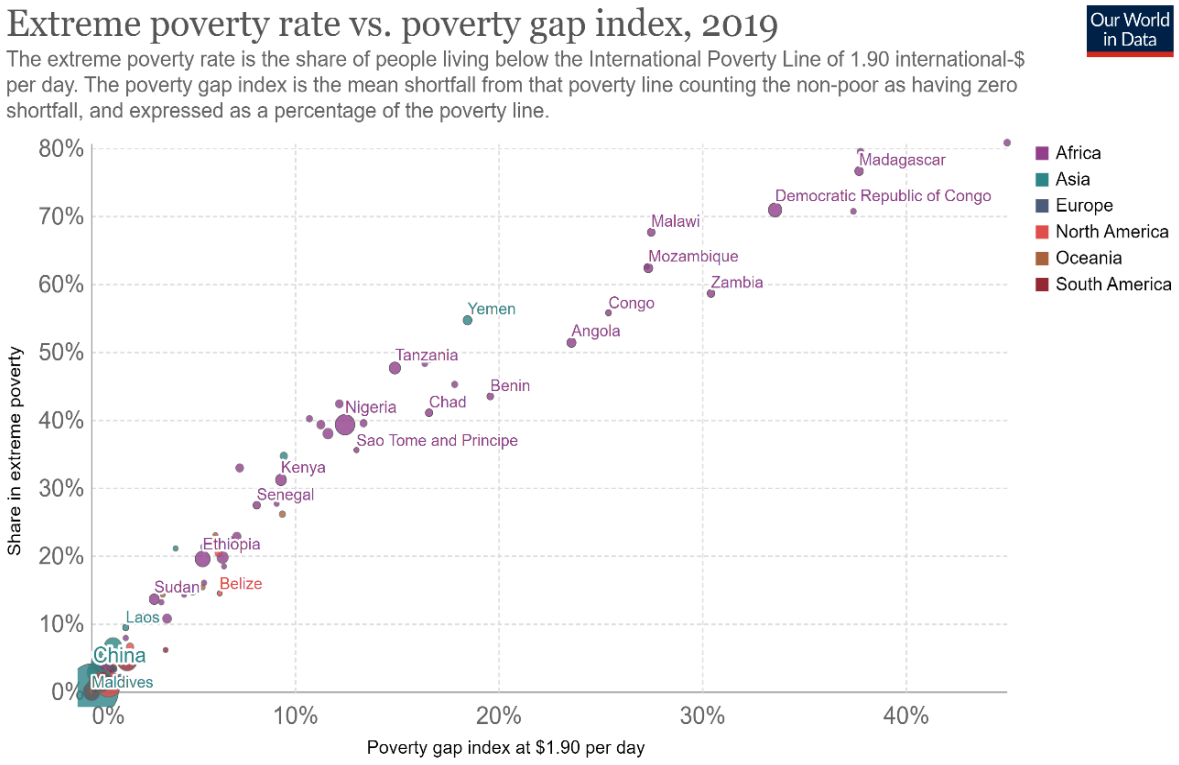
Source: PovcalNet, World Bank

[9] Christoph Lakner et al., *How Much Does Reducing Inequality Matter for Global Poverty?* World Bank, Global Poverty Monitoring Technical Note 13, June 2020.

If we also consider the geographic distribution at the other two poverty lines, the picture is slightly different. The largest number of global poor at the $3.20 and $5.50 poverty lines are in South Asia, where progress in poverty reduction has been slower at the higher poverty lines than for extreme poverty. This is also true for Sub-Saharan Africa, which suggests that millions of people had only narrowly escaped extreme poverty before the COVID-19 pandemic.[10] Poverty rates in the Middle East and North Africa (MENA) region are worth noting, as data shows poverty rates under all three lines have been increasing over the past few years. This increase correlates with an increase in armed conflict in countries such as Yemen and Syria.

Measuring monetary poverty by headcount ratio is certainly useful, but it fails to capture the intensity of poverty, i.e., allowing us to understand how far the living standard of the poor is from the poverty line. The Poverty Gap Index addresses this issue by measuring the mean shortfall from the poverty line and dividing it by the value of the poverty line. At the global level, the poverty gap reached 2.9% in 2017 and has been decreasing over time, though large regional disparities remain, especially in Sub-Saharan Africa where the poverty gap was 15.6% in 2017. Figure 7 shows a scatter plot between the poverty rate and poverty gap, which reveals that overall, there is a strong correlation between the incidence and depth of poverty. Sub-Saharan Africa especially stands out as being a region with a high share of the population below the poverty line as well as a region where people are furthest below the line.[11]

Figure 7. Poverty Rate Versus Poverty Gap

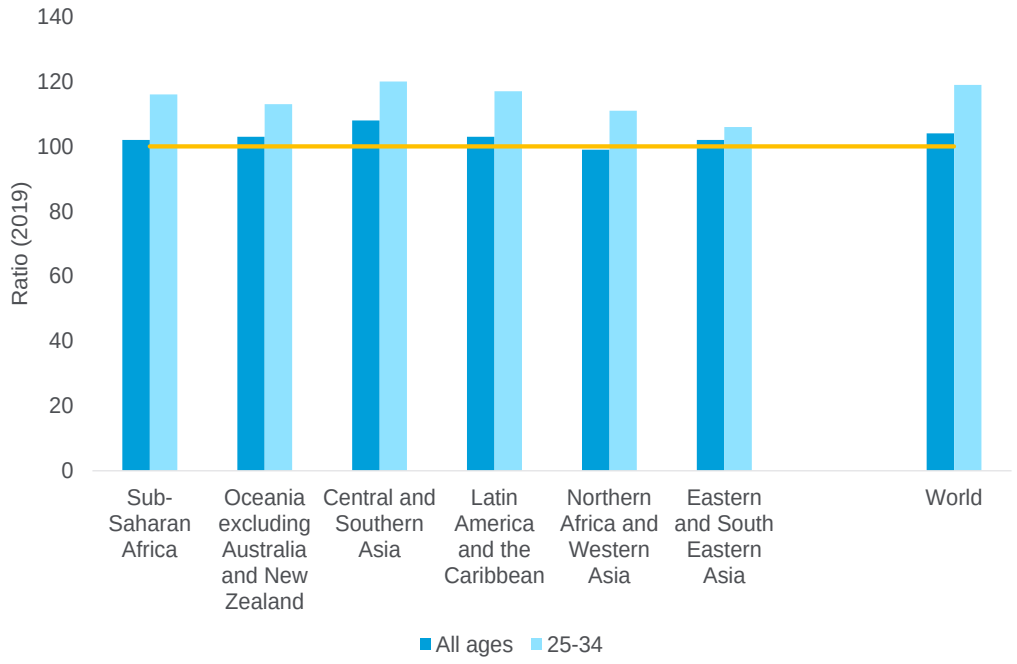


Source: Our World in Data, World Bank

[10] World Bank, *Poverty and Shared Prosperity 2020: Reversals of Fortune*, 2020.
[11] See Max Roser and Esteban Ortiz-Ospina, "Global Extreme Poverty." OurWorldInData.org, published in 2013 and revised in 2019.

Aside from geographic disparities, it is also important to consider demographic facets of the global poor, which largely remain focused on rural, young, undereducated, and female individuals. About 80% of the world's extreme poor live in rural areas and almost half are children under the age of 14. If we consider educational attainment, then about 70% of the world's poor aged 15 and over have had no schooling or only primary education.[12] Women as a group are more susceptible and vulnerable to poverty and represent the majority of the extreme poor in most regions, at least on a monetary basis, even if on an MPI basis the differences are unlikely to be statistically different. In 2019, before the COVID-19 pandemic, 398.5 million women of all ages lived below the International Poverty Line, compared to 392.3 million men.

Figure 8. Gender Gaps in Extreme Poverty: Ratio of Poor Women to Poor Men



Source: UN Women, UNDP and the Frederick S. Pardee Center for International Futures

The gender poverty gap is the greatest amongst the age group 25 to 34 years old, where globally there are roughly 119 poor women for every 100 poor men, which becomes even more significant when considered against a biological standard for this age cohort of 104-106 males for every 100 females.[13] Increased poverty at this stage of life coincides with when women are most likely to have children at home, and women in general are more likely to prioritize family over work, which can have knock-on effects on income later in life. There is also a difference between young women and men (15 to 24 years) where young women are twice as likely as young men to be jobless, and neither in education nor training.[14] Around the world, women are paid less than men, carry out more unpaid care work, and work longer days when paid and unpaid work is combined.

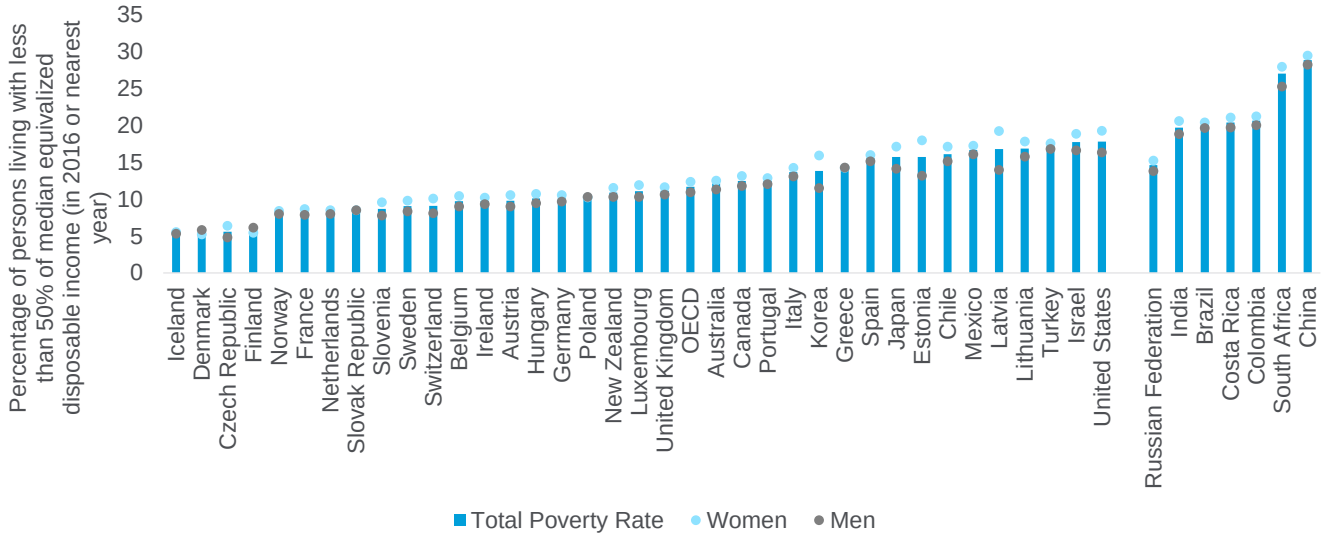
[12] Poverty: Overview," World Bank, accessed December 20, 2021.
[13] Ginette Azcona, Antra Bhatt, and Serge Kapto, "The COVID-19 Boomerang Effect: New Forecasts Predict Sharp Increases in Female Poverty," Women Count, UN Women, September 2, 2020.
[14] Data from ILOSTAT, the statistics database of the International Labour Organisation.

Across developing economies, 92% of women (compared to 87% of men) are informally employed where they are less likely to have regular income, social protection, and job security.[15] UN Women stress that gender, poverty, and economic inequality are intrinsically linked, and that closing the gender poverty gap must be a crucial part of a broader poverty elimination strategy.[16]

As we mentioned earlier, the OECD uses a relative poverty rate, which it defines as the share of people living with less than half the median disposable income in their country. The latest most comprehensive OECD data set is for 2016, which reveals an average relative poverty rate of 11.7%, ranging from almost 18% in Israel and the United States to 5.4% in Iceland. The data also considers poverty rates by gender and age group and finds that women face a greater risk of poverty than men across all OECD countries apart from Finland, Denmark, and Greece.

In terms of age group, data shows the average relative poverty rates to be higher for children and youth (13%) and the elderly (14%), compared to adults (10%). Trend data shows that changes in relative poverty have been rather limited over the past 10 years.

Figure 9. Relative Poverty Across the OECD



Source: OECD Income Distribution Database

Poverty, however, does not just affect low-income countries. The use of the IPL helps bring attention to the world's poorest people who rightfully deserve focus, but a consideration of relative poverty and inequality is needed across the world. Inequality persists within and across countries, and we cannot forget that even in wealthy economies, the poorest people struggle to afford basic goods and services. The poorest and most vulnerable communities are disproportionately impacted during times of crises, and the COVID-19 pandemic has been no exception.

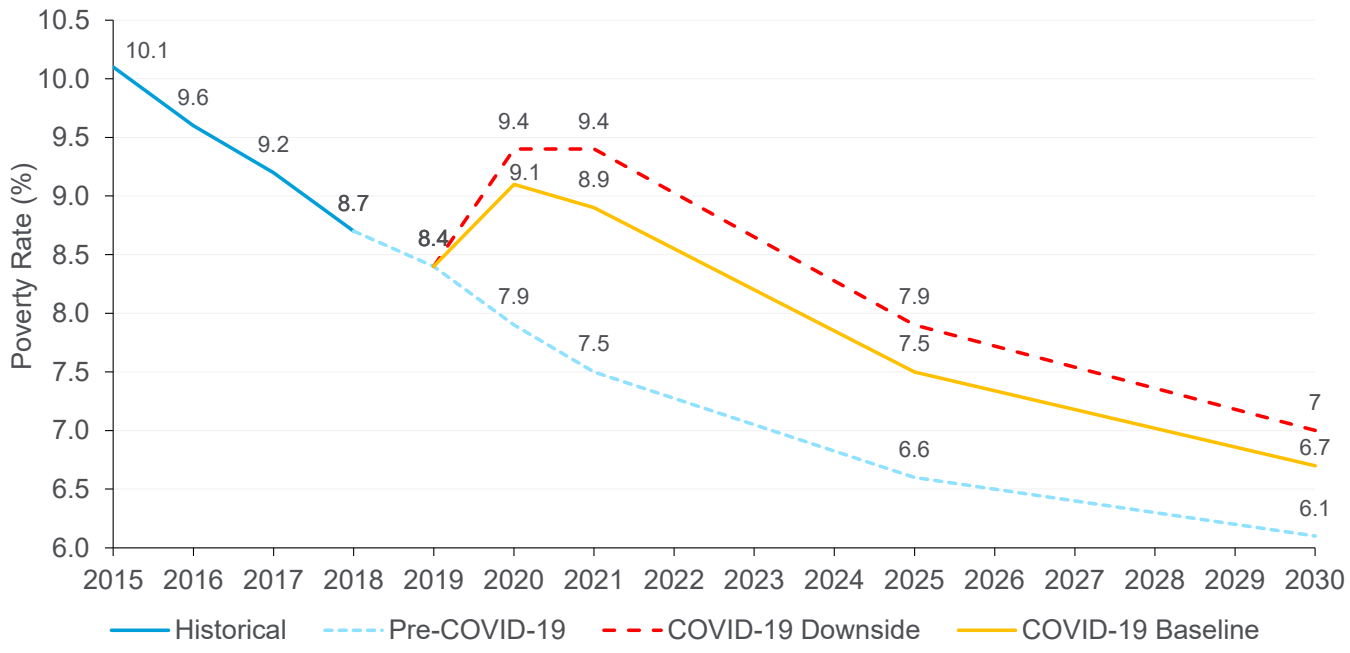
[15] Bonnet, Florence, Joann Vanek, and Martha Chen. "Women and men in the informal economy: A statistical brief." International Labour Office, Geneva, 2019.
[16] Rense Nieuwenhuis et al., *Gender Equality and Poverty Are Intrinsically Linked*, UN Women, Discussion Paper, 2018.

Impact of COVID-19

The COVID-19 pandemic has led to global economic and social disruption, and plunged the global economy into the worst recession since the Great Depression. During the Great Financial Crisis, growth in emerging market and developing economies remained relatively strong but the economic damage of COVID-19 is truly global, and is making developing economies more vulnerable to other interwoven crises such as poverty, hunger, and conflict. The COVID-19 pandemic has deepened existing inequalities and the impacts of COVID-19 will be felt for years to come in the world's poorest nations. Even at the beginning of the pandemic, we saw headlines emerge on the impact of COVID-19 on global monetary and multidimensional poverty, and how millions of people could be pushed into extreme poverty. Global extreme poverty was expected to rise for the first time in over 20 years in 2020, threatening years of progress made in poverty reduction.

The latest estimates from the World Bank (as of June 2021) find that the pandemic pushed 97 million more people into extreme poverty in 2020, (a reduction of about 20 million from the previous estimate in January 2021). The latest findings from the ILO also report that a fall in employment and hours worked has led to a sharp decrease in labor income and a corresponding increase in poverty. The report stresses that "five years of progress towards the eradication of working poverty have been undone."[17]

Figure 10. Projection of Global Extreme Poverty Through 2030



Source: Lakner et al. (2020), PovcalNet, World Bank

[17] International Labour Organisation, *World Employment and Social Outlook: Trends 2021*, 2021.

The COVID-19 crisis will have long lasting socio-economic impacts around the world, but as the situation continues to evolve, it is difficult to assess the specific long-term implications and impacts on global poverty. However, many institutions like the World Bank continue to update their projections. According to the World Bank, global extreme poverty rates could reach between 6.7% and 7% in 2030, which translates to between 573 million and 597 million people. This would imply a six to seven year setback compared to pre-COVID-19 projections.[18] UNDP-OPHI projections on an MPI basis suggest that COVID-19 has set progress on eradicating poverty back by between three and ten years, with between 131 million and 547 million people added to those already in poverty.[19]

Projections from the UN Department of Economic and Social Affairs (UN DESA) found that as many as 797 million people could face the realities of extreme poverty in 2030, missing the target of SDG 1 by a large margin, with 9% of the global population captured by the extreme poverty definition.[20] This level of extreme poverty will have ramifications for many other SDGs, e.g., hunger, education, gender equality, and decent work. The significant impact the pandemic is having on employment in developing countries, with unemployment rates escalating to record highs, is partly responsible for the pessimistic outlook by the UN DESA. In Nigeria, India, and Colombia, unemployment has passed 20%, with countries such as the Philippines, Argentina, Brazil, Chile, and Turkey all facing unemployment in the teens.[21] Africa is specifically mentioned in the UN DESA report, as the COVID-19 crisis is driving an increase in unemployment, poverty, and inequality, which threatens to reverse decades of progress in development.

Women are often disproportionately affected by crisis, and COVID-19 is no exception. Latest research from UN Women reports the pandemic will push 47 million more women and girls below the poverty line and widen the gender poverty gap, especially amongst women of reproductive age (25 to 34). Furthermore, the poverty rate for women was expected to fall by 2.7% between 2019 and 2021, but is now expected to increase by 9.1% due to the COVID-19 crisis and its aftermath.[22]

The discriminatory impact upon women from COVID-19 is founded across a number of elements — from type of employment, with many women working across the informal sector, to disproportionate intensity of care work. The International Labour Organisation (ILO) estimated that 1.6 billion informal economy workers (76% of informal workers globally) were significantly impacted by COVID-19 lockdown measures and that women were overrepresented in high-risk sectors such as the hospitality and food sectors (42% of women workers are employed in these sectors compared to 32% of men).[23]

---

[18] Nishant Yonzan, Christoph Lakner, and Daniel Gerszon Mahler, "Projecting Global Extreme Poverty up to 2030: How Close Are We to World Bank's 3% Goal?" World Bank Blogs, October 9, 2020.

[19] United Nations Development Programme and Oxford Poverty and Human Development Initiative, *Global Multidimensional Poverty Index 2020 - Charting Pathways Out of Multidimensional Poverty: Achieving the SDGs*, 2020, 12-17.

[20] United Nations, *World Economic Situation and Prospects 2021*, 2021.

[21] Ibid.

[22] UN Women, *From Insights to Action: Gender Equality in the Wake of COVID-19*, 2020.

[23] International Labour Organisation, *ILO Monitor: COVID-19 and the World of Work, Third Edition*, April 29, 2020.

Other studies have found that 72% of domestic workers, 80% of whom are women, have lost their jobs due to COVID-19 and that across Europe and Central Asia, more women than men have lost their jobs or businesses (25% of women compared to 21 % of men).[24] Not only has the crisis put employment for women at more risk than men, for some women who are still in employment, greater obligations for care work are driving them to reduce paid working hours or to work unsustainable hours. However, if governments were to apply a gendered lens to recovery policies, the opportunity remains to drive a real improvement in the gender gap, and thus in the overall reduction of poverty.

In what is set to only compound an extraordinary situation, the suffering of millions of children globally from an educational perspective adds to the longevity of impacts from COVID-19. The United Nations Children's Fund (UNICEF) found that globally, 72% of schoolchildren who are unable to access remote learning live in their countries' poorest households, including over half of children in Sub-Saharan Africa.[25] Moreover, that number is likely to be far higher in reality, with the pressure of chores, family responsibilities, and unfavorable learning conditions likely to have kept many more from truly engaging with remote teaching.

The latest findings from the ILO also report the pandemic has worsened existing inequalities in the labor market, with women, lower-skilled workers, young people, and migrants among the most impacted. Studies have also found that inequality amplified the impact of COVID-19; for example Lakner et al. (2020) found the number of people pushed into extreme poverty would increase by half if the GINI index increases by 2% across all countries. With such disproportionate impact further increasing inequality and the feedback loops that follow, inclusive growth becomes progressively more challenging, and the World Bank stresses that the COVID-19 crisis risks substantial human capital losses among populations who are already disadvantaged, which makes it even harder for nations to return to inclusive growth.[26]

[24] UN Women, *From Insights to Action: Gender Equality in the Wake of COVID-19, 2020; UN Women, The Impact of COVID-19 on Women's and Men's Lives and Livelihoods in Europe and Central Asia*, 2020.
[25] United Nations Children's Fund, "COVID-19: At Least a Third of the World's Schoolchildren Unable to Access Remote Learning During School Closures, New Report Says," press release, August 26, 2020.
[26] World Bank, *Poverty and Shared Prosperity 2020: Reversals of Fortune*, 2020.

Challenges Before and After COVID-19

Challenges Before COVID-19

As previously highlighted, even before the COVID-19 pandemic, data showed a slowdown in monetary poverty reduction. The World Bank identified armed conflict and climate change as two key forces driving the slowdown. Over the past few years, armed conflict has been building especially in the MENA region where conflicts in Syria and Yemen have led to a rise in extreme poverty rates. Poverty and conflict are closely interlinked, having a reciprocal and complex relationship. On the one hand, conflict weakens economic growth and governance, which can drive and exacerbate poverty, while at the same time, poverty may cause or exacerbate the factors that drive conflict. More than 40% of the global poor live in countries affected by conflict, fragility, and violence, with the World Bank forecasting that figure increasing to 67% in the next 10 years.[27] The impacts of conflict on economic performance and poverty can materialize quickly, but recent research has found that the effects may persist for decades, and that conflict impacts poverty reduction in the long term by creating a "conflict debt," where conflicts build over time and remain an obstacle to poverty reduction.[28] The study found an increase of 1% in conflict debt is associated with an increase in the monetary poverty rate of 1.767%.

Climate change and poverty are also deeply intertwined, with poorer nations facing the brunt of climate change impacts. According to the latest Climate Risk Index from Germanwatch, eight out of the 10 countries hardest hit by climate change between 2000 and 2019 are low to lower-middle income countries, with five classified as least-developed countries. Puerto Rico, Myanmar, and Haiti were identified as the three most affected countries over the past two decades.[29]

The impacts of climate change are wide ranging, from driving people from their homes and threatening their livelihoods and food supply, to restricting access to healthcare. People living in poverty are already suffering from deprivation, and climate change will only increase the likelihood of more hunger, conflict, and poverty. Poorer people are more vulnerable to natural disasters and have less access to resources, infrastructure, and support to help them recover and adapt. Studies have found that poorer people are also more exposed in general to natural disasters such as flooding and droughts.[30] Recent research has found that up to 132 million people could be pushed into extreme poverty by climate change by 2030, with Sub-Saharan Africa and South Asia expected to be most affected, accounting for 39.7 million and 35.7 million people, respectively.[31] The report stresses that food security should be a priority for Sub-Saharan Africa, as the effect of food prices is the most important factor, whereas a more integrated approach across health shocks, natural disasters, and food prices is recommended for South Asia.

---

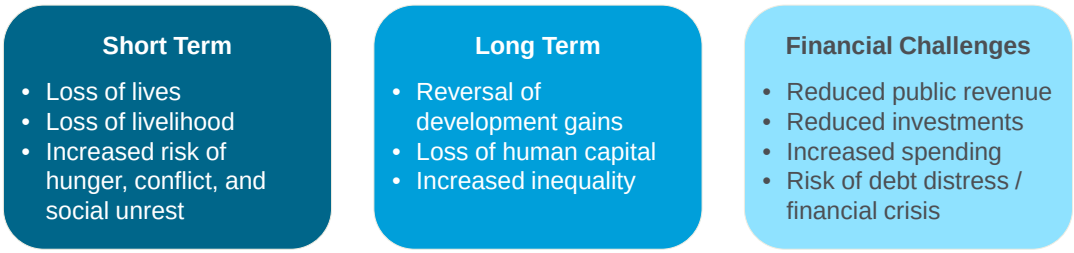
[27] "Poverty: Overview," World Bank, accessed December 20, 2021.
[28] Hans Mueller and Chanon Techasunthornwat, *Conflict and Poverty*, World Bank, Policy Research Working Paper No. 9455, October 2020.
[29] David Eckstein, Vera Künzel and Laura Schäfer, *Global Climate Risk Index 2021 - Who Suffers Most from Extreme Weather Events? Weather-Related Loss Events in 2019 and 2000-2019*, Germanwatch, 2021.
[30] Hessel C. Winsemius et al., "Disaster Risk, Climate Change, and Poverty: Assessing the Global Exposure of Poor People to Floods and Droughts," *Environment and Development Economics* 23, no. 3 (2018): 328-348.
[31] Bramka Arga Jafino et al., *Revised Estimates of the Impact of Climate Change on Extreme Poverty by 2030*, World Bank, Policy Research Working Paper No. 9417, 2020.

Challenges After COVID-19

The economic impacts of the COVID-19 pandemic have been global and severe. As we highlighted earlier, the pandemic led to the worst recession since the Great Depression. No country was unaffected, and for the first time since the Great Depression, both advanced economies and emerging market and developing economies were in economic recession together. The direct and indirect health implications, as well as the broader economic fallout is making developing economies more vulnerable to other crises such as poverty, hunger, and conflict. Development experts say the COVID-19 pandemic has set development gains back by decades.

Figure 11 summarizes some of the key issues for countries post-COVID-19 both in the short and long term, as well the financial challenges ahead. Public debt in emerging market and developing economies has surged in the past decade to levels unseen in the past 50 years, and the pandemic has exacerbated the risk of a debt crisis for the world's poorest countries. In response, the world G20 countries have agreed to a Debt Service Suspension Initiative covering May 2020 to December 2021. Since the initiative began, it has delivered more than $5 billion in relief to more than 40 countries.[32]

Figure 11. Poverty-Related Issues for Countries in a Post-COVID-19 World



Source: Citi Global Insights

Poverty is closely connected with another global challenge — hunger. The COVID-19 pandemic is worsening hunger worldwide and threatening food security for a growing number of countries as a result of reduced incomes and rising food prices. Even before the current crisis, the number of people suffering from chronic and acute hunger was on the rise driven by several factors, including climate change, natural disasters, pests, conflict, and socio-economic conditions.[33] The latest findings from the UN Food and Agriculture Organization (FAO) indicate between 720 million and 811 million people globally faced hunger in 2020, compared to 650 million in 2019. As a result of the pandemic, the UN FAO have revised their projections for 2030, and now estimate the SDG goal of zero hunger (SDG 2) by 2030 will be missed by almost 660 million people based on current trends, which is 30 million higher than a pre-COVID-19 scenario.[34]

Greater inequality is also a concern, as equality is a key driver of poverty reduction. In general, poverty reduction can be driven by either higher average growth or a reduction in inequality of incomes or the combination of the two.[35]

[32] "COVID-19 Debt Service Suspension Initiative," World Bank, data as of July 2021.
[33] Food and Agriculture Organization of the United Nations
[34] Food and Agriculture Organization of the United Nations, *The State of Food Security and Nutrition in the World 2021*, 2021
[35] World Bank, *Poverty and Shared Prosperity 2020: Reversals of Fortune*, 2020.

A recent World Bank study that looked at the importance of reducing inequalities versus increasing growth in eradicating extreme poverty, found that reducing each country's Gini index by 1% per year has a larger impact on global poverty than increasing the country's annual growth rate by one percentage point above World Bank forecasts. This finding also carried over to estimated COVID-19 impacts where percentage changes in the Gini were found to matter more than percentage changes in growth.[36]

Creation of "New" Poor

The COVID-19 pandemic is also changing the profile of the global poor, and is set to create millions of "new" poor according to the World Bank's latest Poverty and Shared Prosperity report. The global profile of the new poor is more urban, better educated, and less likely to work in the agriculture sector than those living in extreme poverty before the crisis. They are more likely to work in sectors that were most affected by quarantine restrictions such as construction, manufacturing, and informal services. The poverty impact of COVID-19 will be felt by more than just the poorest countries, with middle income countries also being significantly affected; in fact, the World Bank projects that more than three-quarters of the projected new poor will be in middle-income countries, which translates to 72 million to 92 million people.[37]

On top of the foundational issues of a lack of access to basic needs and socio-economic services, the three converging challenges of COVID-19, conflict, and climate change present a real threat to poverty eradication, and threaten to add more people to the cycle of poverty, as well as worsen the situation for people already living in it. Special attention should be paid to Sub-Saharan Africa and South Asia which face many obstacles to poverty reduction. In the short term, saving lives and livelihoods is key, but in the medium and long term, ensuring an inclusive recovery is vital in ensuring the poorest and most vulnerable are not left behind. The challenges ahead are indeed immense and must be tackled head on, and while governments certainly have an essential role to play, the role of the private sector is equally important and must not be underestimated.

Conclusions

There can be no underestimating the challenge that SDG 1 — No Poverty — poses and this challenge has been made even more difficult by the truly profound impact of the COVID-19 pandemic. The additional setbacks suffered through COVID-19 are causing some to question whether what was already an ambitious target is now achievable. Though we have seen progress over a number of decades, the more recent slowdown in monetary poverty reduction, now compounded by virus implications, has resulted in a number of regions and individual groups emerging as especially vulnerable to falling into extreme poverty, rather than moving out of it. Particular focus should be paid to Sub-Saharan Africa where a growing population, the slow pace of monetary poverty reduction, as well as additional challenges such as climate change and COVID-19, make the region a center of extreme poverty.

[36] Christoph Lakner et al., *How Much Does Reducing Inequality Matter for Global Poverty?* World Bank, Global Poverty Monitoring Technical Note 13, June 2020.
[37] World Bank, *Poverty and Shared Prosperity 2020: Reversals of Fortune*, 2020.

However, we must not lose hope or our drive to mobilize smart policies and capital to get us back on track and to accelerate poverty reduction. Policy formulation building out of the COVID-19 crisis should take an integrated approach and embed a broader set of development outcomes in order to create a sustainable and progressive route out of poverty in all its forms and dimensions.

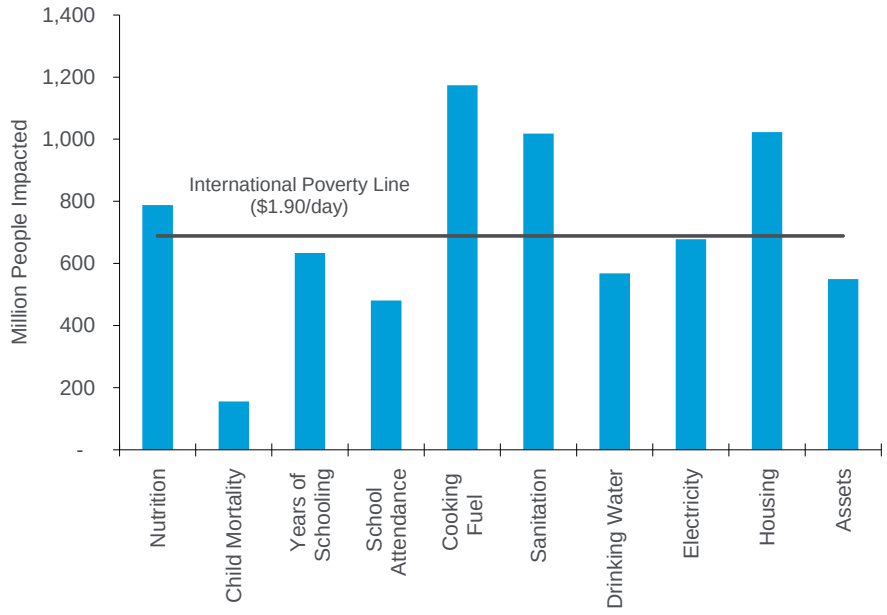
This means recognizing and embracing data and metrics on poverty beyond monetary deprivation, and it is this which leads us into the following chapters, and the main focus of this report — the need to adopt a multidimensional approach to analyzing, understanding, and tackling poverty. Multidimensional poverty metrics will be critical in providing the capability for governments and the private sector globally to recognize individual requirements and areas of specific focus that will yield the most optimal results in poverty reduction and economic growth.

The Future of Poverty: Beyond Monetary Deprivation to a Multidimensional Approach

As the previous chapter showed, poverty remains an enormous issue around the world. Yet what are we implicitly saying if we simply focus on monetary deprivation as our means of understanding poverty — that the fabled "helicopter drop" of money would solve the issue? Clearly it would not. Having more than $1.90 a day, or even the $3.20 or $5.50 mentioned, would not provide access to infrastructure, education, health, or any of the other key deprivations by which poverty can manifest itself, any more than suddenly breaching the $1.90 IPL would mean that people would suddenly stop being poor. If anything, the IPLs are a reflection of an overall level of economic inclusion and activity of a group of individuals, and do little to aid our understanding of how someone is poor.

Perhaps the greatest indication of the limitations of an IPL approach is to examine the figures. The basic IPL highlighted in the previous chapter implied that some 700 million people around the world still lived in extreme poverty. But what if we delve beneath this figure and examine some of the deprivations that can define poverty and make up the metrics used in a multidimensional poverty index such as the Global MPI, including access to education, health, electricity and clean cooking fuels, clean water and sanitation, and housing.

Figure 12. Population Poor Deprived in Each Element of Global MPI vs. International Poverty Line



Note: Global MPI figures based on data from 109 countries.
Source: Citi Global Insights, Oxford Poverty and Human Development Initiative, University of Oxford

Education

According to the United Nations, around 258 million children and youths were out of school in 2018, representing around one in five children in that age group.[38] Gender differences were also stark — within that number there were around 5.5 million more girls than boys of primary school age out of school. These figures represented a primary completion rate of 84%, showing significant progress from the 70% rate in 2000. Nevertheless, more than half of all children and youth globally are still not meeting minimum proficiency standards in reading and mathematics. Sub-Saharan Africa sticks out as it does on so many poverty/SDG metrics, with over half of the children not involved in school globally coming from that region, and over 85% of children in Sub-Saharan Africa not learning the minimum.

But education is not just about children, particularly where poverty is concerned. For individuals aged 15 and above, the global literacy rate in 2018 was 86%; this effectively means that some 773 million adults were still illiterate, and again, worryingly, two-thirds of these individuals were female.

Health

Child Mortality

One of the key metrics on health in the Global MPI relates to child mortality. In 2019, an estimated 5.2 million children under 5 years old died mostly from preventable and treatable causes.[39] Based on current trends, 48 million children under 5 years of age will still die between 2020 and 2030, half of which will be newborns. Of these 48 million deaths, 57% will occur in Sub-Saharan Africa (28 million), and 25% in Central and Southern Asia (12 million).[40] Perhaps the starkest statistic is that children growing up in poverty are almost twice as likely to die before they reach the age of 5 as children not living in poverty.

While child mortality is a tragic deprivation, health is of course a broader issue which impacts poverty across all ages and genders. In the 2018 Citi GPS report on the UN SDGs, for SDG 3 — Good Health and Well-being, we used the Stenberg et al. (2017) analysis to determine a human opportunity. Stenberg et al. developed projections for 67 countries from 2016 to 2030, representing 95% of all low and middle-income populations and modeled two scenarios (1) a progress scenario, reflecting advancement towards global targets but constrained by health systems' assumed absorptive capacity; and (2) an ambitious scenario, in which most countries attain the global targets.[41]

According to Stenberg et al., the human opportunity associated with achieving SDG 3 totals over 1 billion people by 2030. Of this, 68% are connected with low-income countries and the remaining 32% within lower middle-income countries. Stenberg et al. forecasts that if the ambitious scenario were to be achieved, 97 million lives could be saved and life expectancy could increase by as much as 8.4 years.

---

[38] World Bank, *Poverty and Shared Prosperity 2020: Reversals of Fortune*, 2020.
[39] https://www.who.int/news-room/fact-sheets/detail/children-reducing-mortality
[40] "Children: Improving Survival and Well-Being," World Health Organization, September 8, 2020.
[41] Karin Stenberg et al., "Financing Transformative Health Systems Towards Achievement of the Health Sustainable Development Goals: A Model for Projected Resource Needs in 67 Low-Income and Middle-Income Countries," *The Lancet Global Health* (2017).

The 67 countries would see a total gain of 535 million healthy life-years during the SDG period, with 81 million healthy life-years gained in 2030 alone.

Nutrition

UN SDG 2 — No Hunger — targets the end of hunger and enabling access by all people, in particular the poor and people in vulnerable situations, to safe, nutritious, and sufficient food all year round. Determining the population that is undernourished varies depending on the data set used. We have taken the percentage of people that have an adequate dietary energy intake. Using UN data from 2015 (the most recent data available), we estimate the total population to be 768 million.[42]

Standard of Living

Electricity and Cooking Fuels

In 2019, 771 million people still lacked access to electricity, though the issue of access to clean cooking fuels was much greater, with 2.65 billion people still affected (2018 figure).[43] The use of dirty cooking fuels — biomass, coal, and kerosene — is a primary factor in household air pollution, which is estimated to cause some 2.8 million deaths per year.

In terms of location, the International Energy Agency (IEA) estimate that of the 771 million people lacking access to electricity, 75% (578 million) lived in Sub-Saharan Africa, with 19% (148 million) in South-Eastern and developing Asia. Only 29% of the population of rural Sub-Saharan Africa has access to electricity, and for several countries in central and eastern Africa, the rural figure is less than 1%.

In 2018, 83% of the population in Sub-Saharan Africa (900 million people) were still using solid biomass, kerosene, or coal for cooking purposes. China and India were responsible for another 1.1 billion people, with the remainder coming from South-Eastern and developing Asia.

Clean Water and Sanitation

In our Citi GPS report *Solutions for a Global Water Crisis*, we estimated approximately 4 billion people live under water scarcity at least one month per year and according to the UN, more than 2 billion people globally are living in countries with excess water stress. The report further estimated 90% of sewage in developing countries is discharged untreated into water bodies, which not only affects the availability of clean water but also affects the livelihoods of communities.

The World Health Organization (WHO) estimates that in 2017, 2 billion people still lacked access to basic sanitation facilities, with 673 million still practicing open defecation. It further estimated there are 827,000 annual deaths in low and middle-income countries each year as a result of poor water, sanitation, and hygiene, with poor sanitation responsible for 52% of deaths. Within these figures, it is believed the deaths of an estimated 297,000 children under the age of 5 could have been prevented by better access to clean water and sanitation.

---

[42] *The State of Food and Insecurity in the World. Meeting the 2015 International Hunger Targets Taking Stock of Uneven Progress*, FAO, International Fund for Agriculture Development and WFP, 2015.

[43] International Energy Agency, *World Energy Outlook 2020,* 2020; International Energy Agency, *World Energy Outlook 2019*, 2019. Based on the WHO Household Energy Database and IEA *World Energy Balances 2019.*

This demonstrates the interlinked nature of the SDGs and poverty indicators generally, with clean water and sanitation having obvious impacts not just on health, but also on one's ability to work, leading to greater wealth and other opportunities.

Housing

UN-Habitat estimates around 40% of the global population — some 3 billion people — will need new housing and basic urban infrastructure by 2030.[44] The Global Housing Deficit is expected to grow to 1 billion units by 2025, with a further 440 million households (or 1.6 billion people) occupying crowded, inadequate, and unsafe housing, or being financially stretched.

Multidimensional View of Poverty

Pulling all of these independent figures together produces the table shown below:

Figure 13. Extent of Global Deprivations on Factors Which Are Manifestations of Poverty

	Human Cost (millions of people)	Definition
Education	773	Adult illiteracy (2018)
Health		
Nutrition	765	Population facing chronic / acute hunger (2020)
Child Mortality	48	Preventable child mortality between 2020 and 2030
Access to Healthcare	1,000	Population still needing to achieve SDG 3 by 2030
Standard of Living		
Electricity	771	Population lacking access to electricity (2019)
Cooking Fuels	2,650	Population lacking access to clean cooking fuels (2019)
Clean Water	2,000	Population in countries with excess water stress (2017)
Basic Sanitation Facilities	2,000	Population lacking basic sanitation facilities (2017)
Housing	3,000	Population in need of new housing / infrastructure by 2030

Source: Citi Global Insights, United Nations, UN FAO, WHO, Stenberg et al, IEA, UN-Habitat

The implications require little emphasis — while one-dimensional monetary measures such as the IPL might lead us to believe that 689 million people are experiencing extreme poverty, the reality is far, far worse. On some metrics, such as a lack of access to clean cooking fuels, the population exposed is almost four times that implied by the IPL. If we took time-limited exposures, such as those experiencing water scarcity for more than one month a year, the level of exposure is almost six times higher.

But beyond this obvious limitation of underestimating the extent of poverty, a relatively blunt instrument such as an IPL gives us no granularity on how someone is poor. Analyzing by location would help us understand where the poor live. Analyzing the different indicators and how they contribute to multidimensional poverty would help us to understand how people are poor. Perhaps most importantly, they would then allow us to develop targeted programs to alleviate these deprivations, and tackle poverty at the source.

[44] "Housing," United Nations Human Settlement Programme (UN-Habitat), accessed December 21, 2021.

Today there is a growing consensus that poverty measures should reflect the multifaceted nature of poverty, which go beyond monetary deprivation. The international poverty lines are certainly useful, but as the previous data shows, they do not capture the many overlapping issues facing people in poverty, including malnutrition, poor health, and a lack of access to education, electricity, clean water, and sanitation. Back in 1990, the United Nations Development Programme (UNDP) launched the Human Development Index (HDI) as a measure of development progress in countries with the aim of shifting the focus of development beyond increasing levels of income. It is now a composite index composed of life expectancy, education, and per capita income indicators. In 1997, UNDP presented the first multidimensional poverty measure known as the Human Poverty Index (HPI) which was used in the Human Development Report until 2009, but did not measure poverty at the household or individual level. In 2010, the HPI was replaced by the Global Multidimensional Poverty Index (Global MPI), an annual index published by the Oxford Poverty and Human Development Initiative (OPHI) and the UNDP's Human Development Report Office, which collates data from more than 100 countries.

Looking quickly at the findings of the Global MPI (examined in more detail later), of the 5.9 billion people covered:[45]

- 4.2 billion have at least one deprivation
- 2.1 billion are deprived on at least 20% of the weighted indicators
- 1.3 billion are deprived on at least 33% of the weighted indicators and are MPI poor
- 562 million are deprived on at least 50% of the weighted indicators

While we clearly want to tackle all deprivations, we should clearly focus on the poorest first; the Global MPI helps us to see who and where they are and what deprivations predominate. The latest findings of the OPHI Global MPI also bear out the shortcomings of linear, one-dimensional approaches to assessing poverty, Moreover, as we highlight in the final chapter of this report, this approach can help save money because multi-sectoral or integrated investments deliver a "package" of deprivations to people instead of separate parcels, such as how meals at school help with school attendance and child nutrition, to give a very basic example.

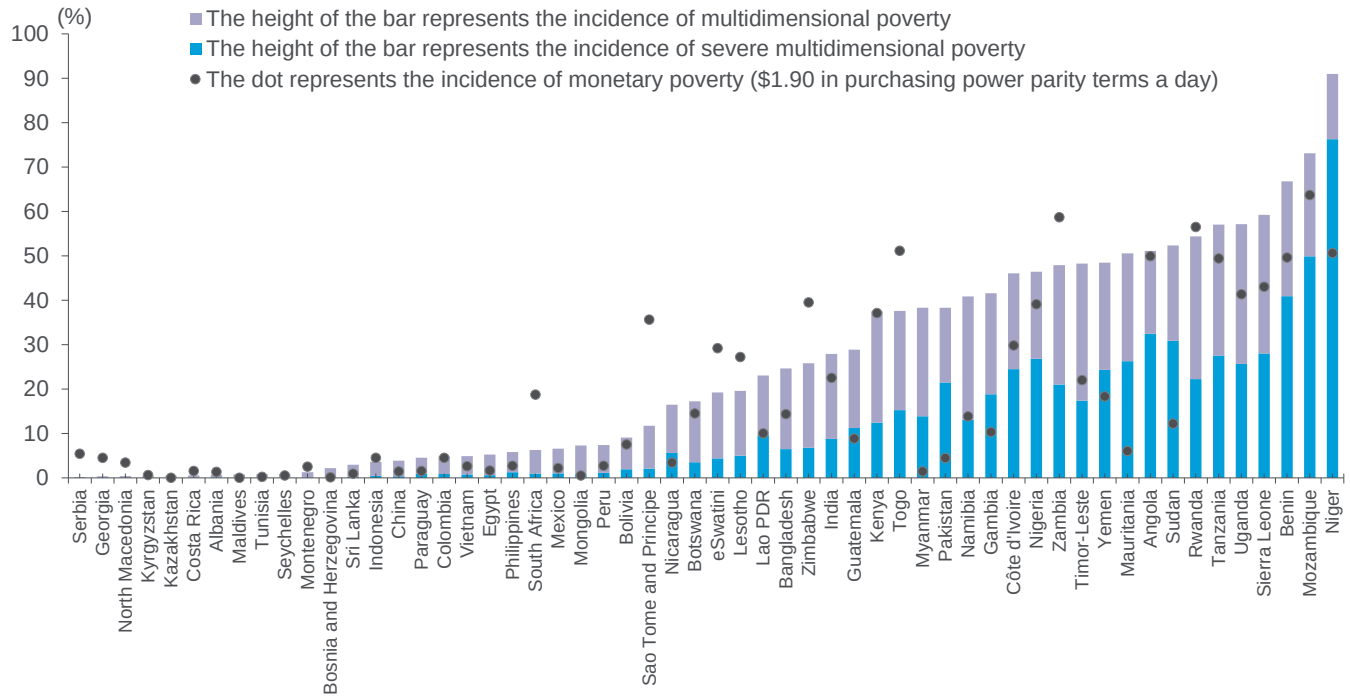
These multidimensional measures are not meant to replace the traditional monetary measures of poverty lines but instead to complement them by including other deprivations. These more comprehensive indicators allow a better understanding of what it means to be poor by going one step further and exploring how an individual is poor, not just identifying the individual as poor. The World Bank has also introduced a Multidimensional Poverty Measure (MPM) in recent years, which while an MPI, differs from the Global MPI in the dimensions, indicators, and cutoffs it uses (i.e., the structure of the measure), in particular by dropping the health dimension and including monetary poverty as one of the dimensions, alongside five of the 10 Global MPI indicators related to access to education and basic infrastructure.

[45] UNDP and OPHI (2021). Global Multidimensional Poverty Index 2021 – Unmasking disparities by ethnicity, caste and gender. United Nations Development Programme and Oxford Poverty and Human Development Initiative.

Conversely, the Global MPI uses datasets that do not collect information on monetary poverty, while incorporating information on nutrition, child mortality, housing, and other important indicators that the MPM lacks by virtue of its different datasets. Some national MPIs also include monetary poverty as a dimension/indicator, while most leave it out of their MPI, but analyze the overlaps and mismatches. The latest findings show that over one-third of people experiencing multidimensional poverty according to the World Bank's MPM are not captured by the monetary measure, which again demonstrates the importance of taking a more holistic view of poverty.[46]

The following chapters examine in greater detail how an MPI might be formed, before looking at examples of where they have been implemented successfully by governments, both national and local, and by companies around the world. Finally, we examine how finance can be harnessed to tackle the individual deprivations that an MPI highlights.

Figure 14. Incidence of Multidimensional Poverty vs. Incidence of Monetary Poverty



Source: UNDP OPHI

[46] World Bank, *Poverty and Shared Prosperity 2020: Reversals of Fortune*, 2020.

Understanding Poverty as a Multidimensional Concept

As discussed in the previous chapters, while historic unidimensional measures of poverty undoubtedly served a purpose, they can fail to capture a significant number of the world's population who could be above these singular poverty lines in financial terms, yet may be experiencing poverty in terms of other factors such as education, health, etc. This is where multidimensional poverty measures can fill the gap — by capturing poverty in all of its forms, as well as allowing us to better understand "how" an individual is poor.

OPHI and the Alkire-Foster Method

The Oxford Poverty and Human Development Initiative (OPHI) is an economic research and policy center within the Oxford Department of International Development at the University of Oxford and was established over a decade ago. Its mission is to build a comprehensive and systematic framework to measure poverty in a multidimensional way, as opposed to the traditional approach that is solely based on income.

Sabina Alkire, the Director of OPHI, and James Foster developed a multidimensional poverty measurement methodology, known as the Alkire-Foster (AF) method.[47] This method uses an intuitive counting approach to identify the poor and explicitly considers the simultaneous deprivations experienced by individuals. It is a highly flexible framework which allows users to create measures specific to their contexts and uses, by selecting different dimensions (e.g., health), indicators (e.g., access to health services), weights, and cutoffs.

For example, let's assume we are interested in analyzing the multidimensional poverty of a hypothetical society along four indicators: land owned, years of schooling, body mass index (BMI), and access to clean water. The matrix X in the formula below contains the achievements of the four people in the four indicators. The vector cutoff represents the deprivation cutoff for each indicator. The vector weight indicates the relative weight of each indicator. For simplicity purposes, we assume the four indicators are equally weighted.

Achievement Matrix and Deprivation Cutoff Vector

	Land Owned	*Years of Schooling*	*BMI*	*Access to Clean Water*	
	8	15	18	*Y*	*Person 1*
X =	2	12	19	*N*	*Person 2*
	4	4	16	*N*	*Person 3*
	6	2	21	*Y*	*Person 4*
Cutoff	5	7	17.5	*Y*	

Deprivation Matrix and Weighted Vector

	Land Owned	*Years of Schooling*	*BMI*	*Access to Clean Water*	
	0	0	0	*0*	*Person 1*
Z =	1	0	0	*1*	*Person 2*
	1	1	1	*1*	*Person 3*
	0	1	0	*0*	*Person 4*
Weight	0.25	0.25	0.25	*0.25*	

[47] Alkire, S., & Foster, J. (2011). Counting and Multidimensional Poverty Measurement. Journal of Public Economics, 95(7-8), 476-487.

A person is identified as deprived in a given indicator if his/her achievement is below that indicator's deprivation cutoff. For example, Person 3 is deprived in years of schooling because she has four years of schooling, which is less than the deprivation cutoff of seven years. The deprivation matrix Z above indicates where the achievements are below the cutoffs as they are given a binary value of either 1 or 0. The person deprivation score corresponds to the sum of her weighted deprivations. In the example above, Person 1 has a deprivation score of zero, as he has no deprivations; Person 2, with two deprivations, has a deprivation score of 0.5 (=1 x 0.25 + 1 x 0.25); Person 3 has a deprivation score of 1, because he/she is deprived in all indicators; and Person 4, deprived in only one indicator, has a score of 0.25. A person is identified as multidimensionally poor if his/her deprivation score is equal to or greater than the poverty cutoff. If we set the overall poverty cutoff to 0.5, this means Persons 2 and 3 are considered poor.

The Multidimensional Poverty Index

The Multidimensional Poverty Index (MPI) is the headline measure of the AF method, it incorporates the **proportion** of multidimensional poor (H) together with the **average intensity** of deprivations experienced by the poor (A).

$$MPI = H \times A$$

H: Headcount ratio, or incidence, is the proportion of people identified as multidimensionally poor. It measures the percentage of people out of the total population whose weighted deprivation score is greater than or equal to the poverty cutoff. In the example above, H is 50% as two out of the four individuals are identified as poor.

A: The intensity of poverty is the average proportion of weighted indicators in which poor people are deprived, i.e., the average deprivation score across all poor people. In the example above, A is 0.75 (= (1 + 0.5)/2)

Thus, the MPI is also called the "adjusted headcount ratio" as it is the headcount ratio adjusted to include intensity of poverty. The value of the MPI ranges from 0 to 1 where higher values denote more severe poverty.

To be clear, MPI is an absolute index, which is formally similar to the poverty gap index in monetary poverty. In the MPI, the incidence or headcount ratio of multidimensional poverty is "adjusted" by the intensity instead of by the poverty gap. This means the MPI is sensitive to how severe the poverty is within a country. It also produces a very particular and new feature — the MPI can be broken down by indicators to show how each group (or even each person) are poor and what deprivations they experience at the same time.[48]

[48] UNDP and OPHI, *How to Build a National Multidimensional Poverty Index (MPI): Using the MPI to Inform the SDGs,* 2019. Available at https://ophi.org.uk/how-to-build-a-national-multidimensional-poverty-index-mpi-using-the-mpi-to-inform-the-sdgs/

The MPI can also be broken down by population subgroups, such as by gender, age, sub-region, and ethnicity. These properties make the AF method a very powerful target policy tool as it identifies the causes of poverty, which can then be used by national governments to tackle the issues at hand much more precisely.[49]

The flexibility of the AF method facilitates diverse applications in various contexts, e.g., it is now the foundation of several measures of multidimensional poverty, including the Global MPI developed together by OPHI and UNDP, which we will describe in length later in the chapter. It is also employed extensively in official national MPIs across several countries (as discussed in the next chapter), the World Bank's Multidimensional Poverty Measure (MPM), other multidimensional concepts like happiness (Bhutan's GNH), and Women's Empowerment in Agriculture (WEAI).

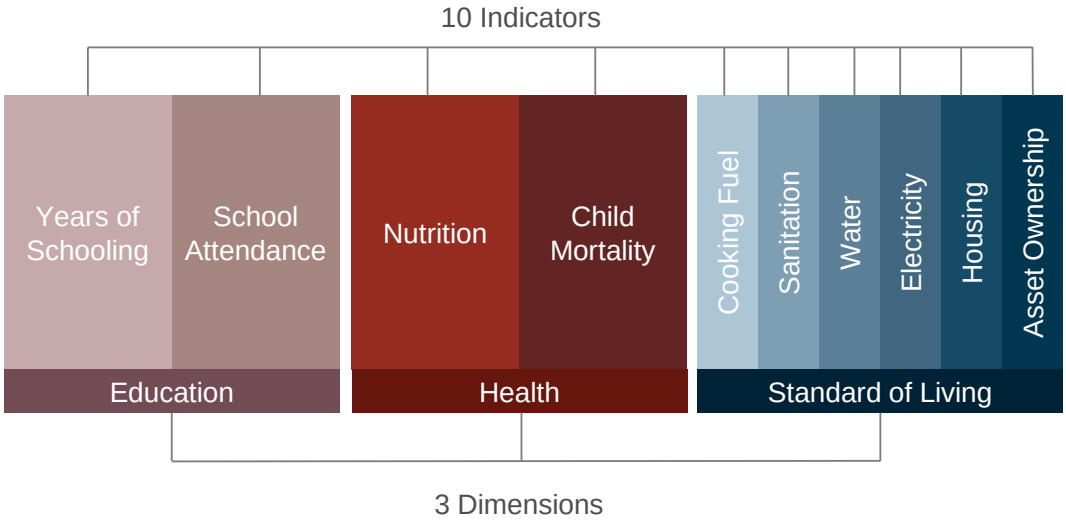
The Global MPI

The Global MPI is an internationally comparable measure of acute multidimensional poverty covering over 100 countries, developed by OPHI and the United Nations Development Programme (UNDP). The Global MPI was launched in the UNDP's 2010 Human Development Report and is updated annually by OPHI and UNDP.[50]

How Is the Global MPI Calculated?

The Global MPI uses ten indicators to capture deprivations across three dimensions — health, education, and living standards. The dimensions are equally weighted (i.e., 1/3 each) and the indicators are equally weighted within their respective dimensions.

Figure 15. The Structure of Global Multidimensional Poverty Index (Global MPI)



Source: OPHI

[49] For more details see Sabina Alkire et al., Multidimensional Poverty Measurement and Analysis, 2015. Chapters are available at "OPHI Working Papers," Oxford Poverty & Human Development Initiative, accessed December 23, 2021.

[50] The most recent update is available on the websites of the Oxford Poverty and Human Development Initiative and the United Nations Development Programme, accessed December 23, 2021.

Figure 16. Global MPI: Dimensions, Indicators, Deprivation Cutoffs, and Weights

Dimensions of Poverty	Indicator	Deprived if living in a household where...	Weight	SDG Area
Health (1/3)	Nutrition	Any person under 70 years of age for whom there is nutritional information is undernourished.	1/6	SDG 2 — Zero Hunger
	Child Mortality	A child under 18 has died in the household in the five-year period preceding the survey.	1/6	SDG 3 — Health and Well-being
Education (1/3)	Years of Schooling	No eligible household member has completed six years of schooling.	1/6	SDG 4 — Quality Education
	School Attendance	Any school-age child is not attending school up to the age at which he/she could complete class 8.	1/6	SDG 4 — Quality Education
Living Standards (1/3)	Cooking Fuel	A household cooks using solid fuel, such as dung, agricultural crop, shrubs, wood, charcoal, or coal.	1/18	SDG 7 — Affordable and Clean Energy
	Sanitation	The household has unimproved or no sanitation facility or it is improved but shared with other households.	1/18	SDG 6 — Clean Water and Sanitation
	Drinking Water	The household's source of drinking water is not safe or safe drinking water is a 30-minute or longer walk from home, roundtrip.	1/18	SDG 6 — Clean Water and Sanitation
	Electricity	The household has no electricity.	1/18	SDG 7 — Affordable and Clean Energy
	Housing	The household has inadequate housing materials in any of the three components: floor, roof, or walls.	1/18	SDG 11 — Sustainable Cities and Communities
	Assets	The household does not own more than one of these assets: radio, TV, telephone, computer, animal cart, bicycle, motorbike, or refrigerator, and does not own a car or truck.	1/18	SDG 1 — No Poverty

Source: OPHI

The primary data used to calculate the Global MPI is sourced mostly from publicly available surveys. In particular, the surveys used for most of the developing countries are the Demographic and Health Survey (DHS) and Multiple Indicators Cluster Survey (MICS) conducted by USAID and UNICEF, respectively. For a number of Arab countries, the Pan Arab Project for Family Health (PAPFAM) surveys are used. In countries where none of these internationally comparable surveys are available, national surveys of high quality that contain information on the MPI indicators can be used if they are in the public domain or if the countries have requested to be included in the Global MPI.

Since its launch in 2010, the Global MPI has at least one estimate for 127 countries, which span across all continents in the world, except Antarctica. In the latest 2021 data, the Global MPI covers 109 countries including two new ones — Costa Rica and Tonga — and includes 21 more recent survey datasets. The 2021 release of the Global MPI represents a combined population of 5.9 billion people, which account for 77% of the world population. In the countries covered, 1.3 billion people or 21.7% of their entire population lived in multidimensional poverty.[51]

[51] A decision was made not to include survey data older than 2009 in the 2021 Global MPI release.

Figure 17. Global MPI Country and Region Coverage from 2021 Data

World Region	Country	Total
Arab States	Jordan, Palestine, Tunisia, Algeria, Libya, Egypt, Morocco, Syria, Iraq, Yemen, Sudan	11
East Asia and the Pacific	Thailand, Tonga, Indonesia, China, Vietnam, Philippines, Mongolia, Kiribati, Lao PDR, Cambodia, Myanmar, Timor-Leste, Papua New Guinea	13
Europe and Central Asia	Serbia, Armenia, Ukraine, Turkmenistan, Georgia, North Macedonia, Kyrgyzstan, Kazakhstan, Albania, Moldova, Montenegro, Bosnia and Herzegovina, Tajikistan	13
Latin America and Caribbean	Costa Rica, Trinidad and Tobago, Cuba, Guyana, St. Lucia, Barbados, Suriname, Dominican Republic, Brazil, Belize, Jamaica, Ecuador, Paraguay, Colombia, Mexico, Peru, El Salvador, Bolivia, Nicaragua, Honduras, Guatemala, Haiti	22
South Asia	Maldives, Sri Lanka, Nepal, Bangladesh, India, Bhutan, Pakistan, Afghanistan	8
Sub-Saharan Africa	Seychelles, South Africa, Sao Tome and Principe, Gabon, Botswana, Eswatini, Lesotho, Zimbabwe, Ghana, Congo, Kenya, Togo, Comoros, Namibia, Gambia, Zambia, Cameroon, Côte d'Ivoire, Malawi, Nigeria, Rwanda, Liberia, Mauritania, Senegal, Uganda, Angola, Tanzania, Sierra Leone, Democratic Republic of Congo, Guinea-Bissau, Ethiopia, Benin, Guinea, Mali, Madagascar, Burundi, Mozambique, Central African Republic, Chad, Burkina Faso, South Sudan, Niger	42

Source: OPHI, Citi Global Data Insights

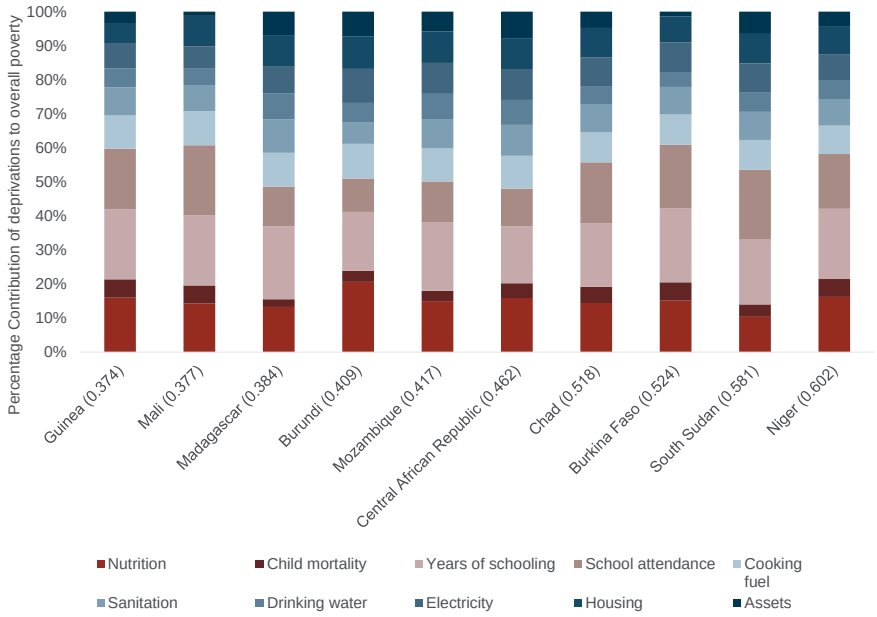
Drilling Down Poverty with Global MPI

Now, let's turn to the latest data release which consists of 109 countries in the world.[52] Looking across the regions the Global MPI covers, the flexibility and transparency of the AF method allow us to pinpoint the dominant driver of poverty. We drill down to the 10 indicators that capture the dimensions of poverty. Focusing on the 10 most deprived countries, which are notably all from Africa, **Error! R eference source not found.** provides the detailed breakdown of contributions from the 10 indicators individually to the overall poverty.

These figures demonstrate the flexibility of the framework which allows measures to be disaggregated to show the composition of multidimensional poverty across both countries and regions, and within countries by ethnicity, urban versus rural, age, and other characteristics.

[52] United Nations Development Programme and Oxford Poverty and Human Development Initiative, *Global Multidimensional Poverty Index 2021 – Unmasking Disparities by Ethnicity, Caste and Gender*, 2021.

Figure 18. Contribution of 10 Indicators in the Poorest Countries



Note: MPI values are in brackets adjacent to the country names
Source: OPHI, Citi Global Data Insights

How Does the Global MPI Differ from Other Poverty Metrics?

The key differentiator of the Global MPI — and indeed of any MPI — is that it takes a counting-based approach which looks at the overlaps of deprivations, something that composite poverty indices do not do. This enables us to analyze not just national averages, but also the intensity/composition of poverty and sub-groups. This feature allows dimensional monotonicity to be fulfilled, that is, if any deprivation of any poor person is removed, then the MPI goes down.

Compared to the UN's Human Development Index (HDI) (released in 1990), the Global MPI (released in 2010) has a shorter history. However, the longer history of the HDI was due to the fact that its key components are top-down indicators, which are easier to obtain. The HDI is calculated based on a combination of multiple macroeconomic factors such as GDP and life expectancy before being aggregated to the macro level. The Global MPI data is sourced from on-the-ground surveys which are then aggregated from the bottom up. This data is much more challenging to acquire, especially in frontier countries. The granular details of the Global MPI are where the value of the method lies as it offers a detailed lens to uncover the root causes of poverty and allows monitoring as they evolve over time for a given country.

Finally, the Global MPI measures non-monetary multidimensional poverty. In that respect, the index differs from income-based poverty metrics like the national poverty line or the extreme poverty metric. The Global MPI can be seen as complementary to the income-based poverty metrics.

Is the Global MPI Comparable Across Countries and Time?

Yes, with some qualifications. The current Global MPI is calculated by using the most up-to-date information given in the surveys, to capture the most accurate and comparable MPI possible. However, this implies that if a survey extends or updates its questions related to an MPI indicator, the MPI calculated from that survey might not be strictly comparable to the MPI obtained from an older survey. The Global MPI methodology uses the DHS, MICS, and PAPFAM surveys where available, and only uses national surveys if these internationally comparable surveys are not available for that country or are at least three y ears older than the national surveys. All details of any incomparability is transparently explained in the methodological note.[53] In general, if surveys are missing information on particular indicators, the MPI is calculated by adjusting the weight(s) of the other indicator(s) in that dimension and the data table lists the missing indicator.

In order to make the MPIs comparable across time, a harmonized MPI for each country is generated to ensure the survey questions related to MPI indicators across surveys done at different times within a country are consistent. This would then allow for rigorous comparisons of the MPI scores for a given country for different points in time. In the latest published Global MPI 2021, the harmonized MPI trend is currently available for 80 developing countries.

Frequency of Global MPI Estimates

The Global MPI estimates are updated any time a country releases a new dataset with all required indicators. However, many countries only have new data every 3-5 years, and some less often, making the frequency rather limited. This limitation on data points is common to monetary poverty metrics and other social indicators. The issue originates from how frequently the surveys are conducted. Although the MPI scores are available for 100+ countries, not all countries conduct their surveys in the same year. This makes it challenging to compare the MPI across countries within a given year as a significant number of countries would have no observations for that year at all.

In addition, the number of surveys conducted for the same country in different time periods are also limited. The time gaps between surveys can vary significantly for different countries. This limitation dampens the potential for rigorous longer-term trend analysis of the MPI within a country and across countries.

Increasing the Frequency of Global MPI Estimates

The sparse data problem, is rooted from the fact that conducting surveys in developing and frontier markets in the past was both time-consuming and costly. Encouragingly, data collection has been making significant progress over the past decade, which should help to address the problem going forward if many actors call for Global MPI indicators to be included in new surveys. Remember that the Global MPI is a bottom-up indicator and as such, more broadly available and internationally comparable surveys being conducted would always be the preferred source of the data which the Global MPI is built upon.

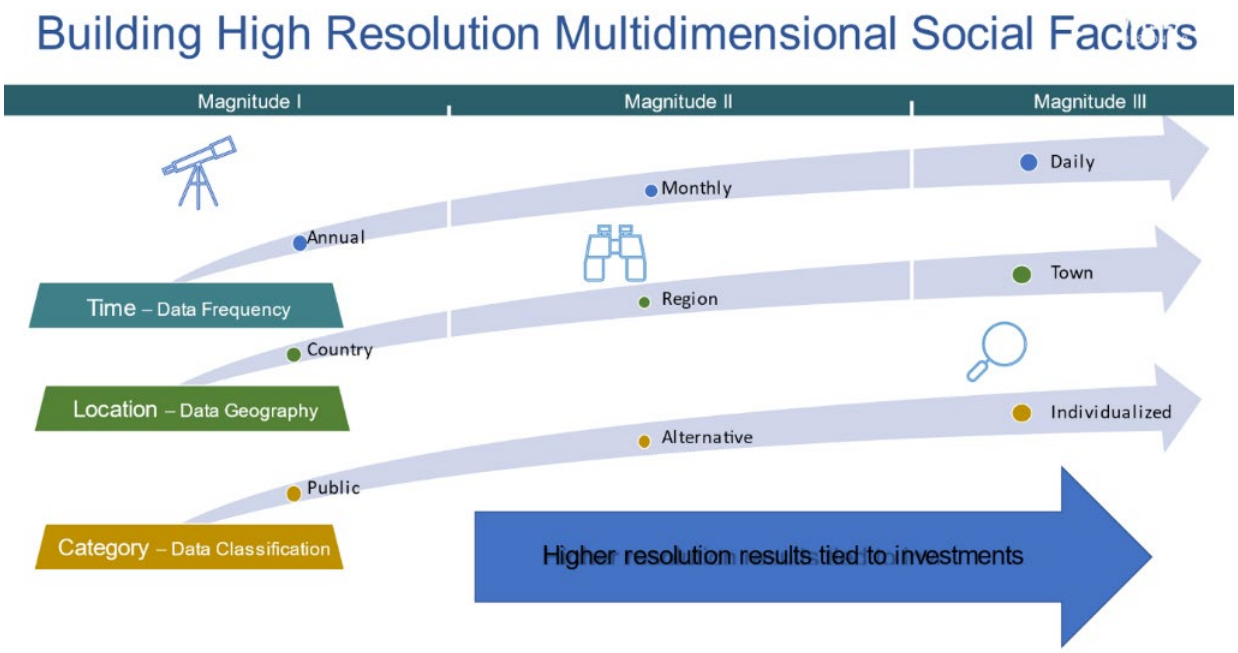
[53] For more details see https://ophi.org.uk/mpi-methodological-note-51/.

However, it would be a travesty not to utilize the existing historical survey data at hand somehow, as it helps to understand any progress countries have made despite the limitation. The current method of averaging or annualizing the multi-year MPIs to calculate the rate of change, while useful, is based on very few data points.

SOPHIA Oxford is an Oxford University-linked, non-profit partner of OPHI, whose mission is to enable businesses to incorporate key social indicators into sustainable business practices that improve the impact of their social investments and the lives of their employees. SOPHIA Oxford is working with an analytics and artificial intelligence (AI) company to support the use of MPI indicators in the financial markets and improve the frequency and accuracy of household-level deprivation estimates. Their work involves using higher frequency data, looking at regions within countries, and using alternative data sources to explore the connection between social indicator factors and country-level investment performance.

SOPHIA Oxford is looking to address the Global MPI historical data discontinuity issue and the lack of survey data by using other higher-frequency, lower-cost indicators and multivariate regression models — and estimated MPI — to proxy the missing Global MPIs.

Figure 19. High-Resolution Multidimensional Social Factors

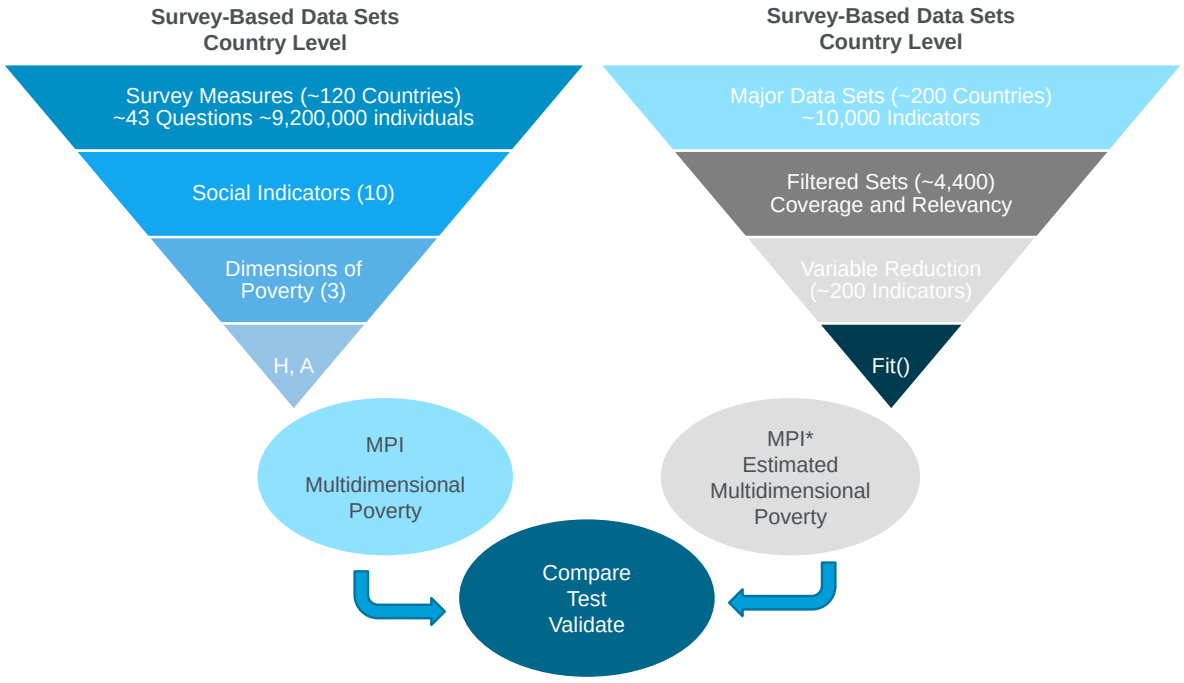


Source: SOPHIA Oxford

Estimated MPI

The first set of Global MPI estimates produced by SOPHIA Oxford is based on over 4,400 macro variables and other data sources for 200 countries. After the variable reduction process through name and cluster analysis, around 200 indicators are then selected in the final model to fit the MPIs. The model fitting process is depicted in Figure 20.

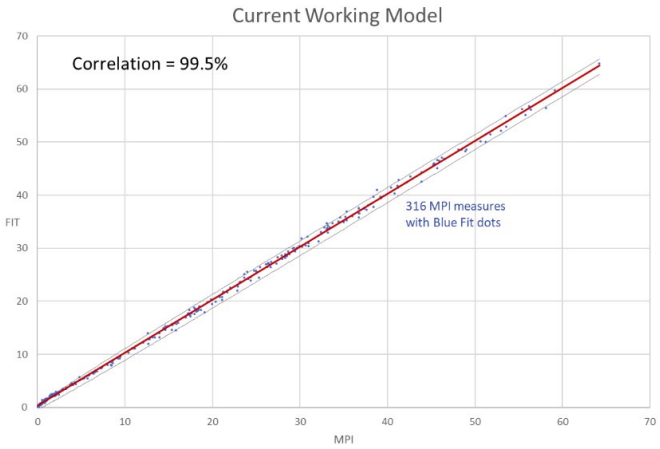
Figure 20. Model Fitting Process



* Indicates the MPI is estimated
Source: SOPHIA Oxford

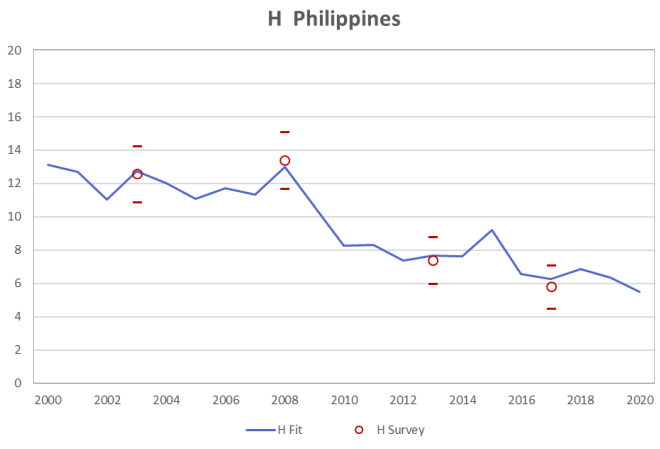
By holding out 15% of the MPI historical sample data to validate the model, the initial observation of the model fit versus realized Global MPI value as depicted in Figure 21, is undoubtedly encouraging. Examining the fit on a country-by-country and indicator-by-indicator basis also shows promising results. For example, Figure 22 demonstrates that the fit values for the headcount ratio in the Philippines closely track the actual trend of the Global MPI survey scores (as denoted by the circles) for the Philippines, and always fall within their confidence intervals (represented by the dashes).

Figure 21. Overall Global MPI Model Fit



Source: SOPHIA Oxford

Figure 22. Global MPI Model Fit for the Headcount Ratio



Source: SOPHIA Oxford

While the model appears to do a good job (fitting), it is still a work in progress. Statistical models that allow the estimation of the poverty figures while preserving their relationships (e.g., MPI = H x A) are being developed. Assumptions about the stability of the statistical relationships, especially for those countries that have only one or two survey data points, warrant further investigations. The expansion of the data sources to higher frequency observations and the possibility of utilizing non-linear and more sophisticated machine learning models are also avenues SOPHIA Oxford wants to explore.

Case Studies of Success

"I saw that this index [MPI] would give me the tools to have a much more efficient public investment." — Juan Manuel Santos, former president of Colombia and Nobel Peace Prize laureate

Measures based on the Alkire-Foster method, commonly referred to as Multidimensional Poverty Indices (MPIs), in addition to providing a direct measurement of poverty, can contribute to improved governance. They can provide a shared vision and purpose, with clear measurable goals and targets, which can support the coordination of programs and stakeholders. Many governments are currently using these types of measures to monitor and inform policies designed to tackle poverty among their population. Some companies are also using these measures to understand the challenges their employees and their families face and to guide human resources programs, or to understand the basic needs among communities of interest and to guide social responsibility projects. Similarly, some non-governmental organizations (NGOs) and international agencies are using these measures to help target the poor and evaluate the impact of their interventions.

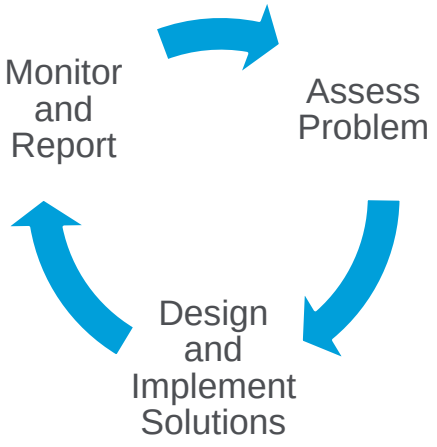
The experience of these varied actors suggests these metrics enable their users to better understand the phenomenon of poverty, allowing them to focus their resources and energies on the challenges their target populations face and, hence, improve well-being and social cohesion.

The general framework these actors use to address multidimensional poverty can be summarized in three steps:

1. Assess the problem
2. Design and implement solutions
3. Monitor and report

The purpose of this chapter is to illustrate how the MPI can shape each of these steps.

Figure 23. Framework to Reduce Poverty



Source: SOPHIA Oxford

Step 1: Assessing the Problem

"If you can't measure it, you can't improve it." — Peter Drucker

The first step in reducing poverty is to measure it — it is only by identifying and characterizing poverty that appropriate strategies to tackle it can be designed. This involves selecting a poverty measure, gathering data on it, and then analyzing this data.

Poverty takes different forms in different contexts. For instance, a young adult who only completed primary education might be considered deprived in terms of years of education in Chile according to its national MPI, potentially struggling therefore to find a livelihood. However, a similar individual in Mozambique would be considered non-deprived in that indicator according to the Mozambican national MPI, and might well have sufficient skills to enter the job market successfully. Owning a couple of donkeys in Ethiopia might contribute to a secure livelihood and social status, but the same is not true in Bulgaria.[54]

In order to tackle poverty effectively, it is important to use a measure that enables the prioritization of the vulnerable groups. For example, based on the Global MPI there are practically no poor people in Georgia; the incidence of Global MPI in that country, based on data from 2018, is 0.3%. This does not, however, mean that Georgia has no poverty, but simply that the Global MPI definition is too acute to identify the most vulnerable people in Georgia. One of the advantages of the Alkire-Foster methodology is that it enables users to design measures tailored to their specific context and priorities. Under this methodology it is up to the user to define what poverty is, by selecting the deprivation indicators, their relative weights, and the cutoffs.

Taking advantage of this flexibility, governments are building their own national MPIs aligned with national development plans and poverty reduction strategies, and estimating them based on multi-topic household survey data or censuses. This process requires defining priorities across different sectors and "aligning diverse actors behind a common goal."[55] We go into more detail below on the process of developing a national measure, while Figure 24 lists the indicators included in some of the existing national measures.[56] Although each of these national MPIs defines multidimensional poverty differently, there are some dimensions and deprivation indicators, such as school attendance, and access to water and sanitation, which are common across most measures.

Unlike national governments, private organizations generally use existing measures, the country national measure, a regional measure, or the Global MPI. Sometimes they collect their own data, running a census among their employees, or conducting household surveys in their communities of interest. Other times they use existing data, like the Global MPI data, to target social investments.

---

[54] Martha Geiger et al., "Understanding the Attitudes of Communities to the Social, Economic, and Cultural Importance of Working Donkeys in Rural, Peri-Urban, and Urban Areas of Ethiopia," *Frontiers in Veterinary Science* 7, 60 (February 2020).

[55] Luis F. López-Calva, "The Multidimensional Poverty Index: Rethinking Measurement, Improving Governance," *Dimensions*, No. 6, April 2019, 17-18.

[56] Note that the specific definitions of each of these indicators vary across countries. For examples, in Nigeria, a household is considered deprived in years of schooling/school achievement if any household member 15 years or older has not completed at least five years of schooling, while in Colombia a household is deprived if the average number of school years of household members aged 15 and older is below nine years.

How Are National MPIs Constructed?

The development of a national MPI entails both a political and a technical process. The political process focuses mostly on setting conditions to ensure that the MPI becomes an official permanent statistic that is regularly updated and used. It strives to ensure strong political commitment, engage relevant stakeholders to inform and add credibility to the process, and establish institutional arrangements to guarantee the sustainability of the MPI over time (and changes of government).

The technical process focuses on designing the measure and guaranteeing its technical rigor and political usefulness. The design of an MPI generally involves the steps below:

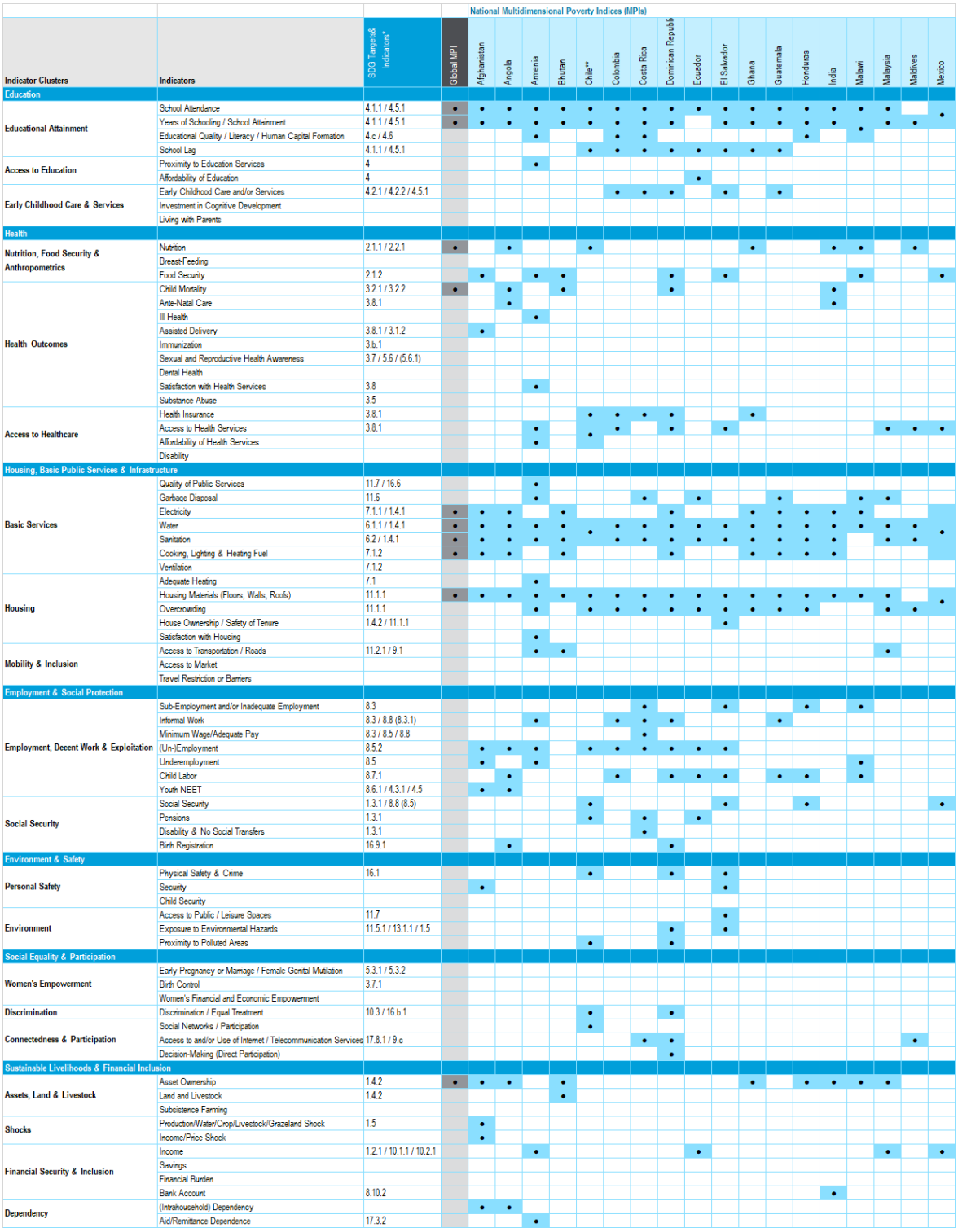
1. Select the purpose.
2. Select the data source.
3. Select the unit(s) of identification and analysis.
4. Select the dimensions and indicators.
5. Set the deprivation cutoffs for each indicator.
6. Set the weights for each dimension/indicator.
7. Set the poverty cutoff.
8. Compute incidence and intensity of poverty, and the MPI.
9. Analyze the results: dimension breakdown and sub-group decomposition.

The decisions regarding the structure of the measure — steps 3 to 7 — determine who is identified as poor, and thus should be aligned with the context and priorities of the country. The decision about the data source affects the scope of indicators that can be included in the MPI, the type of group decompositions that can be made (e.g., national, regional, district), and how often the measure can be updated.

In 2019, the United Nations Development Programme (UNDP) and Oxford Poverty and Human Development Initiative (OPHI) published a practical guide for anyone interested in developing an MPI, entitled *How to Build a National Multidimensional Poverty Index*.[57] OPHI and UNDP also launched the online open course (MOOC) "Designing a Multidimensional Poverty Index (MPI)."

[57] United Nations Development Programme and Oxford Poverty and Human Development Initiative, *How to Build a National Multidimensional Poverty Index (MPI): Using the MPI to Inform the SDGs*, 2019.

Figure 24. Most Used Indicators in Some Official National MPIs



				National Multidimensional Poverty Indices (MPIs)																		
Indicator Clusters	Indicators	SDG Targets& Indicators*	Global MPI	Afghanistan	Angola	Armenia	Bhutan	Chile**	Colombia	Costa Rica	Dominican Republi	Ecuador	El Salvador	Ghana	Guatemala	Honduras	India	Malawi	Malaysia	Maldives	Mexico
Education																						
Educational Attainment	School Attendance	4.1.1 / 4.5.1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•
	Years of Schooling / School Attainment	4.1.1 / 4.5.1	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	
	Educational Quality / Literacy / Human Capital Formation	4.c / 4.6				•			•	•						•		•			
	School Lag	4.1.1 / 4.5.1						•	•	•	•	•	•	•	•						
Access to Education	Proximity to Education Services	4				•															
	Affordability of Education	4										•									
Early Childhood Care & Services	Early Childhood Care and/or Services	4.2.1 / 4.2.2 / 4.5.1							•	•	•		•		•						
	Investment in Cognitive Development																				
	Living with Parents																				
Health																						
Nutrition, Food Security & Anthropometrics	Nutrition	2.1.1 / 2.2.1	•		•			•						•			•	•		•	
	Breast-Feeding																				
	Food Security	2.1.2		•		•	•				•		•					•			•
Health Outcomes	Child Mortality	3.2.1 / 3.2.2	•		•		•				•						•				
	Ante-Natal Care	3.8.1			•												•				
	Ill Health					•															
	Assisted Delivery	3.8.1 / 3.1.2		•																	
	Immunization	3.b.1																			
	Sexual and Reproductive Health Awareness	3.7 / 5.6 / (5.6.1)																			
	Dental Health																				
	Satisfaction with Health Services	3.8				•															
	Substance Abuse	3.5																			
Access to Healthcare	Health Insurance	3.8.1						•	•	•	•			•							
	Access to Health Services	3.8.1				•		•	•		•		•						•	•	•
	Affordability of Health Services					•		•													
	Disability																				
Housing, Basic Public Services & Infrastructure																						
Basic Services	Quality of Public Services	11.7 / 16.6				•															
	Garbage Disposal	11.6				•				•		•			•			•	•		
	Electricity	7.1.1 / 1.4.1	•	•	•		•				•			•	•	•	•	•			
	Water	6.1.1 / 1.4.1	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•
	Sanitation	6.2 / 1.4.1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	
	Cooking, Lighting & Heating Fuel	7.1.2	•	•	•		•				•			•	•	•	•				
	Ventilation	7.1.2																			
Housing	Adequate Heating	7.1				•															
	Housing Materials (Floors, Walls, Roofs)	11.1.1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•			•
	Overcrowding	11.1.1				•		•	•	•	•	•	•	•	•	•			•	•	
	House Ownership / Safety of Tenure	1.4.2 / 11.1.1											•								
	Satisfaction with Housing					•															
Mobility & Inclusion	Access to Transportation / Roads	11.2.1 / 9.1				•	•												•		
	Access to Market																				
	Travel Restriction or Barriers																				
Employment & Social Protection																						
Employment, Decent Work & Exploitation	Sub-Employment and/or Inadequate Employment	8.3								•			•			•		•			
	Informal Work	8.3 / 8.8 (8.3.1)				•			•	•	•				•						
	Minimum Wage/Adequate Pay	8.3 / 8.5 / 8.8								•											
	(Un-)Employment	8.5.2		•	•	•		•	•	•	•	•	•								
	Underemployment	8.5		•		•												•			
	Child Labor	8.7.1			•				•		•	•	•		•	•		•			
	Youth NEET	8.6.1 / 4.3.1 / 4.5		•	•																
Social Security	Social Security	1.3.1 / 8.8 (8.5)						•					•			•					•
	Pensions	1.3.1						•		•		•									
	Disability & No Social Transfers	1.3.1								•											
	Birth Registration	16.9.1			•						•										
Environment & Safety																						
Personal Safety	Physical Safety & Crime	16.1						•			•		•								
	Security			•									•								
	Child Security																				
Environment	Access to Public / Leisure Spaces	11.7											•								
	Exposure to Environmental Hazards	11.5.1 / 13.1.1 / 1.5									•		•								
	Proximity to Polluted Areas							•			•										
Social Equality & Participation																						
Women's Empowerment	Early Pregnancy or Marriage / Female Genital Mutilation	5.3.1 / 5.3.2																			
	Birth Control	3.7.1																			
	Women's Financial and Economic Empowerment																				
Discrimination	Discrimination / Equal Treatment	10.3 / 16.b.1						•			•										
Connectedness & Participation	Social Networks / Participation							•													
	Access to and/or Use of Internet / Telecommunication Services	17.8.1 / 9.c								•	•									•	
	Decision-Making (Direct Participation)										•										
Sustainable Livelihoods & Financial Inclusion																						
Assets, Land & Livestock	Asset Ownership	1.4.2	•	•	•		•							•		•	•	•	•		
	Land and Livestock	1.4.2					•														
	Subsistence Farming																				
Shocks	Production/Water/Crop/Livestock/Grazeland Shock	1.5		•																	
	Income/Price Shock			•																	
Financial Security & Inclusion	Income	1.2.1 / 10.1.1 / 10.2.1				•						•							•		•
	Savings																				
	Financial Burden																				
	Bank Account	8.10.2															•				
Dependency	(Intrahousehold) Dependency			•	•																
	Aid/Remittance Dependence	17.3.2				•															

Note: Tickboxes across multiple rows indicate sub-indicators combined into an overall indicator in that particular National MPI. Since it was logistically impossible to differentiate indicators and sub-indicators for all National MPIs in this way, some sub-indicators are listed as separate indicators.
*If SDG Targets, rather than Indicators are cited, National MPI Indicators do not specifically — or not partially — match one of the 229 SDG Indicators, but do match one of the 169 SDG Targets.
** Columns regarding Chile and Mozambique consider the two versions of the national MPI ever used in those countries. For Chile it considers the 4 dimensions MPI and the 5 dimensions MPI, while for Mozambique it considers the 3 dimensions MPI and the 4 dimensions MPI.
Source: Jakob Dirksen, "Which Are the Dimensions and Indicators Most Commonly Used to Measure Multidimensional Poverty Around the World?" *Dimensions*, No. 11, December 2020, 14-22

Most Used Indicators in Some Official National MPIs (...continued)

				National Multidimensional Poverty Indices (MPIs)																
Indicator Clusters	**Indicators**	SDG Targets& Indicators*	Global MPI	Morocco	Mozambique**	Namibia	Nepal	Nigeria	Pakistan	Palestine	Panama	Paraguay	Philippines	Rwanda	Seychelles	Sierra Leone	South Africa	Sri Lanka	Thailand	Vietnam
Education																				
Educational Attainment	School Attendance	4.1.1 / 4.5.1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		
	Years of Schooling / School Attainment	4.1.1 / 4.5.1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Educational Quality / Literacy / Human Capital Formation	4.c / 4.6							•			•								
	School Lag	4.1.1 / 4.5.1								•	•	•							•	
Access to Education	Proximity to Education Services	4			•													•		
	Affordability of Education	4																		
Early Childhood Care & Services	Early Childhood Care and/or Services	4.2.1 / 4.2.2 / 4.5.1																		
	Investment in Cognitive Development																			
	Living with Parents																		•	
Health																				
Nutrition, Food Security & Anthropometrics	Nutrition	2.1.1 / 2.2.1	•		•	•	•	•					•		•	•				•
	Breast-Feeding																			
	Food Security	2.1.2				•							•						•	
Health Outcomes	Child Mortality	3.2.1 / 3.2.2	•	•			•	•								•	•			•
	Ante-Natal Care	3.8.1							•											
	Ill Health									•								•		
	Assisted Delivery	3.8.1 / 3.1.2							•											
	Immunization	3.b.1							•							•				
	Sexual and Reproductive Health Awareness	3.7 / 5.6 / (5.6.1)																		
	Dental Health																			
	Satisfaction with Health Services	3.8																		
	Substance Abuse	3.5													•					
Access to Healthcare	Health Insurance	3.8.1								•			•	•						
	Access to Health Services	3.8.1			•	•		•	•	•	•	•		•				•		
	Affordability of Health Services																			
	Disability			•						•										
Housing, Basic Public Services & Infrastructure																				
Basic Services	Quality of Public Services	11.7 / 16.6																		
	Garbage Disposal	11.6									•	•		•					•	
	Electricity	7.1.1 / 1.4.1	•	•	•		•	•	•	•	•		•	•	•	•				
	Water	6.1.1 / 1.4.1	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•
	Sanitation	6.2 / 1.4.1	•	•	•	•	•	•	•			•	•	•		•	•	•		•
	Cooking, Lighting & Heating Fuel	7.1.2	•	•		•	•	•	•			•		•		•	•	•		
	Ventilation	7.1.2								•										
Housing	Adequate Heating	7.1																		
	Housing Materials (Floors, Walls, Roofs)	11.1.1	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•		•
	Overcrowding	11.1.1			•				•	•	•	•		•	•	•				•
	House Ownership / Safety of Tenure	1.4.2 / 11.1.1											•							
	Satisfaction with Housing																			
Mobility & Inclusion	Access to Transportation / Roads	11.2.1 / 9.1			•	•												•		
	Access to Market				•															
	Travel Restriction or Barriers									•										
Employment & Social Protection																				
Employment, Decent Work & Exploitation	Sub-Employment and/or Inadequate Employment	8.3									•									
	Informal Work	8.3 / 8.8 (8.3.1)							•						•					
	Minimum Wage/Adequate Pay	8.3 / 8.5 / 8.8								•	•									
	(Un-)Employment	8.5.2					•	•	•	•	•	•			•		•			
	Underemployment	8.5							•			•	•							
	Child Labor	8.7.1										•	•							
	Youth NEET	8.6.1 / 4.3.1 / 4.5								•					•						
Social Security	Social Security	1.3.1 / 8.8 (8.5)								•										
	Pensions	1.3.1										•							•	
	Disability & No Social Transfers	1.3.1																		
	Birth Registration	16.9.1																		
Environment & Safety																				
Personal Safety	Physical Safety & Crime	16.1								•					•					
	Security				•					•										
	Child Security																			
Environment	Access to Public / Leisure Spaces	11.7																		
	Exposure to Environmental Hazards	11.5.1 / 13.1.1 / 1.5									•									
	Proximity to Polluted Areas																			
Social Equality & Participation																				
Women's Empowerment	Early Pregnancy or Marriage / Female Genital Mutilation	5.3.1 / 5.3.2													•					
	Birth Control	3.7.1									•									
	Women's Financial and Economic Empowerment									•										
Discrimination	Discrimination / Equal Treatment	10.3 / 16.b.1																		
Connectedness & Participation	Social Networks / Participation																			
	Access to and/or Use of Internet / Telecommunication Services	17.8.1 / 9.c				•					•					•			•	•
	Decision-Making (Direct Participation)																			
Sustainable Livelihoods & Financial Inclusion																				
Assets, Land & Livestock	Asset Ownership	1.4.2	•	•	•		•	•	•	•			•	•		•	•	•	•	•
	Land and Livestock	1.4.2							•		•									
	Subsistence Farming													•						
Shocks	Production/Water/Crop/Livestock/Grazeland Shock	1.5																		
	Income/Price Shock																			
Financial Security & Inclusion	Income	1.2.1 / 10.1.1 / 10.2.1								•										
	Savings																		•	
	Financial Burden																		•	
	Bank Account	8.10.2												•		•				
Dependency	(Intrahousehold) Dependency																		•	
	Aid/Remittance Dependence	17.3.2																		

Note: Tickboxes across multiple rows indicate sub-indicators combined into an overall indicator in that particular National MPI. Since it was logistically impossible to differentiate indicators and sub-indicators for all National MPIs in this way, some sub-indicators are listed as separate indicators.
*If SDG Targets, rather than Indicators are cited, National MPI Indicators do not specifically — or not partially — match one of the 229 SDG Indicators, but do match one of the 169 SDG Targets.
** Columns regarding Chile and Mozambique consider the two versions of the national MPI ever used in those countries. For Chile it considers the 4 dimensions MPI and the 5 dimensions MPI, while for Mozambique it considers the 3 dimensions MPI and the 4 dimensions MPI.
Source: Jakob Dirksen, "Which Are the Dimensions and Indicators Most Commonly Used to Measure Multidimensional Poverty Around the World?" *Dimensions*, No. 11, December 2020, 14-22

Box 1. Businesses in Latin America and the Caribbean Start Measuring Multidimensional Poverty Among Employees

In 2021, a group of companies across Latin America started surveying their workers and their families to understand the multidimensional poverty challenges faced by their employees. The intention is to realign their employee benefits and social investments as part of an employee well-being, motivation, and loyalty initiative. These companies are gathering and analyzing this information using the Wise Responder Action Kit from SOPHIA Oxford, which gives companies a 3-D view of their employees by looking at deprivations, debt, and discrimination through gender and race lenses.

Although salaried employees are often seen as being in a relatively good situation because they earn an annual income, in reality, an income is not a sufficient condition to be out of poverty. Employed individuals can find themselves in poverty because a large number of people depend on their income at home, or they are caring for a person with a disability, or they have difficulty in accessing decent healthcare, or other problems that might go unnoticed unless they are measured.

In 2019, Oxford University launched the social enterprise SOPHIA Oxford to bring the Alkire-Foster multidimensional poverty measurement methodology to the private sector. In 2021 SOPHIA Oxford developed the Wise Responder Action Kit. This kit includes:

1. A digital employee questionnaire that provides detailed information on employees' lives.
2. An information management platform, the Wise Responder Platform, which supports companies in prioritizing employees, and tracking the implementation and impact of programs.
3. Training and support to implement surveys and solutions.

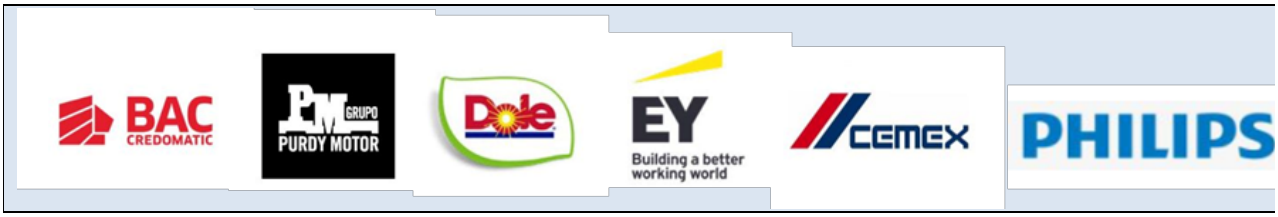
The Wise Responder Action Kit is now available for companies in Latin America and the Caribbean, directly from SOPHIA Oxford or through its partners DataLab in Chile, Inclusion SAS in Colombia, RS-Sostenible in Mexico, and KOMUNIKA-LATAM in Panama. Companies are already using this tool in Chile, the Dominican Republic, Guatemala, Honduras, and Panama.

SOPHIA Oxford's Wise Responder Action Kit builds on the tool developed by OPHI and Horizonte Positivo, a business association in Costa Rica to enable Costa Rican businesses to assess multidimensional poverty among their employees. In 2017, OPHI and Horizonte Positivo developed a questionnaire and an algorithm to assess multidimensional poverty among employees and their families according to the definition of Costa Rica's national MPI, and gather information on employees' level of indebtedness. Horizonte Positivo then built a technology platform to enable Costa Rican businesses to implement the questionnaire digitally, and to analyze the data gathered.[58]

Between 2017 and 2021, 68 companies used this tool to diagnose poverty among their employees; more than 37,000 households were surveyed and approximately 14% of the households surveyed were found to be in multidimensional poverty. Between 2017 and 2020 (data is not yet available for 2021), the percentage of households in multidimensional poverty nationwide in Costa Rica ranged from a high of 19% in 2018 to a low of 16% in 2020, with an average of 18%.

[58] "Measuring Poverty in Businesses," *Dimensions*, No. 8, December 2019, 18-22; "IPM Empresarial," Horizonte Positivo, accessed December 23, 2021; SOPHIA Oxford website.

Figure 25. Example of Companies Using this Tool in Costa Rica



Source: SOPHIA Oxford

Box 2. Using Global MPI to Guide Local Development Projects: The Case of Eni

Eni is an integrated energy company with operations in 68 countries. The company is committed to carbon neutrality by 2050, and supporting an energy transition that is socially fair and organically integrated into the 17 UN SDGs. Eni contributes to the local development of countries where it operates by implementing local development projects, among other things. These initiatives are "aimed at improving access to off-grid energy and clean cooking, economic diversification (e.g., agricultural projects, micro-credit, infrastructure interventions), forest protection and conservation, education and vocational training, access to water and sanitation, and support of health services/systems, as well as improving the health status of vulnerable groups." In 2021, Eni and SOPHIA Oxford started a cooperation focused on multidimensional poverty. SOPHIA Oxford will support Eni in using the Global MPI to better understand the context and needs of the local communities targeted by Eni's local development projects, and hence to define the priority sectors of intervention.[59]

Box 3. Measuring Multidimensional Poverty Among Microfinance Clients: The Case of BBVA Microfinance Foundation

BBVA Microfinance Foundation (BBVAMF) is the leading private philanthropic initiative in Latin America in terms of its social impact. It fuses banking and digital know-how with its experience and specialization in microfinance, putting all of these at the service of the most vulnerable. BBVAMF's microfinance institutions offer a complete range of financial products and services, including non-financial services like training, financial advice, and connectivity. In 2020 it served 2.6 million clients and delivered loans worth $1 billion.

BBVAMF's purpose is to support the sustainable development of entrepreneurs in vulnerable conditions and promote economic and social inclusion, women's empowerment, and the environment. However, to maximize the social and economic impact of entrepreneurs, a deep understanding of their households and the community in which they operate is necessary. In line with its purpose, the Foundation has measured their progress and development since 2011, feeding this knowledge back into the strategy and activity of its microfinance institutions. The conclusions are shared in its annual Social Performance Report.

"We need to broaden our multidimensional poverty analysis, especially after COVID-19, for a more comprehensive view on how our entrepreneurs are progressing. In fact, it is an opportunity to better allocate resources that can foster welfare in all its dimensions. Oxford's methodology is a great new step, but continued measurement and actions are needed next. BBVAMF is at the forefront of those multidimensional initiatives," said Javier Flores, CEO of BBVAMF.

In 2021 the Foundation, together with SOPHIA Oxford, will further advance its analysis of multidimensional poverty and define a methodology that will track progress. It will be designed to benchmark progress in line with regional and national poverty standards and encourage policymakers' support, where needed.

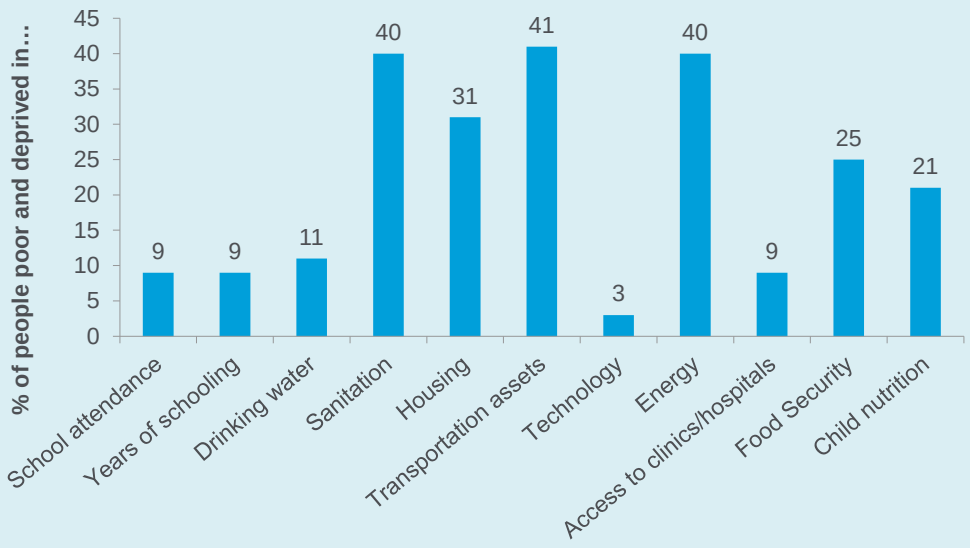
[59] ENI, *Annual Report 2020*, 2021. Annual Report 2020; ENI, *Eni for 2020: A Just Transition*, 2021.

The final step in assessing the problem is to analyze the data. The Alkire-Foster method generates a headline figure, the MPI, and an associated information platform. This information platform includes the incidence and intensity of poverty, the deprivation indicators' headcount ratios and contribution to the MPI, as well as all these figures disaggregated by relevant sub-groups, such as regions in the case of countries, or departments in the case of businesses.[60] This information allows users to understand the poverty profiles of particular groups, and identify the specific needs of each of these groups. Box 4 provides examples of the types of analyses performed, based on Namibia's national MPI.

Box 4. Analyzing the Data: The Case of Namibia

Namibia launched its national MPI in 2021 to inform budgeting and policymaking, and provide baseline data to track progress towards Sustainable Development Goal (SDG) Target 1.2. — Reduce Poverty by at least 50%. This measure has 11 indicators covering three dimensions: education, health, and living standards. Based on data from the 2015-16 Namibia Household Income and Expenditure Survey (NHIES), the national MPI is 0.191, with 43% of Namibia's population living in multidimensional poverty, and poor people being, on average, deprived in 44% of the indicators. Figure 26 depicts the percentage of people who are poor and deprived in each of the indicators included in the national MPI. The deprivations most common among poor people in Namibia are lack of transportation assets, access to improved sanitation, and access to clean cooking and lighting/energy sources. Conversely, only 3% are poor and deprived in information and communications technology (i.e., live in households that do not own a radio, a TV, a smartphone, or a computer, and have no access to internet at home or elsewhere).

Figure 26. Percentage of the Population Poor and Deprived in Each of the MPI Indicators

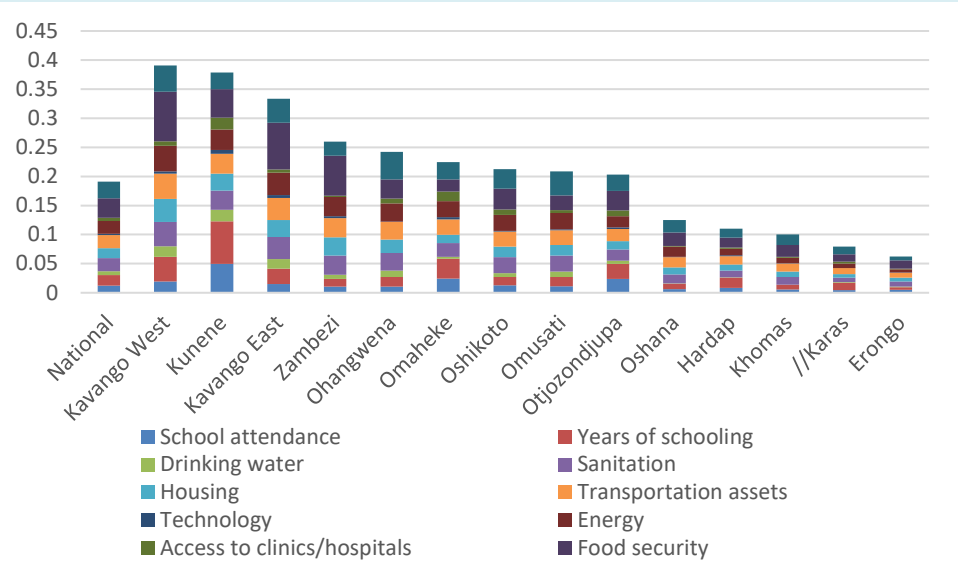


Source: *Namibia Multidimensional Poverty Index (MPI) Report*, 2021

However, the national poverty figures hide important regional differences. In Namibia, the MPI ranges from 0.062 in Erongo, to 0.391 in Kavango West (Figure 27). The breakdown of the MPI by indicators across regions indicates important differences in the profiles of poverty. For example, although Kavango West and Kunene have similar levels of MPI (0.391 and 0.379), the main driver of poverty in each of these regions is different. Lack of food security is the biggest contributor to poverty in Kavango West, representing 22% of the MPI, compared to only 13% in Kunene. Years of schooling account for 19% of the MPI of Kunene, but only 11% of Kavango West.

[60] For definitions of these statistics please see Chapter 3.

Figure 27. MPI Breakdown by Indicator and by Region of Namibia



Source: *Namibia Multidimensional Poverty Index (MPI) Report*, 2021

Step 2: Designing and Implementing Solutions

The second step in the process to reduce poverty is designing solutions and strategies to tackle it. The measurement of poverty as a multidimensional phenomenon and the identification of clusters of deprivations invites a multi-sectoral response to poverty, often reshaping governments' social policy and companies' human resources policies or sustainability strategy.

Governments have been using the MPI information platform to inform social policies, prioritize programs, strengthen social protection tools, allocate resources, and target beneficiaries.[61] For example, some governments adjust their budget allocation based on the poverty profiles of sub-national regions so that resources flow to where poor people are, and towards the actions which need to be taken to improve their situation. Governments have also used the MPI to target programs and resources to particular groups (e.g., sub-national regions, ethnicity) and households experiencing the highest number of deprivations, or experiencing specific deprivations.

[61] United Nations Development Programme and Oxford Poverty and Human Development Initiative, *How to Build a National Multidimensional Poverty Index (MPI): Using the MPI to Inform the SDGs*, 2019.

Box 5. Budget Allocation

The Case of Mozambique

In 2016, the Ministry of Economy and Finance of Mozambique included in its Fourth National Assessment of poverty and well-being an analysis of multidimensional poverty, alongside the traditional poverty analysis based on consumption.[62] The analysis of multidimensional poverty used an MPI with 17 indicators covering three dimensions: education, health and determinants of health, and living standards. This assessment, based on the 2014-15 household budget survey data, concluded that more than half of the population was living in multidimensional poverty. It also uncovered significant disparities across sub-national regions, with the incidence of multidimensional poverty ranging from less than 1% in Maputo City (the capital) and 7% in Maputo Province (the province surrounding the capital), to 69% in Niassa and 71% in Zambezia.

In order to mitigate these regional inequalities, the 2017-19 budget plan included the MPI in the resource allocation criteria. As the national MPI could not be disaggregated at the district level (because the 2014-15 household budget survey data was not representative at that level), the government created an MPI that could be estimated based on census data. This census MPI covered four dimensions: consumption, water and sanitation, health and education. According to the budget plan, the allocation of resources at the provincial level depended 70% on the population size, and 30% on the census MPI; the allocation of district level funds depended 35% on the population, 20% on the area, 15% on the district' revenue, and 30% on the census MPI. These criteria are mentioned in Mozambique's 2020 Volunteer National Review as part of the implementation tools to achieve the SDGs.

Using Municipal MPI for Budget Allocation: The Case of Angola

In 2019, the national statistics office of Angola (INE, its initials in Portuguese) developed a Municipal Multidimensional Poverty Index (M-MPI), based on data from the 2014 General Population and Housing Census. The main purpose of this measure was to classify the country's 164 municipalities according to their level of multidimensional poverty, to inform the allocation of the public budget across the municipalities, and to aid in the design of public policies aimed at meeting the goals set in the National Development Plan 2018-2022 and the 2030 Agenda.

The M-MPI includes four dimensions — health, education, quality of housing, and employment — and 11 indicators (see Figure 28 for details). According to this measure, 65 of the 164 municipalities have an incidence of multidimensional poverty above 90%. [63]

Figure 28. Municipal MPI of Angola

Dimension	Indicators	Deprivation Threshold. A Household Is Deprived If…	Weighting
Health (25%)	Access to Drinking Water	It does not have access to a source of water suitable for drinking or the water has not been treated.	12.5%
	Access to Sanitation	It does not have access to any kind of appropriate sanitation.	12.5%
Education (25%)	Civil Registry	At least one member up to the age of 5 does not have a birth certificate.	8.3%
	Years of Schooling	No members over the age of 12 have at least 6 years of schooling.	8.3%
	School Attendance	At least one child between the age of 5 and 14 does not attend school.	8.3%
Quality of Housing (25%)	Solid Fuel for Cooking	The main fuel for cooking is coal, firewood/scrub, brushwood/grass, cardboard, crop residues, other.	8.3%
	Access to Electricity	It does not have access to electricity from a public network.	8.3%
	Type of Materials Used for Construction of Walls, Floor, and Roof	Poor quality materials were used for at least one of the following structures: floor, roof, walls.	8.3%
Employment (25%)	Youth Unemployment	At least one member between the age of 15 and 24 neither works nor studies.	8.3%
	Unemployment Among Adults	At least one member between the age of 35 and 64 is active and does not work, but is available to work.	8.3%
	Dependency	For every five members of the household, there is not at least one member between the age of 15 and 64 who works.	8.3%

Source: *Multidimensional Poverty in Municipalities of Angola*, 2019

[62] Ministry of Economics and Finance

[63] Camilo Ceita and Henrik Fredborg Larsen, "Angola: The First Country in Africa to Develop a Municipal Multidimensional Poverty Index," *Dimensions*, No. 9, May 2020.

Box 6. Targeting Social Policies Based on the MPI: The Case of Ho Chi Min City, Vietnam

"The MPI in Vietnam is based on human rights and the right to social security. It has five dimensions: education, health, housing, living conditions (water and sanitation), and access to information. There are 10 indicators: adults' education level, child school attendance, health services accessibility, health insurance, housing quality, per capita housing area, domestic water supply, toilets/latrines, telecommunication services usage, and assets to access information. All indicators have the same weight. A person is multidimensionally poor when the person is deprived in a third or more of the total sum of weighted indicators.

The MPI in Vietnam is used to identify individuals who are multidimensionally poor, and as a complement to income poverty measures. Households can either be classified as poor or non-poor, depending on the household´s levels of income and social needs deprivation, with the results driving access to different social policies and strategies to reduce poverty and deprivation.

This MPI, in combination with income poverty measures, has been part of a targeting mechanism since 2016. Given that it considers both income and multidimensional poverty, the targeting mechanism has a more holistic perspective of what poverty is, taking into account the reality that households can be affected in different ways, depending on their levels of poverty and deprivation under both measures. In addition, the results of the Vietnamese national MPI have been used to redistribute budget allocations between regions in order to prioritize the regions with the largest percentages of poor people."[64]

Box 7. Using MPI to Respond to the COVID-19 Pandemic: The Case of Colombia

Early in the pandemic, Colombia used MPI data to inform its response to COVID-19. Juan Daniel Oviedo, Head of the National Administrative Department of Statistics (DANE) of Colombia explained how:[65]

"The 2018 Population and Housing Census allowed us to have information on 14 of the 15 indicators that make up Colombia's Multidimensional Poverty Index (MPI). This allowed us to complement the census information with administrative records to be able to calculate the missing indicator and estimate at the block level, as well as the deprivations and multidimensional poverty levels.

This instrument is a very important targeting criterion that the government is using to develop complementary unconditional strategies such as Solidarity Income. In other words, thanks to these statistical tools, complementary monetary transfers are being developed for those populations that are in an informal situation.

Thanks to the use of MPI geo-referencing, the government can identify which households are deprived in health, education, and informality. This way, the government can focus on relevant public policies. DANE, together with the National Planning Department, has provided information from the census, economic and social surveys, and administrative records to the national government and municipal and departmental authorities to achieve effective targeting.

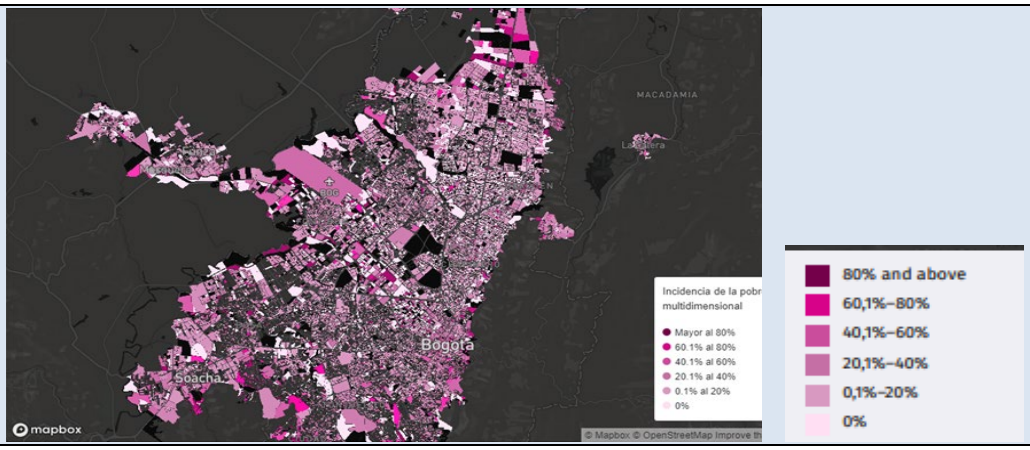
For instance, in Bogotá, we have created maps of multidimensional poverty at the block level for the entire capital city of the country. The different intensities of color allow us to determine which blocks have a higher prevalence of multidimensional poverty. This tool has been essential for establishing all the localized mitigation programs in some regions of the city.

[64] Text box excerpted from United Nations Development Programme and Oxford Poverty and Human Development Initiative, How to Build a National Multidimensional Poverty Index (MPI): Using the MPI to Inform the SDGs, 2019. Ministry of Labor, I. a. S. A. M., Master Plan: Transition from One-Dimension Income-Based Poverty Approach to Multidimensional Poverty Approach 2016–2020, 2015.

[65] Excerpted from Juan Daniel Oviedo, "Using the MPI as a Tool for Crafting Government Responses to the COVID-19 Pandemic", *Dimensions*, No. 10, August 2020, 16-18.

By cross-checking information from the census with administrative records, we link multidimensional poverty with health records to establish where and in which blocks we have households with a greater situation of vulnerability. This is defined in terms of the risk of the persons who live in each block when exposed to COVID-19, due to the existence of intergenerational households, previous morbidities or critical overcrowding. This highly sensitive information is extremely useful for mayors to carry out targeted programs and targeted public health programs in different sections of the country."

Figure 29. Incidence of Multidimensional Poverty in Bogotá



Source: National Administrative Department of Statistics (DANE) of Colombia Geoportal

Companies, assessing the level of multidimensional poverty among their employees, use the MPI-related information to improve the targeting and design of their human resources programs. By combining the information on employees' poverty status, their deprivation profiles, level of indebtedness and other factors such as household size and employee's tenure, companies can prioritize individuals for programs aimed at tackling specific deprivations. Companies also use the information on their employees' poverty profile combined with the information on the type of programs that are available to them (internally or provided by third parties) to select the specific type of deprivations to target, as well as type of solutions to implement.

Box 8. Companies Tackling Deprivations of their Employees: The Case of Costa Rica

Some companies in Costa Rica are using a Multidimensional Poverty Index customized for businesses, developed by OPHI and Horizonte Positivo, to identify which of their employees live in multidimensional poverty and what are the specific challenges they face.[66] Based on that information, companies create initiatives to support their employees overcoming their deprivations and/or their high level of indebtedness, e.g., entrepreneur courses, childcare support, education programs, access to medical attention, housing solutions, elderly care programs, financial education, and reprograming of debts. Some of these initiatives are developed internally within the business, others in partnership with outside organizations, including with public agencies. Horizonte Positivo acts as a broker of alliances between businesses and solution-providers. In 2021, Horizonte Positivo had more than 30 partner organizations providing solutions. In 2021 SOPHIA Oxford launched the Wise Responder Action Kit to make this service available globally, starting by offering it throughout all of Latin America and the Caribbean.

[66] "Eight Companies in Costa Rica Receive an Award for Progress in Poverty Reduction Using the Business MPI," *Dimensions*, No. 12, June 2021, 8-12.

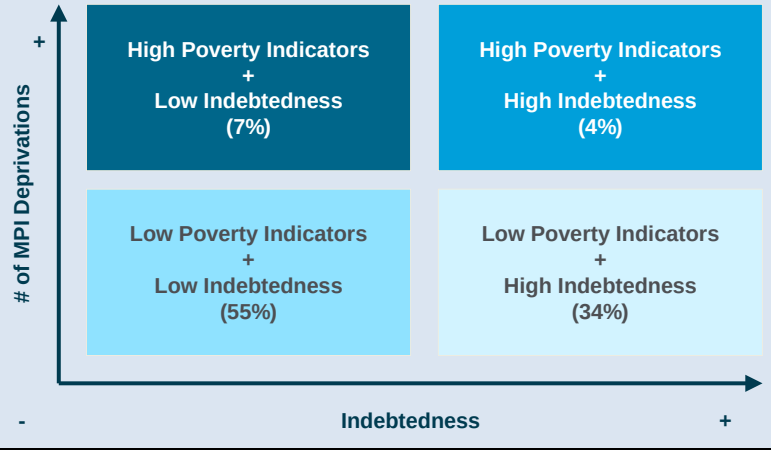
Figure 30. List of Organizations Providing Solutions by Type of Deprivation Targeted

Source: Horizonte Positivo

Box 9. Using Data to Improve Employee's Lives: the Case of BAC Credomatic

BAC Credomatic is a bank in Central America with an extensive network of branches in Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama. BAC Credomatic in Costa Rica was one of the pioneer companies in adopting a Multidimensional Poverty Index for businesses. The company implemented the first census of its employees in 2017, obtaining detailed information about more than 4,500 employees. Faced with the results, BAC Credomatic defined two main criteria to prioritize employees: (1) an employee household experiencing three or more deprivations, and (2) an employee having a debt-to-income ratio of 35% or more. Employees were divided into four categories, as shown in Figure 31.

Figure 31. BAC Credomatic Prioritization Model



Note: Percentages between parentheses correspond to the percentage of surveyed employees in each category.
Source: BAC Credomatic

Informed by the profile of the target group, BAC Credomatic implemented a series of programs aimed at improving their well-being, two examples being:

1. Entering a partnership with Fundación DEHVI, a Costa Rican non-profit organization, to provide access to early childhood care services for children of the working population.

2. Developing programs to provide financial coaching and debt readjustment to some of their employees.

Between 2017 and 2021, close to 1,100 people benefited from a program implemented or sponsored by BAC Credomatic.

"BAC Credomatic, which manages its operation based on triple profit, whose business philosophy is also the well-being of people and the environment, must turn its gaze towards the management of its collaborators, promoting their well-being in an integral way. The MPI has allowed us to focus the efforts of our "Possibilities BAC Program", which aims to encourage employees to be better and find in us not only a source of employment, but also a catalyst of well-being for them and their families". Laura Moreno, Vice President of Corporate Relations and Sustainability, BAC Credomatic.

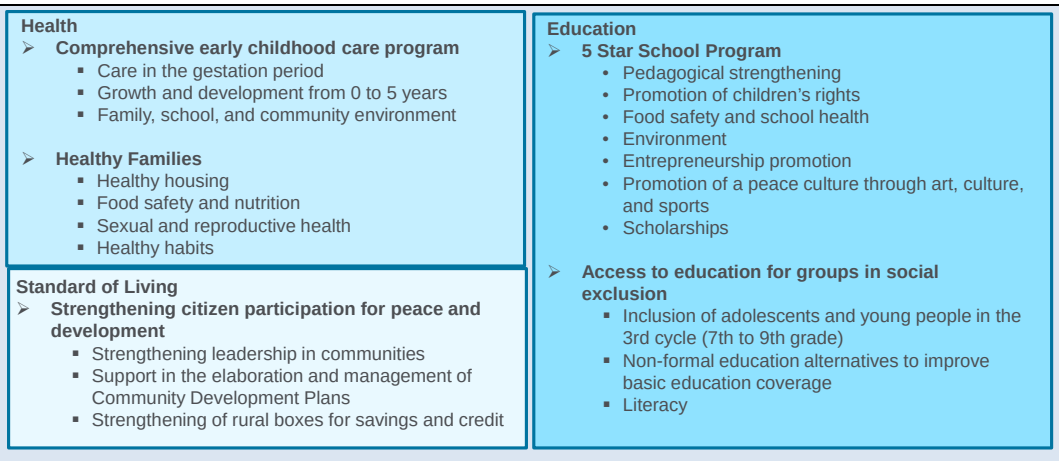
Box 10. Using the MPI to Improve Life of Communities: The Case of Agrolíbano

"There are no successful businesses in failed communities." — Fundación Agrolíbano

Agrolíbano is a group of agricultural companies located in Honduras. Its most important product is melons, which are exported to North America, Europe, Asia, and the Middle East. The company is committed to the eradication of poverty and the mitigation of climate change.

In 2018, Agrolíbano adopted a Multidimensional Poverty Index, similar to the Honduran national MPI, to assess the needs of all the communities surrounding the melon producing farms. The company implemented a survey among those communities and concluded that 89% of the households in those communities lived in multidimensional poverty and on average were deprived in almost half of the indicators (48%). Informed by the main deprivations experienced by those communities, Agrolíbano designed and implemented programs in the areas of health, education, and standard of living. For each of these programs, Agrolíbano created a monitoring system allowing it to report annually on its achievements. In 2021, Agrolíbano also implemented the Wise Responder Action Kit with SOPHIA Oxford to measure the well-being of its employees and their families.[67]

Figure 32. Programs Implemented



Source: Fundación Agrolíbano Accountability (2020)

[67] Source: Agrolíbano *Sustainability Report 2018* and Fundación Agrolíbano *Accountability 2020*

Step 3: Monitoring and Reporting

"[The MPI] encourages government accountability and responsibility. An updated and transparent MPI allows a broad overview of progress, identifies lagging priorities, and celebrates accomplishments." — Luis F. López-Calva, UNDP Regional Director for Latin America and the Caribbean[68]

The third step is to track progress and share that information with other actors. The MPI information platform enables users to set common goals and increase coordination within the organization, government, or corporation. For example, some governments have created ministerial committees to support and monitor implementation of poverty-reduction strategies. The MPI is used to track progress over time. Its properties enable the user to monitor how each deprivation indicator contributes to the changes in poverty, as well as to track the change in poverty across different population sub-groups. Armed with this information, users can adjust targeting, budget allocation, policies, or the programs' design and report on progress towards the UN SDGs.

By monitoring the MPI, the user may capture the effects of some policies or programs faster than traditional monetary metrics. For example, at the national level "public actions" in areas like education, infrastructure, and housing, which might only impact income in the next generation, are not well captured by traditional monetary metrics. In contrast, an MPI that includes such indicators can show rapid improvements in these areas, making visible the impact of social policies more directly, even within the duration of a national election cycle."[69] The reduction of the lag between policy action and results may allow governments to garner some recognition for their policies and, thus, incentivize more poverty-reduction actions.

Box 11. Roundtable to Monitor the MPI in Colombia

"Colombia launched its national MPI in 2010. The index was first used to establish specific policy goals for multidimensional poverty reduction, as well as sector-specific targets within the National Development Plan (2010–2014).

A crucial innovation in the Colombian process was the design of a monitoring system to track the progress of the Development Plan. This system was based on two main components. The first was a poverty roundtable — a board chaired by the President of Colombia and attended by all ministers and authorities whose work affected particular indicators of the MPI, namely the ministries of education, health, housing, rural development, labor, and economy, as well as three ministerial-level administrative departments (the National Planning Department, the Department for Social Prosperity, and the National Statistics Department).[70] The second component was a dashboard system that monitored progress in the 15 indicators of the MPI. Both of these were integrated into a management system to monitor and guide public policy responses.

---

[68] Luis F. López-Calva, "The Multidimensional Poverty Index: Rethinking Measurement, Improving Governance," *Dimensions*, No. 6, April 2019, 17-18.

[69] United Nations Development Programme and Oxford Poverty and Human Development Initiative, *How to Build a National Multidimensional Poverty Index (MPI): Using the MPI to Inform the SDGs*, 2019.

[70] With the National Development Plan 2018–2022 "Pact for Colombia, Pact for Equity," the poverty roundtable was replaced with the Equity Roundtable, also "a high-level committee, convened and chaired by the President of Colombia, which coordinates the sectors and agencies of the national government responsible for developing socially inclusive strategies to reduce poverty and inequality," according to Felipe Roa-Clavijo, in "The Equity Roundtable: A Space For Coordination to Reduce Poverty in Colombia," *Dimensions*, 12, June 2021.

One of the main functions of the roundtable is to review the dashboard and take corrective decisions if milestones are not being reached. To do so, annual results are contrasted with the estimates generated by micro-simulations in order to evaluate progress and take corrective actions if needed. Progress towards the achievement of these goals is illustrated through a traffic light system, in which a green color implies progress is being made according to the goal, yellow shows some troubles in meeting the goal, and red implies progress is not enough to meet the goal. The roundtable and the dashboard proved useful tools for multidimensional poverty reduction through different channels. First, they provided a practical and straightforward management tool for the country's highest authorities to monitor their progress towards clearly established goals. The design of the MPI (with a clear policy orientation and indicators that were very sensitive to concrete policy outcomes) and the simplicity of the monitoring system exposed the successes and failures of each responsible manager. Moreover, ministers (who usually tend to focus primarily on their own sectors) were exposed to the overall situation regarding poverty reduction in the country and the need to properly coordinate actions between sectors in order to enhance poverty reduction. Finally, they created internal and external accountability so that both the government and the general public were aware of the specific results of the plan and who was responsible for them."[71]

Box 12. Tracking Implementation and the Impact of Programs: The Wise Responder Platform

The Wise Responder Action Kit, developed by SOPHIA Oxford, is a set of tools that allows a company to assess multidimensional poverty among its employees and to manage programs aimed at improving their quality of life. One of the central elements of the kit is the Wise Responder Platform, a digital platform built on a software-as-a-services (SaaS) platform that enables the company to manage the implementation of the employee census, analyze the data, prioritize objective groups, and track their social programs. In terms of tracking the program, the platform allows users to monitor the invitation of target participants, their responses, and their participation in the program. Upon completion of the program, the platform enables the company to send participants a questionnaire related to the deprivation or challenge that was targeted by the program. By comparing the participants' responses with their baseline information, the company can quantify the impact of the program in question.

SDG Target 1.2 requires states to "reduce at least by half the proportion of men, women, and children of all ages living in poverty in all its dimensions, according to national definitions," by 2030. As of September 2021, 71 countries had reported on this target for the UN Statistics Divisions Global SDG indicators database, and 33 of them (most countries aside from the EU block) had used an MPI as a reference (Metadata for SDG indicator 1.2.2).[72] Several other countries have reported on poverty using an MPI in their Voluntary National Review, although they have not yet submitted their data to the Global SDG Indicators Database, including Bangladesh and India in 2020.[73]

[71] Text excerpted from United Nations Development Programme and Oxford Poverty and Human Development Initiative, *How to Build a National Multidimensional Poverty Index (MPI): Using the MPI to Inform the SDGs*, 2019.

[72] List of countries that reported on SDG Indicator 1.2.2. using an MPI as reference: Afghanistan, Angola, Armenia, Bhutan, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Ghana, Guatemala, Guinea, Guinea-Bissau, Malaysia, Maldives, Mali, Mexico, Morocco, Mozambique, Nepal, Nigeria, Pakistan, Palestine, Panama, Philippines, Rwanda, Saint Lucia, Seychelles, South Africa, Sri Lanka, Thailand, Vietnam.

[73] Johanna Andrango and Felipe Roa-Clavijo, *Multidimensional Poverty in the Voluntary National Reviews 2020 on the SDGs Brief Report*, July 2020.

Box 13. The Multidimensional Poverty Peer Network (MPPN)

The Multidimensional Poverty Peer Network (MPPN) is a growing global community of 61 countries and 19 organizations focusing on multidimensional poverty. The network provides south-south dialogue, capacity building, and access to a repository of experiences and lessons learned about measuring and addressing multidimensional poverty.

Created in 2013, the Network was established to provide support to policymakers who were implementing a multidimensional poverty index or were exploring the possibility of developing multidimensional measures of poverty.

The MPPN aims to eradicate poverty through the use of measurements that consider the different types of deprivations experienced simultaneously by people living in poverty. The MPPN also works to promote public policies that have better technical design, greater focus, and more effectiveness in reducing poverty in all its dimensions.

The Network enables early adopters to share their experiences with newcomers to multidimensional poverty measurement. It provides peer-to-peer technical, statistical, and policy support, as well as input into the design and institutional arrangements for successful multidimensional poverty eradication. Through meetings, knowledge sharing, and informal exchange, the Network supports policymakers in developing more effective poverty eradication policies grounded in multidimensional measures of poverty. Its vision is a world in which poverty in all its forms is measured and tracked over time — and eventually eliminated.

The Network maintains an active website and publishes an on-line magazine, *Dimensions*, that shares lessons learned and case studies of governments and agencies developing and implementing multidimensional poverty measures and policies.[74]

Outside of the MPPN, other groups, such as a community of corporate MPI users in Costa Rica also exist, similarly looking to share lessons learned and to support new users.

While the MPI methodology, brought to the public arena by UNDP and OPHI with the launch of the Global MPI, was originally adopted by national governments that developed their own MPIs and started using these metrics to guide policy, we are now beginning to see a range of applications by private corporations. These range from energy companies calibrating their national investments, to consumer product companies motivating their sales and distribution networks, to agricultural companies improving their workers' lives and complying with sustainable reporting. We expect this trend to continue as more companies embrace the concept of stakeholder capitalism, and as investors place more importance on environment, social and governance criteria.

[74] See the "Multidimensional Poverty Peer Network (MPPN)" and "What Does the Network Do?" pages on the MPPN website.

Finance and Poverty: Harnessing the Former to Eliminate the Latter

When trying to calculate how much it would cost to eradicate poverty, perhaps the most obvious way to generate a number is to look at the poverty gap, i.e., the average difference in income for those suffering poverty versus the $1.90/day poverty line figure, and simply multiply it by the number of people. But does that really tell us anything? In our view, not really. After all, even if we mobilized the capital and undertook the fabled “helicopter drop” of money, we might solve the poverty for one day, but it does not fix the problem per se. It is the old “Give a man a fish” parable.

It is here that, once again, the Multidimensional Poverty Index provides valuable extra insight on how we might actually target investments that could help to fix the root causes of poverty on an ongoing basis. Improving access to education, health, water, and electricity — in fact all of the aspects of the Global Multidimensional Poverty Index (MPI) — obviously have an impact on economic growth, employment opportunities, and productivity, and hence have a material impact on the eradication of poverty. This impact is not just on the specific element of the MPI measure, but also on the more basic, overall poverty line measures. Moreover, if undertaken correctly, the multiplier effect of the capital deployed to build the infrastructure associated with many of these measures can also provide a useful spur to growth. To be frank, trying to calculate a “cost” for eradicating poverty rather misses the point — the economic benefits are ultimately likely to outweigh any investment, before we even begin to consider the human and social benefits.

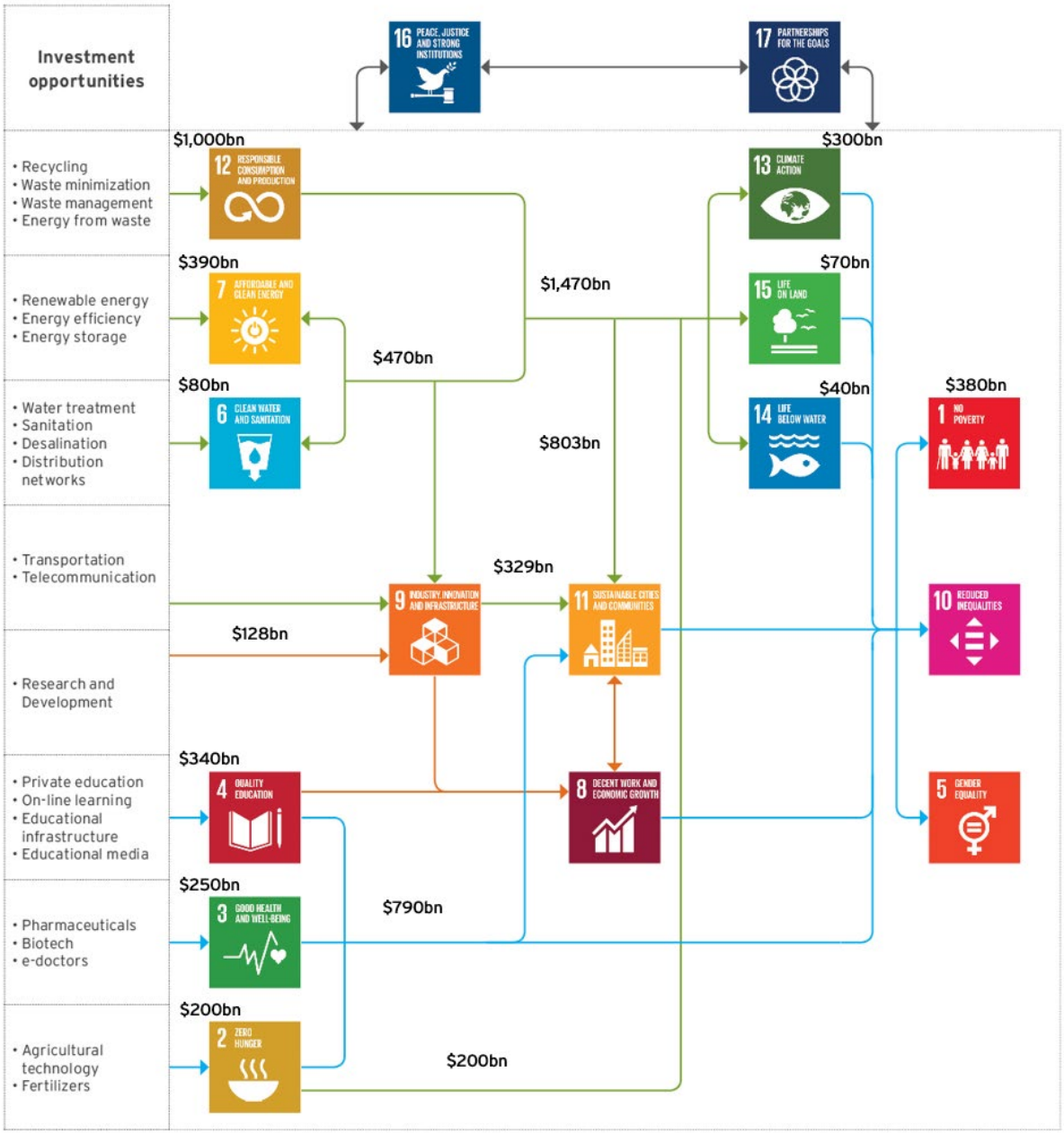
Nevertheless, there is still both value in and a need to work out (1) how much capital we would need to raise/invest, (2) what we would invest it in, and (3) what the multiplier effects might be to bolster the economic argument for the investment. Heartless as the last element of that statement might sound, it is the pragmatic approach which arguably achieves greater progress, more quickly. We only have to look at the progress on climate change since the Paris meetings, where much of it is being driven by the private sector and financial community, due largely to a sense of risk (stranding and other) and opportunity — rather than any altruistic Damascene conversion.

How do we quantify these costs and opportunities, and perhaps most importantly, having identified how much we need, how do we mobilize that capital? In this chapter we attempt to address these questions by examining the granular elements of the Global MPI (the international measure of acute poverty) discussed earlier in this report.

The Costs and Economic Benefits of Reducing Poverty

In the Citi GPS report *UN Sustainable Development Goals: Pathways to Success – A Systematic Framework for Aligning Investments* we assessed the cost of achieving each of the SDGs by 2030, in terms of incremental annual spend. While the numbers will undoubtedly have changed since the report publication in 2018, its findings still provide us with a sensible starting point in assessing the scale of the challenge in terms of both the human and financial costs (or indeed opportunities).

Figure 33. Critical Pathways to Addressing the United Nations Sustainable Development Goals, with Associated Financial Ownership



Source: Citi GPS *UN Sustainable Development Goals: Pathways to Success – A Systematic Framework for Aligning Investments*[75]

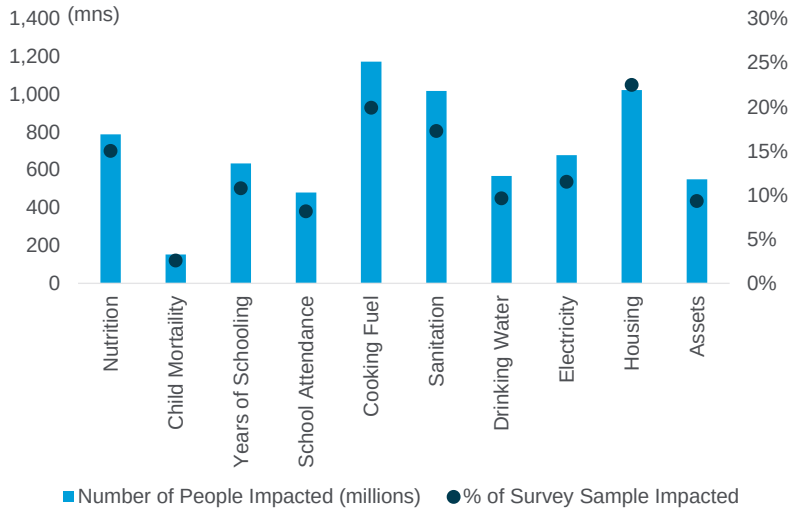
[75] Citi GPS, United Nations Sustainable Development Goals: Pathways to Success – A Systematic Framework for Aligning Investments, June 2018.

The Global MPI metrics are more specific than the broad-brush SDGs, and allow for a better focus on those at the very bottom of the poverty distribution. Hence, it is worth examining the individual elements highlighted earlier in a little more detail, namely:

1. Education
   - Years of Schooling
   - Child School Attendance
2. Health
   - Nutrition
   - Child Mortality
3. Living Standards
   - Electricity
   - Sanitation
   - Drinking Water
   - Housing
   - Cooking Fuel
   - Assets

Taking each in turn, we can examine what it might cost to “fix” the problem in terms of annual incremental spend (and hence what the financial opportunity is), where the problems are centered, and finally, but by no means least, what the human opportunity is. Before we embark on this process, however, having looked at the number of people exposed to each form of deprivation (based on independent data) at the start of the report, we should now compare that data with the latest findings of the 2021 Global MPI, as shown below.

Figure 34. Number of MPI Poor People Experiencing Deprivation in Each Indicator of the Global MPI



Note: Data from 109 countries, percentages calculated with reference to population examined for each metric, out of a maximum possible universe of 5.9 billion people.
Source: Sabine Alkire et al., *The Global Multidimensional Poverty Index (MPI) 2021*, OPHI MPI Methodological Notes 51, Oxford Poverty and Human Development Initiative, University of Oxford, 2021

Education

As highlighted earlier, according to the United Nations, around 258 million children and youths were out of school in 2018, representing around one in five children of that age group, while 773 million adults were still illiterate in 2018.[76] The latest Global MPI data finds that 635 million individuals live in an MPI poor household where no one has completed at least six years of education, and 481 million live in an MPI poor household where at least one school-age child is not attending school up to the age at which he/she would complete class 8 (i.e., the final year before secondary school).

The United Nations Educational, Scientific, and Cultural Organization (UNESCO) has published several comprehensive papers examining the human and financial implications associated with achieving SDG 4 — Quality Education by 2030. In terms of the financial cost and opportunity, in the Citi GPS report on the UN SDGs we used UNESCO's 18th Policy Paper in reference to our selected indicators.[77] The indicators model the additional annual financing required during 2015-30 to reach universal pre-primary, primary, and secondary education in all low- and lower-middle income countries. Low- and lower-middle income countries face the greatest challenges in education provision and are the most likely to need external assistance. To summarize, these figures imply a cumulative spend on education from 2015 to 2030 of $5.1 trillion, equating to $340 billion per year.

[76] United Nations, "Quality Education: Why It Matters," PDF, 2020.
[77] Citi GPS, *United Nations Sustainable Development Goals: Pathways to Success – A Systematic Framework for Aligning Investments*, June 2018; United Nations Educational, Scientific and Cultural Organization, *Pricing the Right to Education: The Cost of Reaching New Targets by 2030*, Education for All Global Monitoring Report, Policy Paper 18, July 2015.

For the multiplier effects, a recent paper estimated the short term fiscal multiplier of investment into education in the United States at 2.4x.[78]

Health (Nutrition/Child Mortality)

Health is core to human development. Just as health shapes development, development shapes health.[79] Good health is not only of value to the individual as a major determinant of quality of life, well-being, and social participation, but equally healthy people are better able to contribute to the social, political, and economic development of their communities and countries. Between 2000 and 2011, an estimated 24% of income growth in low- and middle-income countries was attributed directly to health improvements.[80]

As we saw earlier, an estimated 5.2 million children under the age of 5 died in 2019 mostly from preventable and treatable causes, with a potential 48 million more children under 5 years of age likely to die needlessly between 2020 and 2030, half of which will be newborns.[81] The latest Global MPI data finds that 152 million people live in an MPI poor household where a child died in the last five years; of this group, 84.4% were among the Global MPI poor. From a nutrition perspective, the latest Global MPI indicated that 788 million people live in an MPI poor household where someone is undernourished; the number is likely to underestimate the real figure as the pandemic has continued.

In its 2017 report, Narrowing the Gaps: The Power of Investing in the Poorest Children, UNICEF highlighted a series of interventions, such as sleeping under nets, antenatal care, skilled delivery care, neonatal and infant feeding and care, immunizations, and curative care for illnesses such as diarrhea, fever, or pneumonia.[82] The study estimated that investments targeted at children living in the poorest communities saved almost twice as many lives per $1 million as equivalent investments in non-poor communities. Improvements in the coverage of these life-saving interventions helped decrease child mortality nearly three times faster among poor groups than among non-poor groups. Moreover, the study estimated that “the average annual per-person cost for delivery of a full package of 35 high-impact interventions was $3.90 for poor groups in the 24 countries for which data related to the cost of intervention coverage were available.”

To tackle SDG 2 — No Hunger — the methodology to calculate the investment required to achieve zero hunger by 2030 hinges on the relationship between investment, output, and the level of dietary energy consumption, on the assumption that hunger is mainly caused by poverty (lack of purchasing power).

---

[78] Maarten De Ridder, Simona M. Hannon, and Damjan Pfajfar, *The Multiplier Effect of Education Expenditure*, Washington: Board of Governors of the Federal Reserve System, Finance and Economics Discussion Series 2020-058, 2020.
[79] United Nations Development Programme, *HIV, Health and Development Strategy 2016-2021: Connecting the Dots*, 2019.
[80] Dean Jamison et al., “Global Health 2035: A World Converging with a Generation,” Lancet 382, no. 9908 (2013): 1898-1955
[81] “Children: Improving Survival and Well-Being,” World Health Organization, September 8, 2020.
[82] United Nations Children’s Fund, Narrowing the Gaps: The Power of Investing in the Poorest Children, July 2017.

Scenario analysis done by the Food and Agriculture Organization of the United Nations (FAO) presents estimates of the additional annual investment required to eradicate world hunger. It suggests a two-pronged approach involving social protection transfers and targeting pro-poor investment in productive activities to sustainably raised earned incomes in the longer term. The analysis suggests the average additional annual investment required from 2016 to 2030 is $198 billion.

In terms of economic impact, a 2016 study from AlphaBeta estimated business opportunities for the private sector by 2030 that would arise from the implementation of the UN SDGs related to food, could be worth over $2.3 trillion annually. They also found these opportunities could generate almost 80 million jobs in the same time frame with an annual investment of $320 billion, indicating a multiplier of 7.2x.[83]

While child mortality and nutrition are of course critical, health is inevitably a much broader issue that impacts poverty across all ages and genders. As highlighted earlier, our 2018 Citi GPS report on the UN SDGs used the aforementioned Stenberg et al. (2017) analysis for SDG 3 — Good Health and Well-being, which modeled (1) a progress scenario, reflecting advancement towards global targets but constrained by health systems' assumed absorptive capacity; and (2) an ambitious scenario, in which most countries attain the global targets.[84]

In this analysis, the financial investment required to achieve SDG 3 is split between three incremental investment timeframes. The ambitious scenario would initially require annual additional investments of $134 billion per year between 2015 and 2020, increasing to $284 billion per year between 2021 and 2025, and reaching $371 billion during the years 2026 to 2030. This equates to an overall investment of $4.079 trillion to attain the targets under SDG 3, over the 2015 to 2030 timeframe. Clearly as we are now in 2022, for the purposes of this analysis we adopt an average figure for the 2020-30 period of $328 billion per year.

Aggregated investments split between low-income, lower-middle income, and upper-income countries equaled 17%, 49%, and 34%, respectively. The additional costs represent a mean of 4.6% of projected GDP in 2030 and adding these costs to current health spending is projected to increase health spending as a share of GDP from a mean of 5.6% to a mean of 7.5%. The largest human opportunity lies within low-income countries, reflecting over 66% of the population.

Of this, 26 of the 28 countries are located in Africa, in addition to Nepal and Afghanistan. From the perspective of the financial opportunity associated with attaining SDG 3, nearly half of the investment opportunity lies within lower-middle income countries, reflecting a required investment of nearly $2 trillion over the 2015 to 2030 timeframe.[85] Unlike the human opportunity that was predominantly linked with Africa, the financial opportunity is relatively more equally spread across South and South East Asia, and Africa.

---

[83] *Valuing the SDG Price in Food and Agriculture*, AlphaBeta commissioned by the Business and Sustainable Development Corporation, October 2016.
[84] Karin Stenberg et al., "Financing Transformative Health Systems Towards Achievement of the Health Sustainable Development Goals: A Model for Projected Resource Needs in 67 Low-Income and Middle-Income Countries," *The Lancet Global Health* (2017).
[85] Supplementary Appendix in Stenberg et al. (2017).

But spending on healthcare should not just be viewed as a cost — clearly, as well as having a huge impact on the quality of life of individuals, it also encompasses potentially enormous multiplier effects. A study in 2013 looking at the differing types of government spending across 25 countries in the EU found that spending on healthcare offered the highest multiplier effect at 4.3x, versus an average of 1.61x across all types of spending.[86]

Clearly when considering healthcare as an element of poverty we are often looking at emerging/developing nations versus the developed nations used to derive the above multiplier figures. However, while the figures will be different, it seems logical that the multiplier effect coming from a lower base of healthcare provision ought to be at least as large.

Standard of Living

Electricity and Cooking Fuels

How much would it cost to provide electricity to the 771 million people that still lacked access in 2019, or the 2.65 billion lacking access to clean cooking fuels in 2018?[87] The figures included in the latest Global MPI reflect slightly different levels of exposure, with 678 million out of the surveyed population of 5.9 billion living in multidimensional poverty and lacking access to electricity and 1.2 billion lacking access to clean cooking fuels.

While annual investment in power is currently around $800 billion per year, driven in part by the energy revolution and renewed focus on climate change, trying to isolate the "access for all" element from within that is tricky. However, in our previous report we used figures from the International Energy Agency (IEA), which estimated an incremental spend of around $35 billion per year to provide access to energy for all.[88]

In terms of multiplier effects it is hard to find data, though one study examining the potential impact of the Desertec plan (renewable energy) on the Egyptian economy calculated multiplier effects of 2.1x to 4.3x. In terms of initial provision of energy to those without access, intuitively we would feel that multiplier effects ought to be significantly higher, thinking about simple impacts such as access to light (ability to work), refrigeration (food, medicine), and technology.

Clean Water and Sanitation

While our Citi GPS report on the UN SDGs highlighted that poor water and sanitation was amongst the most widespread of problems (after all, the 2 billion people highlighted earlier shockingly equates to more than a quarter of the world's population lacking access to basic sanitation facilities), the silver lining from our report was that supplying clean water and access to sanitation offered the biggest "bang for buck" of all the SDGs, with it being "fixable" for an incremental spend of $79 billion per year (over and above current levels of spend).

---

[86] Aaron Reeves et al., "Does Investment in the Health Sector Promote or Inhibit Economic Growth?" *Globalization and Health* 9, no. 43 (2013).
[87] International Energy Agency, *World Energy Outlook 2020,* 2020; International Energy Agency, *World Energy Outlook 2019*, 2019. Based on the WHO Household Energy Database and IEA *World Energy Balances 2019.*
[88] International Energy Agency, *SDG7: Data and Projections*, 2020.

A World Health Organization (WHO) report published in 2012 estimated dramatic multiplier effects, with every $1 invested in sanitation equating to a return of $5.50 via reduced health costs, lower death rates, and enhanced productivity.

The latest Global MPI figures imply that 1 billion are MPI poor and exposed to a lack of sanitation, while 568 million are MPI poor and lack access to clean drinking water.

Housing

The cost of rectifying the lack of appropriate housing by 2030 (affecting 3 billion people) is an estimated $650 billion per year, or between $9 trillion and $11 trillion in total. Other sources put the overall cost at $16 trillion, if the cost of land is factored in.[89] The opportunity for the private sector is clear here; private infrastructure investment in the social sector (which includes social housing) made up only 3% of private infrastructure investment in 2019 ($3 billion), and between 2010 and 2019, the healthcare and social housing subsectors saw sharp declines in private investment.[90]

Multiplier effects are hard to quantify here, but as UN-Habitat points out, "Access to housing is a precondition for access to employment, education, health and social services," and so figures are likely to be significant. A report by Shelter Scotland estimated the multiplier effect of building affordable housing at 2.1x, and as before, intuitively it seems quite feasible to assume a higher figure for developing markets.

The latest MPI data finds that 1 billion million are classified as multidimensionally poor and suffering from deprivation in terms of housing.

Asset Ownership

Coming up with figures for "asset ownership" deficits in both human and economic terms is complex, and as with poverty overall, while it could be fixed with a helicopter drop, that does not solve the root cause. Some insight, however, can be gleaned from our previous work on SDG 8 — Decent Work and Economic Growth, relating to unemployment. The latest data from the Global MPI finds that 550 million individuals are classed as poor and suffering from deprivation on this metric.

The most recent data from the International Labour Organisation (ILO), via the World Bank, shows an unemployment rate of 5.4% in 2019, rising to 6.5% in 2020, not least due to the impacts of COVID-19.[91] However, there is a variation within these figures, with an estimate of 7.4% for OECD countries compared to the highest figure of 28.7% in South Africa.

---

[89] World Bank, *Housing Finance: Investment Opportunities for Pension Funds*, 2018.
[90] Global Infrastructure Hub, *Infrastructure Monitor 2020: Data-Driven Insights Into Selected G20 Infrastructure Priorities*, October 2020.
[91] "Unemployment, Total (% of Total Labor Force) (Modeled ILO Estimate)," World Bank, June 15, 2021.

Clearly unemployment data does not necessarily reflect poverty, as many could be employed either in vulnerable employment, or not earning enough to cover basic needs. In our Citi GPS report on the UN SDGs we estimated there were some 1.4 billion people in vulnerable employment (97% of whom are in emerging and developing countries), with a population of 680 million in Least Developed Countries (LDCs) with below target economic growth. In terms of economic impact, moving to an economic growth rates of 7% across LDCs would equate to around $26.6 billion per year of impact.

Combining the Human and Financial Opportunities

Taking the figures from the population affected by the various elements of the Global MPI as discussed earlier, using independent global data and the latest data from the Global MPI (with a survey sample of 5.9 billion), and combining it with the financial opportunities and multipliers described in the previous section produces the summary table shown below. While the estimates of populations and costs are unlikely to be perfectly comparable in some cases given different data sources, they do at least provide an idea of the scale of the financial opportunity.

Figure 35. The Combined Human and Financial Opportunity, With Potential Multiplier Effects

	Human Cost: Independent Global Data (mn people)	Human Exposure Among Poor: Global MPI Data (mn people)	Financial Cost: Citi GPS UN SDGs ($ bn per year)	Multiplier
Education	773	634/481*	340	2.4x
Health				
Nutrition	765	788*	198	7.2x
Child Mortality	48	152*		
Access to Healthcare	1,000		328	4.3x
Standard of Living				
Electricity	771	678	35	3.2x
Cooking Fuels	2,650	1,174		
Water & Sanitation	2,000	568/1,018	79	5.5x
Housing	3,000	1,023	650	2.1x
Assets		550		
Average				4.1x
Total			1,631**	

* Global MPI data for Education and Health refer to number of people living in a household where at least one household member is deprived in that indicator.
** N.B. Total spend of $1.6 billion differs from calculated expenditure in Citi GPS report on UN SDGs ($2.3bn) due to different scope
Source: Citi Global Insights, Sabine Alkire et al., *The Global Multidimensional Poverty Index (MPI) 2021*)/Oxford Poverty and Human Development Initiative, University of Oxford, United Nations, UN FAO, WHO, Stenberg et al., IEA, UN-Habitat, AlphaBeta for the Business and Sustainable Development Commission

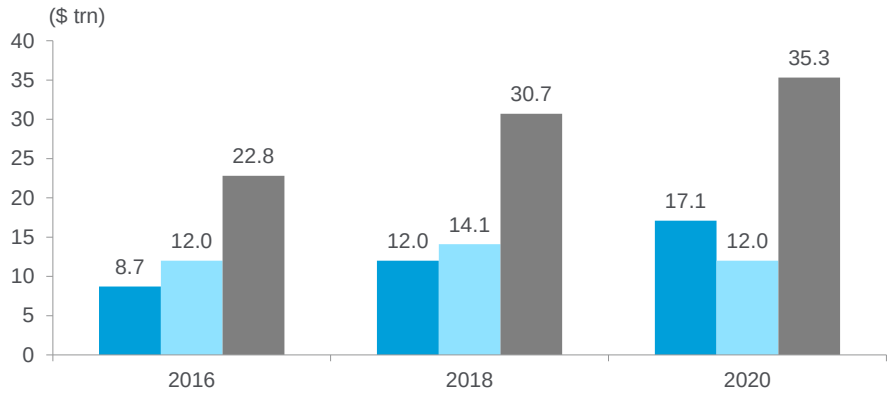
Making It Happen

It is clear from the previous figure that with significant multiplier effects (averaging more than 4x), the investment opportunities, both for governments and for the private sector, are material and potentially run into the trillions of dollars per year.

So why, if such investments could create economic returns, and enormous societal and human benefits, do we not just get on with it and do it?

The simple answer to this is a lack of access to capital in places where it is needed most. But going back one step further, with tens of trillions of dollars in the world looking to invest with positive impact exacerbated by the growth of environmental, social, and governance (ESG) and sustainable investment, why is this money not finding its way to where it is most needed?

Figure 36. ESG-Screened Assets Under Management



Source: Global Sustainable Investment Alliance

At the root of the issue is a mismatch between the risk appetite of the capital, i.e., the risk profile of the ultimate asset owners or providers of capital, and the investment risk in the project, in particular where this is sovereign risk. Put simply, much of the “ESG money” around the world is developed market pension money, with relatively limited risk tolerance (focusing not least on the preservation of capital), whereas the majority of the investment need to reduce poverty is inevitably in emerging and developing markets.

We have written extensively in previous Citi GPS reports on the potential of blended finance — essentially a combination of development finance capital, private capital, and government money, that can “blend” differing risk tolerances to make projects financeable. All too often we see projects being built and funded by development finance institutions (DFIs), where we could arguably achieve much greater effects by using that DFI capital to adopt some form of risk mitigation role or first loss status, which could effectively elevate the creditworthiness of an underlying project or asset, and thereby allow private capital to enter with a lower risk appetite.

The Rise of the Sovereign KPI-Linked Bond?

Sustainable finance has evolved dramatically in the last two to three years, not just in terms of the scale of assets under management that are now ESG-focused, but also in terms of the types of financial instruments available.

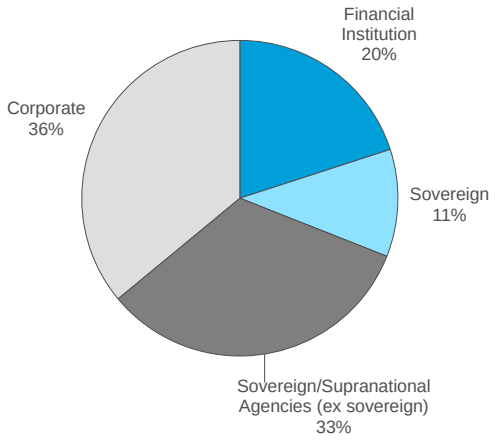
Most are aware of the emergence and popularity of green bonds and the transference across of the methodology (use of proceeds, reporting, etc.) into social bonds, and more generally into sustainability bonds. Yet one of the most interesting instruments to emerge recently has been the so-called key performance indicator (KPI)-linked bond, or sustainability-linked bond (SLB). As Figure 37 below highlights, the market has expanded dramatically in recent years, with issuance in 2021 close to surpass the important milestone of $1 trillion in a single year.

Figure 37. Sustainable Bond Issuance Volume (as of January 21, 2022)

USD bn	Green	Social	Sustainability	SLB	Transition	Total
2021FY Issuance	488.4	188.0	184.6	92.0	4.6	957.5
2022YTD Issuance	**25.7**	**12.9**	**13.8**	**12.8**	**-**	**65.1**
Amount Outstanding	1,267.1	389.5	454.2	117.6	9.2	2,237.6

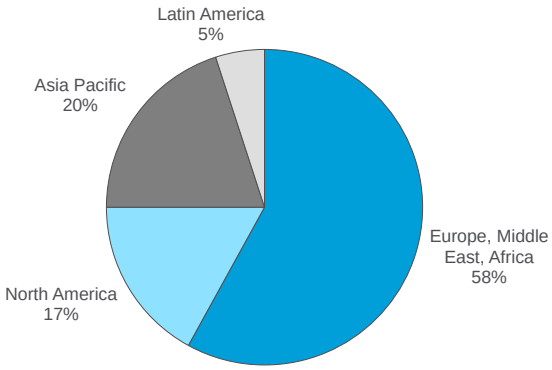
Source: Dealogic, Citi

Figure 38. Sustainable Bond Issuance by Type of Issuer (2021)



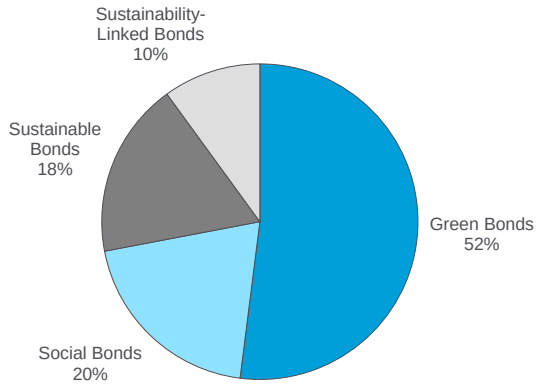
Source: Dealogic, Citi

Figure 39. Sustainable Bond Issuance by Region (2021)



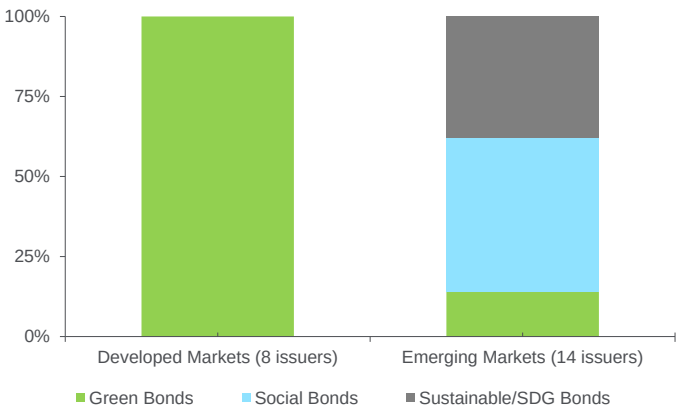
Source: Dealogic, Citi

Figure 40. Sustainable Bond Issuance by Type of Instrument (2021)



Source: Citi

Figure 41. Sovereign Sustainable Bond Issuance by Type & Region (2021)



Source: Dealogic, Citi

What Is a Sustainability-Linked Bond?

Sustainability-linked loans have been around for some time, whereby if a company hits its sustainability targets, the interest rate on its borrowing falls as it is deemed to be lower risk and hence deserving of a lower cost of capital. The financial industry grappled for some time with how to replicate this in the bond market. While the lender could similarly cut the coupon on a bond if the issuer hit certain targets, the problem is that while this is great for the issuer, it is potentially bad for the lender, as the bond may just reprice to reflect that lower coupon (unless the perception of reduced risk is perfectly aligned to allow the corresponding lower yield). Getting that balance right is fiendishly difficult, with the lender (purchaser) potentially the one to lose out, which would potentially make issuing the bond tricky and hence more expensive, thereby potentially defeating the objective.

However, in 2019 a large European utility issued two financial instruments which, in our opinion, truly broke the mold. The first bond was a $1.5 billion SDG-linked bond, which stated that if the company in question failed to hit its renewable energy portfolio target of 55%+ (from about 45% at the time of issue) by December 31, 2021, the coupon on the bond would go up by 25 basis points (in context, representing an increase in yield of around a tenth). While the initial bond had a "transition" date of 2021, the second bond had a transition date of 2030, showing that these instruments can work for different, and longer, durations. Indeed, we believe that a credible sustainability strategy should include longer-term stretch targets, backed up by shorter-term milestone targets to demonstrate that a company is on trajectory to meet those longer-term goals.

While it might seem anathema for a company to risk paying more for its borrowing, the structure is significantly cleverer than it might seem on the surface, for a variety of reasons:

1. It encourages a greater level of market belief in the company's intentions — otherwise why would they open themselves up to being penalized financially? It effectively puts a company's money where its mouth is, saying, "We are really committed to hitting this target."

2. As a result of the above, it can effectively bring forward the reduced cost of borrowing (assuming that the KPI is right, meaningful, material, and that the basis point kicker reflects the difficulty of the KPI target), as the market is more likely to assume that this commitment means the target will be hit and therefore that risk will reduce.

3. Finally, it is worth noting that this can reduce the overall cost of capital for the company, rather than just on that instrument. If the KPI is correct and the kicker meaningful (i.e., painful), we are likely to believe the company's commitment to this lower risk model, which could reduce the perception of risk across all of a company's paper, both current and future, resulting in a lower cost of debt. For the same reasons, this effect is likely to reduce the cost of equity, thereby achieving a potentially meaningful reduction in the weighted average cost of capital (WACC) and a corresponding increase in value creation spreads.

So, great news for the issuer. However, it is also potentially fantastic news for investors. This type of "transition bond" allows investors to invest in something that may not yet be fully green (and indeed may be positively brown), to effectively engage, to drive transformation and transition, and arguably to claim additionality on their investment — something that is key in an investment world where impact is becoming the word of the day.

Green bonds and social bonds must have specific use of proceeds and the issuing entity needs to report on the usage of that capital for the specified purpose (and have its reports audited to achieve full accreditation). A less obvious, but equally important fact about SLBs/KPI-linked bonds however, is that the proceeds can be used for general corporate purposes — which is in our opinion truly seismic. It means that if a company is transforming itself into a genuinely sustainable business overall, it can raise group level capital without restrictions on use, so long as the market buys into that overall strategy. It can also potentially reduce its WACC at the same time, as above.

So what does all of this have to do with poverty? Quite simply, if as discussed earlier, the vast quantities of capital in financial markets that is looking to invest sustainably is struggling to find appropriate financial vehicles/instruments, then targeted social or sustainability-linked bonds could offer an attractive solution for the providers of capital, as well as those seeking to access it. While this is true for corporates, it is equally true for sovereigns. We have seen significant growth in the issuance of sovereign social bonds to fund COVID-19-related expenditure, but these can equally be applied to poverty-related projects and indicators discussed earlier.

The key here for investors is the drive to demonstrate “additionality” — a concept born from the field of climate change and carbon offsets, but which is now being applied more generally in terms of sustainability. In short, for a carbon offset to be “genuine,” it has to demonstrate so-called additionality, in that the project that the offset is funding would not have been built anyway, and that by its construction, it would lead to an additional reduction in carbon emissions versus had it not been built. With the rise of ESG, investors are coming under increasing pressure not just to demonstrate financial returns, but also to demonstrate how they generated those returns — with some societal or environmental benefit, or at the very least, adhering to the “do no harm” mantra. Moreover, investors are being increasingly asked to report on those impacts, and a common frustration is the lack of available or suitable metrics with which to demonstrate the impact.

Accordingly, social bonds and SLBs offer an enormous opportunity to help fund the type of projects and investment programs which could reduce the incidence of, and even eradicate, poverty in specific locations.

So why the focus on SLBs? Simply because KPIs offer the opportunity to target the use of a bond against a particular metric — potentially one of those discussed earlier as an element of an MPI — to report on the progress and to tie the cost of that bond to its performance. It also offers the possibility (depending on a huge number of variables) for sovereigns to access a potentially lower cost of capital. If the KPI is meaningful in terms of what it targets, its achievement could result in lower economic and sovereign risk (and potentially greater growth via the multiplier effect), and hence a lower cost of capital. More generally, while sovereigns do not have “equity” in a formal sense, as highlighted earlier issuing a KPI-linked bond can demonstrate a genuine willingness to address these issues, which could lead to lower overall financing costs, and indeed changes to attractiveness for foreign direct investment (FDI).

Clearly KPI-linked bonds do not overcome the issues raised earlier regarding the mismatch between the risk appetite of sustainable capital and the risk profile of sustainable projects in one fell swoop. However it does offer potential, by signaling the desire to improve social and hence economic backdrops alongside demonstrating the additionality, which so many investors now crave and which will help to pull in capital.

Choosing the Right Key Performance Indicator

While KPIs might be more obvious for certain types of corporates — from the percentage of renewable energy use for a utility, to percentage of electric vehicle production for an auto manufacturer, or packaging use for retail — they are no less present for sovereigns. Can we have sovereign bonds linked to improvements in gender equality, or literacy and education, or perhaps both, looking at say the proportion of women in higher education? Or can we move from the social to the physical, addressing metrics such as access to clean water and sanitation, or electricity or clean cooking fuels. Housing? Healthcare? The list goes on, and the potential to drive societal progress in both developed and developing economies is enormous. If we revisit our summary table from earlier, and combine it with the specific indicators in the OPHI/UNDP Global MPI, it perhaps now takes on a greater significance — telling us how much to raise, what to target it towards, and which indicator to use as a KPI for a sustainability/KPI-linked bond.

Figure 42. Examples of Potential KPIs for Use in an MPI, with Human/Financial Opportunity and Multipliers
A sample worksheet combining how much to raise, what to target it towards, and which indicator to use as a KPI

	Human Cost: Independent Global Data (mn people)	Human Exposure Among Poor: Global MPI Data (mn people)	Financial Cost: Citi GPS UN SDG ($ bn per year)	Example MPI Indicator / KPI	Current Value	Target Value	Multiplier
Education	773	635/481*	340	% children completing six years of education / Adult literacy rates			2.4x
Health							
Nutrition	765	788*	198	% of population undernourished			7.2x
Child mortality	48	152*		% children dying younger than 5 years of age			
Access to Healthcare	1,000		328	% of population without access to basic healthcare			4.3x
Standard of Living							
Electricity	771	678	35	% of population with access to electricity			3.2x
Cooking Fuels	2,650	1,174		% population with access to clean cooking fuels			
Water & Sanitation	2,000	568/1,018	79	% access to clean water and basic sanitation			5.5x
Housing	3,000	1,023	650	% of population in adequate housing			2.1x
Assets		550					
Average							4.1x
Total			1,631**				

* Global MPI data for Education and Health refer to the number of people living in a household where at least one household member is deprived in that indicator.
** Total spend of $1.6 billion differs from calculated expenditure in Citi GPS report on UN SDGs ($2.3 billion) due to differing scope.
Source: Citi GPS *UN Sustainable Development Goals*; Citi Global Insights, Alkire, S., Kanagaratnam, U. and Suppa, N. (2021)/Oxford Poverty and Human Development Initiative, University of Oxford; United Nations; UN FAO; WHO; Stenberg et al; IEA; UN-Habitat; AlphaBeta for the Business and Sustainable Development Commission

Furthermore, we could also consider the localized multiplier effects, look at the economic benefits if we are successful, equate that to lower levels of sovereign risk, and use it to inform us of the potential scale of the basis point step-up to be applied to a KPI-linked bond if the investment is unsuccessful.

As before, the SDGs can be used as a roadmap, especially given that most nations produce a report laying out their own performance against SDG targets. Indeed, there are some centrally-produced analyses, which could easily provide a roadmap for which aspects a country is most “behind” on and hence may want to target. Our own Citi GPS report on the UN Sustainable Development Goals provides a framework for aligning investment with the SDGs, and is just as appropriately used from the other perspective, i.e., those attempting to raise capital, identifying what should be tackled by private capital, and what should be the preserve of the public sector.

Again, improving most of these SDG-related aspects is likely to make a country more attractive for inward foreign investment and, similar to corporates, can reduce the cost of borrowing and bring more projects into financial viability, among other benefits. Why should we stop at countries? Why not issue a sustainable cities transition bond, based on the many opportunities we highlighted in our Citi GPS report on *Sustainable Cities*? Or how about supranationals?

So who stands to lose? If approached responsibly, it is hard really to see who would lose out from the issuance of transition bonds. The wrong and differing KPIs across multiple bonds might cause incompatibility, particularly where longer durations are concerned, and might bind future administrations or management teams to targets that are no longer appropriate, or where a company or government has realigned its activities. We should also be aware of the ever-present danger of greenwashing, by issuers attempting to gain lower-cost, longer-term capital, for a change that they have little real desire to address in the short term. This highlights the aforementioned importance of aligning credible and material longer-term stretch goals and shorter-term milestone targets, and reporting on them with audited results.

Clearly the risk of default at a sovereign level, particularly in emerging markets, remains an ever-present risk. However, the developments addressed earlier, in conjunction with an appropriate use of blended capital, should help to at least ameliorate, if not completely overcome, these hurdles for private capital. In short, if the use of proceeds or the KPIs are right, and the financing structure is right, there are investors with vast quantities of capital looking to invest sustainably (indeed their very raison d'etre is to do just that), but struggling to find appropriate vehicles to deploy that capital. The beauty of MPIs, is that they can potentially highlight which metrics a government (or company) should focus on first for arguably the greatest overall progress socially and economically — and this metric almost by definition (if it is going to have the highest impact on boosting economic growth and reducing risk) forms the perfect KPI for a sustainability or KPI-linked bond. The use of metrics also helps with the reporting side of accessing this type of capital and for investors in demonstrating additionality.

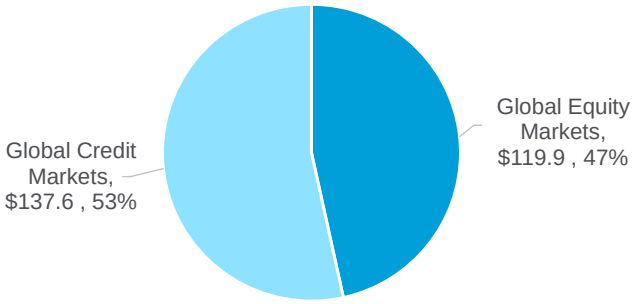
Despite these risks (which could apply to any investment), transition bonds offer enormous potential positives for all players. Companies that may otherwise have been viewed as unsustainable can retain access to mainstream capital so long as they offer a credible transition story and investors looking to invest sustainably can gain a larger and more liquid investment universe, effectively opening up the market to mainstream capital, with investors also getting to potentially demonstrate additionality. If approached correctly, we should also see systemic improvements across a broad range of sustainability-related areas, be they environmental, social, or more broadly sustainability related.

Clearly considering the multiplier effect, the correct choice of appropriate KPI can make material impact to the economic growth outlook of a country, and hence its ability to repay borrowings (and hence the cost of that capital).

The Rise of ESG in Sovereign Credit

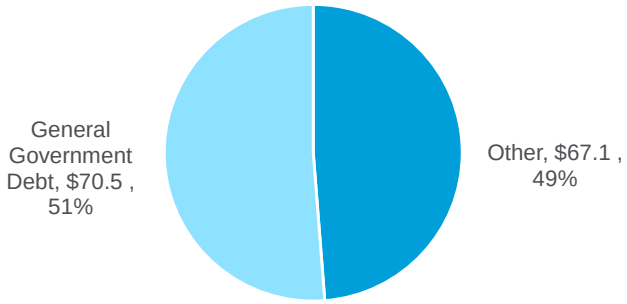
As the charts below show, fixed income markets globally are 12% larger than global equity markets, and within that, government credit forms the largest single asset class, representing 51% of fixed income securities.

Figure 43. Global Equity and Credit Markets, ($trn, as at June 2021)



Source: BIS, Global Federation of Exchanges

Figure 44. Sovereign Credit Forms the Largest Portion of Global Fixed Income Markets ($ trn, as at June 2021)



Source: BIS

Despite the significance of the sovereign credit market, it is remarkable that the sovereign space is arguably the furthest behind in the adoption of ESG integration (with equity furthest ahead, followed by corporate credit, with sovereign debt bringing up the rear).

What we are effectively saying is that the largest asset class of instruments, in the largest segment in financial markets, is perhaps the furthest behind in incorporating ESG factors into analysis. This may be due to the lack of availability of data or it being out of date, the complexity of entire national economies (versus the focus of a corporate), or a more limited universe of issuers.

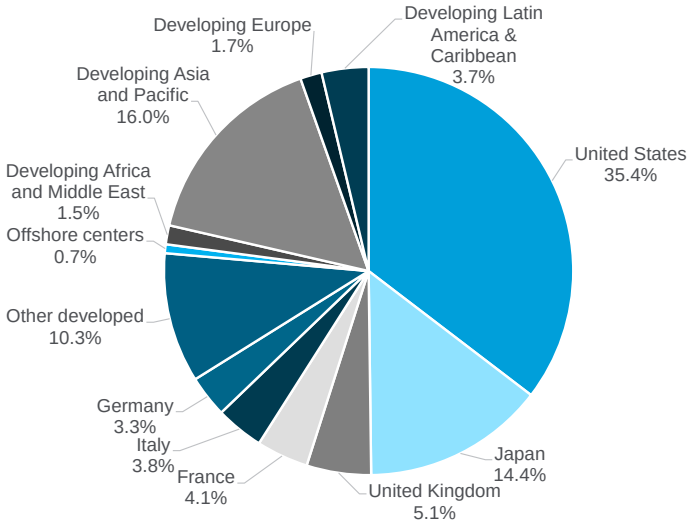
A study in 2019 by the Principles for Responsible Investment (PRI), *A Practical Guide to ESG Integration in Sovereign Debt*, found that investors generally felt that "governance" was the most important of the three ESG factors when investing in sovereign credit, perhaps unsurprisingly, given the significance of corruption, political stability, ease of doing business, and rule of law.[92] This was followed by "social factors," encompassing as it does human capital, education, wealth, (in)equality, and health, all of which clearly have an impact on social cohesion, not to mention the level of economic activity. However, the "E" for "environmental" has traditionally been less focused on in sovereign credit — though we suspect that with the UN Climate Change Conference (COP26), in particular Article 6, alongside growing global trade tensions, and the potential introduction of carbon border adjustment mechanisms (CBAMs), this may be about to change.

In summary, if sovereigns represent the largest segment of the largest asset class, and investors are now more universally applying ESG screening to their portfolios, it seems hard to argue that ultimately they will not have to report, and potentially act on, some of these considerations. Sure, it is quite possible that the world applies slower pressure on emerging markets to reform socially or improve social conditions, but ultimately as investors report on portfolios, it may become harder, more expensive, or ultimately impossible to provide capital to sovereigns where efforts are not being made to improve social factors and eradicate poverty.

[92] Principles for Responsible Investment, *A Practical Guide to ESG Integration in Sovereign Debt*, 2019.

This perhaps takes on even greater significance when we consider that within sovereign credit there is a far smaller universe of issuers versus, for example, corporates, which makes it very important for indexing considerations — and harder for investors to ignore.

Figure 45. Geographic Breakdown of General Government Fixed Income Issuance Outstanding, International and Domestic (as at June 2021)



Note: Data adjusted to incorporate international and domestic debt for smaller countries which for non-BIS submitted data may include some double counting, with maximum margin of error vs. verified BIS totals of 9.5%
Source: BIS, Citi Global Insights

As Figure 45 shows, developed markets dominate government debt issuance, with developing markets, where the Global MPI and its indicators are better suited to capture acute poverty, only representing around 22% of government-issued credit, (and China alone representing half of this figure). However, we see this as an opportunity rather than an impediment. Existing emerging market government issuance still amounts to some $15 trillion of issuance — no trifling amount — and as discussed, appropriate use of an MPI potentially offers the opportunity to allow emerging markets to access credit markets (in particular sustainability-focused capital) with more targeted instruments based on appropriate KPIs.

In summary, it seems highly unlikely that as reporting mandates become ever more stringent with regard to sustainability at a portfolio level, the same pressures that have driven changes in corporate behavior will not ultimately affect sovereign access to capital and the cost of that capital. Accordingly, an enormous opportunity presents itself — to open up entirely new asset classes to the trillions of dollars of sustainable capital looking for a home, which can deliver attractive financial returns, while achieving undoubtedly positive social impacts for millions of people living in poverty, in all of its forms, around the world.

Summary

Multidimensional poverty indices are undoubtedly important in understanding how someone is in poverty, as well as the depth of their poverty. This is hugely important in understanding what we should tackle, and in what order, in our efforts to eradicate that poverty.

Moreover, MPIs also offer enormous benefits in terms of raising the capital which is inevitably needed to tackle these issues. If we can quantify the scale and breadth of a particular problem, we can quantify what we would need to invest to fix it. More importantly, we can target that capital towards a specific problem, making it potentially easier to raise.

MPIs inherently contain metrics that lend themselves perfectly to these targeted investments, be they social, sustainability, or green bonds. In particular, the advent of the sustainability or KPI-linked bond offers enormous potential for sovereigns to specifically target improvements in an individual metric from their MPI. With the correct choice and materiality of KPIs, it has the potential to portend lower future risk/higher economic growth, and potentially bring forward lower borrowing costs.

The money is there, some $35 trillion of it, and it wants to invest sustainably. For most asset managers, the most common complaint in ESG is the inability to deploy their capital given the lack of appropriate investment vehicles. Accordingly, KPI-linked sovereign (and indeed corporate) bonds offer investors the potential to more easily target investments to improve social outcomes, and importantly, to be able to quantify the additionality (impact) of those investments, and to correspondingly report on it to the ultimate providers of capital.

So this is the carrot — but the stick also looms in the future. As we have seen, sovereign credit might be furthest behind in terms of ESG integration, but as the largest asset class in the largest market, it seems unlikely that the same ESG pressures on investing and reporting will not ultimately sweep across to sovereign credit. As we have seen with corporate equity and credit, some sectors are now all but uninvestable due to their credentials, and others are being penalized in terms of the cost of capital — while those embracing positive transition strategies have renewed, and possibly cheaper, access to capital.

If a sovereign shows little interest in improving social conditions contained in an MPI, or seems willing to tolerate certain conditions while focusing on others that may be deemed to be less important, it may well be that in the future investors will have to ask even more questions about whether they can justify being invested in that country, since they are financing that program, which would appear to signify (if only in a passive sense) tacit approval of that program. Taking an extreme example — should we knowingly provide capital to finance a new defense/missile program, while half the country cannot read, or does not have enough to eat? And how will we report on that to our ultimate capital providers, in terms of what we have achieved with their capital?

So, a well-constructed MPI can not only shine a light on key deficiencies, it can help us understand what we should target first and how much it might cost to fix, as well as help us to raise targeted capital to solve the issue. It also helps us understand via multiplier effects, how the impacts from that capital might ripple through the economy, driving further growth and benefits, thereby highlighting to us how much risk, and hence the cost of capital might reduce. This would help in reducing borrowing costs. If we then use the element of the MPI as the metric in a KPI-linked bond targeted at fixing the root cause of poverty, we can arguably bring forward that lower cost of capital, and allow investors to demonstrate the impact of their investments.

In short, if we tackle the challenge correctly, a critical MPI element has the potential to become not just the jailor for those unlucky enough to be held captive by it, but also their redeemer.

Conclusions

As this report has hopefully demonstrated, poverty is not a small issue impacting a limited number of people in very concentrated areas of the world. It affects billions of people around the world and in very different ways. For this reason, a more granular approach to understanding poverty is required, which encapsulates specific areas of deprivation, such as access to education, health, nutrition, energy, water, sanitation, and housing, rather than just focusing on traditional, one-dimensional approaches related to monetary deprivation.

A multidimensional approach, such as the MPI derived from the Alkire-Foster methodology, can capture elements that are pertinent to a particular location or population and can provide this granularity. Beyond just understanding, it can achieve so much more by facilitating the development of programs targeting the specific manifestations of poverty in a given location or population, which is inevitably going to be more efficient, and not to mention cost effective, than blanket plans to tackle poverty eradication. This efficacy is borne out by the numerous case studies highlighted in this report, which are not the sole preserve of national governments. As we have seen, the methodology can be used just as effectively by the private sector.

There must be investment behind any targeted programs designed to tackle the root causes of these deprivations, and it is here that the rise of responsible and sustainable investment offers enormous opportunities. There are vast sums of capital that are now looking to invest sustainably and in line with the United Nations Sustainable Developments Goals, yet a common frustration is the lack of appropriate financial vehicles and instruments through which to deploy this capital. Blended finance offers enormous potential to mobilize developed market capital into emerging markets where the bulk of poverty-related issues reside.

Moreover, the advent of innovative financial instruments — such as social and sustainable bonds, and in particular sustainability-linked (or KPI-linked) bonds — offers the opportunity to target specific areas of deprivation, potentially by using a particular metric from an MPI. Investment managers increasingly wish, and are being required, to report to regulators and the ultimate providers of capital, beyond financial returns, on what they are achieving with the capital under their management. It is here again that targeted programs to reduce or eradicate poverty could provide the “additionality” and impact that investors seek, and moreover could provide the perfect metrics for them to monitor progress, and to report on the impact of their investments.

Boardrooms have been adopting climate goals, with encouragement from investors. We expect they will also have to adopt social goals soon. The MPI methodology can be a powerful took in directing investment to the poorest using an evidence-based, high impact, and strategic tool.

We hope this report has also demonstrated that we should not view the eradication of poverty as an undeniably noble goal, or one that would come at enormous cost. We should rather view it as an enormous investment opportunity running to trillions of dollars per year, with each investment — beyond the obvious and immeasurable human and social benefits —offering economic multiplier effects of, in some cases, more than five times.

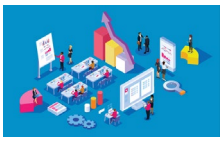
The need has always been clear; but now the capital is there, the will is there, and alongside financial innovation, MPIs can provide the understanding that will allow that capital to be directed to where it is needed most. With the planets of finance, innovation, and understanding aligning, we have an unprecedented opportunity to improve the lives of billions of people around the world — an opportunity that we have a duty to seize both morally and economically, if we are to truly usher in a new era of responsible finance.

Citi Global Perspectives & Solutions (Citi GPS) is designed to help our clients navigate the global economy's most demanding challenges, identify future themes and trends, and help our clients profit in a fast-changing and interconnected world. Citi GPS accesses the best elements of our global conversation and harvests the thought leadership of a wide range of senior professionals across the firm.

All Citi GPS reports are available on our website www.citi.com/citigps

Global Supply Chains
The Complicated Road Back to "Normal"
December 2021

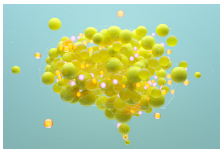
Philanthropy and the Global Economy
Opportunities in a World of Transition
November 2021



Education: Learning for Life
Why L&D is the Next Frontier in Global Education
November 2021

Home of the Future
Building for Net Zero
October 2021

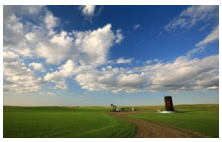
Global Carbon Markets
Solving the Emissions Crisis Before Time Runs Out
October 2021



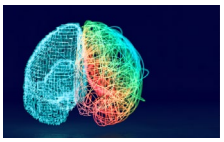
Disruptive Innovations VIII
Ten More Things to Stop and Think About
October 2021

Holistic Digital Policy
Nation States Must Lead in Building Equitable Human-Centric Digital Economies
October 2021

Biodiversity
The Ecosystem at the Heart of Business
July 2021



Natural Gas
Powering Up the Energy Transition
July 2021



Technology at Work v6.0
The Coming of the Post-Production Society
June 2021

Hard to Abate Sectors & Emissions
The Toughest Nuts to Crack
May 2021

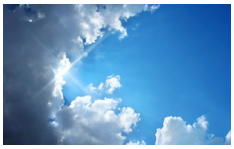
Future of Money
Crypto, CBDCs and 21st Century Cash
April 2021

Systemic Risk
Systemic Solutions for an Interconnected World
April 2021

Bitcoin
At the Tipping Point
March 2021

Financing a Greener Planet
Volume 1
Volume 2
February 2021

Electric Vehicle Transition
February 2021



Investment Themes in 2021

January 2021

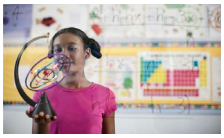
The Global Art Market and COVID-19

Innovating and Adapting

December 2020

Education: Fast Forward to the Future

October 2020



The Holistic Case for Investment in Girls

October 2020

Closing the Racial Inequality Gaps

September 2020

Negative Interest Rates

Where Is the Real Limit to Cheap Money?

July 2020

ePrivacy & Data Protection

Data Privacy & its Influence on AI Ethics, Competition & Tech Evolution

July 2020

Technology at Work v5.0

The New Normal of Remote Work

June 2020

5G and Mobile Operators

Is Virtual Becoming Real?

April 2020

Closing the Loop on Global Recycling

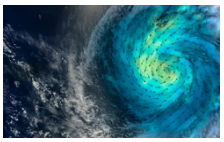
Finding a Global Solution to the Patchwork of Recycling

February 2020

Disruptive Innovations VII

Ten More Things to Stop and Think About

February 2020



Building a TCFD With Teeth

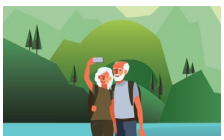
What the Markets Need to Price Climate Risk

February 2020

Banking the Next Billion

Digital Financial Inclusion in Action

January 2020



Experiential Commerce

A Brave New World

January 2020

Investment Themes in 2020

January 2020

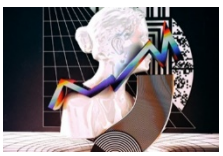
Corporate Finance Priorities 2020

January 2020

Car of the Future v4.0 – 2020 Update

The Race for the Future of Networked Mobility

January 2020



The Global Art Market

Drivers of Evolution

December 2019

Education: Power to the People

Exploring Opportunities for Private Capital in Education

November 2019

Digitizing Governments

The Journey to Enacting a Digital Agenda

October 2019

If you are visually impaired and would like to speak to a Citi representative regarding the details of the graphics in this document, please call USA 1-888-800-5008 (TTY: 711), from outside the US +1-210-677-3788

IMPORTANT DISCLOSURES

NOW / NEXT

Key Insights regarding the future of Eliminating Poverty

POLICY

Using a single monetary measure of poverty such as the World Bank's International Poverty Line of $1.90 delivers a forecast of that some 700 million people around the world still live in extreme poverty. / Using a multidimensional poverty index, expands the measures of poverty and can help policymakers target the underlying causes in order to alleviate the issue of poverty.

SHIFTING WEALTH

Poverty reduction has been significant over the past 30 years with the reduction of extreme poverty recognized as one of the biggest success stories of global development. / The COVID-19 pandemic threatens to unravel decades of progress in poverty reduction and it is more important than ever that concerted efforts are made to get the world back on track to eradicating poverty.

GLOBAL REACH

Globally, tens of trillions of dollars are looking to invest with positive impact, but capital is not getting to where it is needed because of a mismatch of risk appetite. / Sustainability-linked bonds using key performance indicators derived from a Global Multidimensional Index could offer an attractive solution to matching capital with need.