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Multidimensional Poverty and COVID-19 Risk Factors: A Rapid Overview of Interlinked Deprivations across 5.8 Billion People

Sabina Alkire, Jakob Dirksen, Ricardo Nogales, and Christian Oldiges
Oxford Poverty and Human Development Initiative (OPHI), University of Oxford

NOTE

This Briefing[1] presents a 2020 global MPI update to the 2019 global MPI analyses and results as presented in OPHI Briefing 53, 'Multidimensional poverty and COVID-19 risk factors: A rapid overview of interlinked deprivations across 5.7 billion people', OPHI, 2020. We include updated data and results for 878 million people in 21 countries.

Multidimensional poverty data and measurement are key allies in confronting the threat posed by the COVID-19 pandemic. Formulating an effective response to this global crisis requires an understanding of the overlapping deprivations faced by people around the world, deprivations that can result in increased vulnerability to COVID-19.[2] The global Multidimensional Poverty Index (MPI) provides clear, immediate evidence of these interlinked deprivations, making interventions more effective, high impact, and durable.

This briefing uses data from the global MPI database for 2020 and covers 103 countries and 5.8 billion people to show at a glance critical facts for the COVID-19 response.[3] The key messages are:

- Deprivations overlap. Of the 1.3 billion people who are poor according to the global MPI, 99% are deprived in three or more indicators and 82% are deprived in at least five indicators.

- Deprivations in water, nutrition, and cooking fuel indicate a high risk from COVID-19 in terms of hygiene, weakened immune systems, and respiratory conditions. Around the world, 435 million people are simultaneously experiencing a lack of access to safe drinking water, indoor air pollution, and undernutrition in their household.

- In sub-Saharan Africa, 55% of the population is MPI poor, and 487 million are deprived in water.

- In South Asia, 29% of the population is MPI poor. There are 630 million people deprived in nutrition. Of these, 484 million are deprived in at least two additional indicators and more than half (55%) are deprived in at least three additional indicators.

- In Latin America, 138 million people are at risk from COVID-19 – deprived in at least one of the risk indicators.

COVID-19 RISK AND THE GLOBAL MPI

The global MPI captures the overlapping deprivations that poor people experience across ten indicators in the dimensions of education, health, and living standards. These indicators (see Figure 1) also provide leading, timely information about risks and vulnerabilities related to COVID-19.[4] **Undernutrition** is associated with immunodeficiency, morbidity, and mortality – particularly among children, older persons, and those affected by acute respiratory infections.[5] The global MPI captures households with at least one member who is identified as undernour-

ished by a low body mass index (adults) or as stunted or underweight (children under the age of 5). Lack of access to safe **drinking water** is associated with immune deficiencies, undernutrition, morbidity, and mortality.[6] The global MPI captures individuals who do not have access to safe drinking water according to Sustainable Development Goal (SDG) standards. Solid or unclean **cooking fuel** is associated with indoor air pollution, which is related to much of the global disease burden – including respiratory infections.[7] The global MPI captures those who are likely to be affected by indoor air pollution in their homes. Taken together, these indicators and their joint distribution make visible gradients of vulnerability to more severe coronavirus and other diseases.[8]
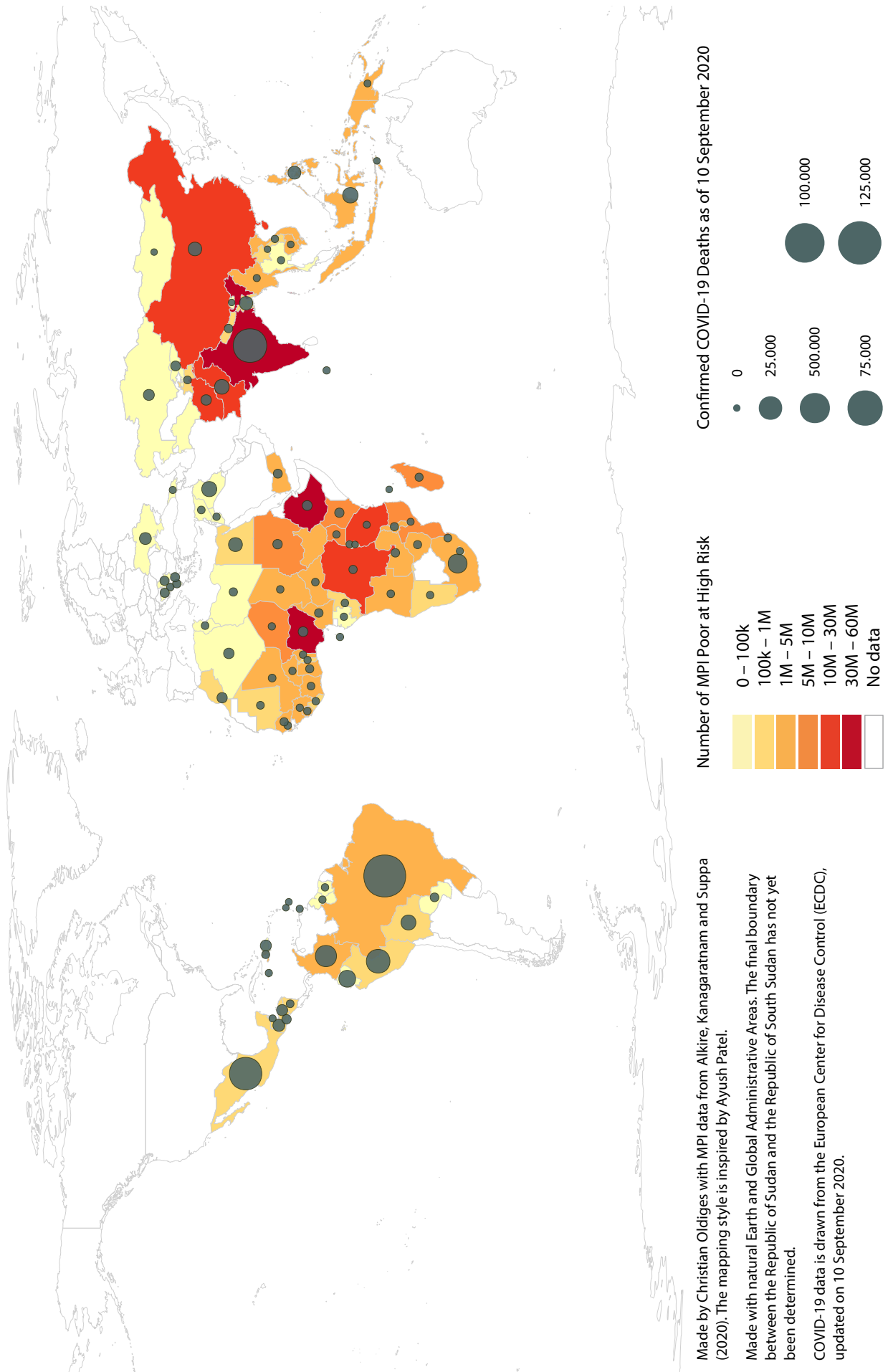
The COVID-19 pandemic is truly global. The countries that are in dark red or red on the map in Figure 2 are those where the numbers of MPI poor who have all three COVID-19 risk indicators considered here are the highest. The dark green circles indicate where confirmed deaths from COVID-19 have spread so far and are proportional in size to the number of confirmed COVID-19 deaths. Across the world, the ten countries with the most

Figure 1. Structure of the global MPI
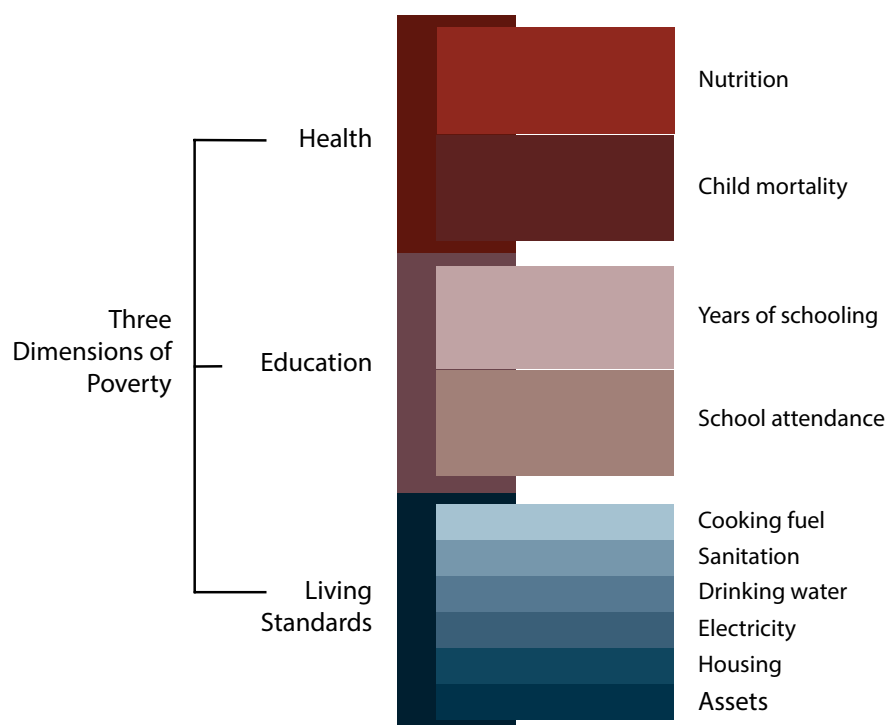
Source: OPHI (2018).

Figure 2. Number of people who are MPI poor and are at high risk from COVID-19 (red) with number of COVID-19 deaths (dark green)

Made by Christian Oldiges with MPI data from Alkire, Kanagaratnam and Suppa (2020). The mapping style is inspired by Ayush Patel.

Made with natural Earth and Global Administrative Areas. The final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined.

COVID-19 data is drawn from the European Center for Disease Control (ECDC), updated on 10 September 2020.

Number of MPI Poor at High Risk

0 – 100k
100k – 1M
1M – 5M
5M – 10M
10M – 30M
30M – 60M
No data

Confirmed COVID-19 Deaths as of 10 September 2020

0
25.000
500.000
75.000
100.000
125.000

people who are highly vulnerable to COVID-19 according to these three indicators are China (74 million), India (63 million), Ethiopia (40 million), Nigeria (36 million), Democratic Republic of Congo (24 million), Indonesia (16 million), Afghanistan (13 million), Pakistan (12 million), Tanzania (12 million), and Uganda (9 million).

I. MULTIPLE DEPRIVATIONS

Of the 1.3 billion people who are MPI poor – meaning that each person is deprived in at least one-third of the dimensions at the same time – fully 99% are deprived in three or more indicators. Eighty-two per cent of MPI poor people face at least five deprivations simultaneously. So risk from COVID-19 is not the only life struggle they must confront.

Considering the nature of multidimensional poverty – i.e. the experience of facing multiple deprivations simultaneously – the global MPI database can be used to gauge the number of poor people who are at immediate risk of suffering from COVID-19, on top of pre-existing life struggles. They are among those who should take highest priority.

II. COVID-19 RISK FACTORS: UNSAFE WATER, UNDERNUTRITION, INDOOR AIR POLLUTION

Among the ten MPI indicators, a lack of access to clean drinking water, undernutrition, and no clean cooking fuel put people at risk for COVID-19. This briefing presents the joint distribution of these three underlying COVID-19 risk conditions.

Population in the developing world

- **3.6 billion** people or 62% of the 5.8 billion people living in the 103 countries analysed here are affected by at least one COVID-19-related deprivation. They are **'at risk'.**

- Fully **435 million** people are deprived in all three COVID-19 risk indicators **at the same time.** They are at **'high risk'.**

MPI poor population in the developing world

- Almost all (98%) of the **1.3 billion** people who are multidimensionally poor according to the global MPI face at least one risk indicator.

- Among them, **336 million** people are at **high risk**, as they face all three risk indicators simultaneously.

- Over four out of ten MPI poor people who are at high risk (44%) are deprived in seven or more of the ten global MPI indicators (including all three risk factors).

- **216 million** are at high risk from COVID-19 and face severe multidimensional poverty - they are deprived in at least half of the ten global MPI indicators.

Deprivations in nutrition, water, and indoor air pollution

The global pandemic requires prioritisation and targeted responses. The people most at risk and in need of targeted policy responses are those facing several simultaneous deprivations.

Figure 3 depicts the 435 million people at high risk on the left-hand side. The height of each stripe shows the number of people who experience all three risk indicators plus the number of additional deprivations. Nearly 84% of them have one or more additional deprivation. Most experience four (76 million) or five (69 million) additional deprivations, on top of all three COVID-19 risk factors. Among those who are multidimensionally poor, over 137

million are at high risk from COVID-19 and deprived in seven or more of the ten global MPI indicators. Around three out of four of those who are severely multidimensionally poor and at high risk from COVID-19 experience at least seven overlapping deprivations.

III. REGIONAL PATTERNS OF MPI AND COVID-19

Table 1 shows COVID-19 risk and multidimensional poverty across six world regions. Key findings are:

- 1.3 billion people in South Asia face at least one COVID-19 risk factor – they are at risk.

- 521 million people in South Asia and 556 million people in sub-Saharan Africa are MPI poor and at risk of COVID-19 (affected by at least one COVID-19 risk condition).

- Sub-Saharan Africa bears the highest burden: almost 90% of the population, 899 million people, are affected by at least one COVID-19 risk indicator.

- In sub-Saharan Africa, 202 million people are MPI poor and at high risk from COVID-19, suffering from all three underlying COVID-19 risk conditions.

Figure 3. High-risk persons (in millions) and their additional deprivations
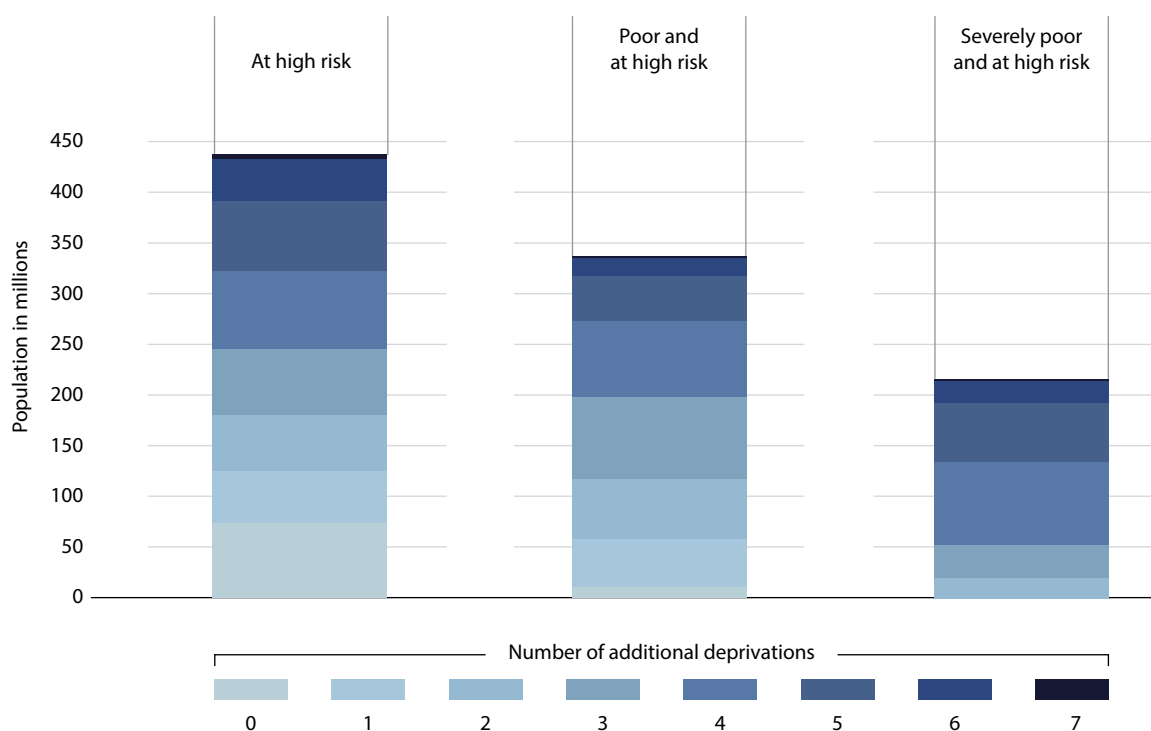
Note: Population figures are based on 2018 UN DESA population estimates.

Source: MPI data computed by Alkire, Kanagaratnam, and Suppa (2020).

Table 1. MPI and COVID-19 risk across world regions

	Population*	At risk	At high risk	MPI poor and at risk	MPI poor and at high risk	MPI severely poor and at risk	MPI severely poor and at high risk
Arab States	335.432	112.101	12.586	48.053	11.873	23.079	9.319
	33.4%	3.8%	14.3%	3.5%	6.9%	2.8%
East Asia and the Pacific	2,057.124	1,117.873	114.423	105.493	32.749	20.443	7.584
	54.3%	5.6%	5.1%	1.6%	1.0%	0.4%
Europe and Central Asia	112.548	23.176	0.307	1.043	0.175	0.088	0.041
	20.6%	0.3%	0.9%	0.2%	0.1%	0.0%
Latin America and the Caribbean	520.707	138.093	13.319	34.186	7.608	9.232	3.385
	26.5%	2.6%	6.6%	1.5%	1.8%	0.7%
South Asia	1,792.785	1,317.264	89.756	520.829	81.843	186.498	37.407
	73.5%	5.0%	29.1%	4.6%	10.4%	2.1%
Sub-Saharan Africa	1,012.588	899.037	204.387	555.788	201.899	333.502	158.160
	88.8%	20.2%	54.9%	19.9%	32.9%	15.6%
World	5,831.185	3,607.544	434.777	1,265.391	336.146	572.843	215.896
	61.9%	7.5%	21.7%	5.8%	9.8%	3.7%

∗ All population figures are presented in thousands and are based on 2018 UN DESA population estimates.
∗∗ Percentages show regional population shares across countries in the global MPI.

Source: Authors' computations based on global MPI data computed by Alkire, Kanagaratnam, and Suppa (2020).

- 158 million people in sub-Saharan Africa experience severe multidimensional poverty (deprived in at least half of the global MPI dimensions) and are at high risk from COVID-19.
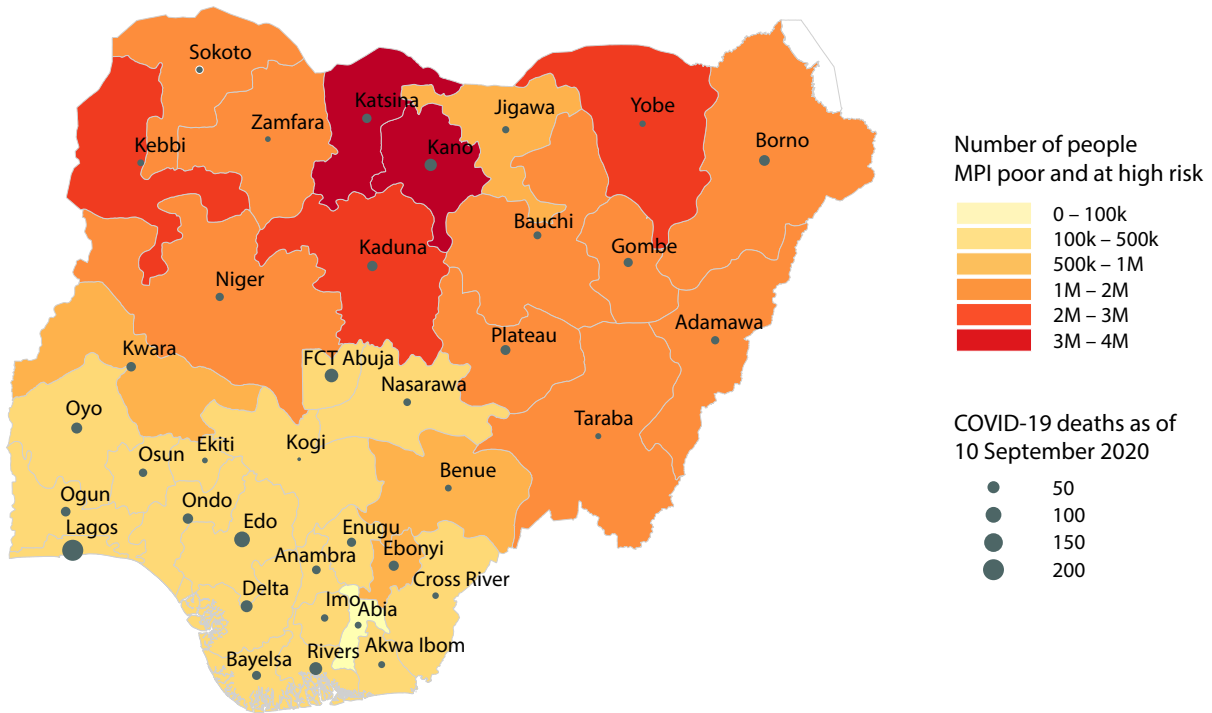
IV. DISAGGREGATION WITHIN COUNTRIES: THE CASE OF NIGERIA

With a population of almost 200 million, Nigeria is the most populous country in Africa. According to monetary poverty measures ($1.90 a day), Nigeria accounts for the second highest number of poor people globally, only after India. In terms of the global MPI, about 91 million people in Nigeria are multidimensionally poor (see Figure 4). Zooming into the COVID-19 indicators, around 36 million people are multidimensionally poor and also deprived in all three risk indicators: nutrition, water, and cooking fuel. This large number of poor people – nearly equivalent to the population of Canada – is at high risk of suffering the most from the COVID-19 pandemic. Across

the 37 Nigerian States, some bear the highest brunt. Almost 4 million people in Kano State (3.9 million) alone are multidimensionally poor and at high risk, just as in Katsina (3.8 million). At the time of writing, confirmed COVID-19 deaths have been reported for every region, with the highest figures recorded for the southern states of Lagos (204) and Edo (100). While another southern state (Rivers) follows with 59 COVID-19 deaths, the poorest northern state (Kano) has recorded 54 deaths, at the time of writing.

A fear is that COVID-19 will hit the poorest states of northern Nigeria, such as Kaduna State, which is home to 2.5 million people who are at high risk, hardest.

Figure 4. Nigerian states: Number of people who are MPI poor and are at high risk from COVID-19 with COVID-19 cases (confirmed infections)

Number of people
MPI poor and at high risk

- 0 – 100k
- 100k – 500k
- 500k – 1M
- 1M – 2M
- 2M – 3M
- 3M – 4M

COVID-19 deaths as of
10 September 2020

- 50
- 100
- 150
- 200

The map is constructed by Christian Oldiges using MPI data computed by Alkire, Kanagaratnam, and Suppa (2020) based on Nigeria Demographic and Health Survey 2018.

The mapping style is inspired by Ayush Patel with underlying shape-file from the Demographic and Health Surveys Program (2020).

COVID-19 data is from the *Nigeria Center for Disease Control (NCDC)*, accessed on 10 September 2020.

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WHAT WE MEASURE

THE GLOBAL MPI

The global Multidimensional Poverty Index (global MPI) is a measure of acute multidimensional poverty based on household surveys. Complementing traditional monetary poverty metrics, it captures the overlapping deprivations that poor people experience across ten indicators in the three dimensions of education, health, and living standards.

THE GLOBAL MPI IN SUB-SAHARAN AFRICA

The full 2020 global MPI database covers 5.9 billion across 107 countries. It offers readily available data that can be used now to shed light on how people across the continent suffer from deprivations that may make them more vulnerable to COVID-19. The joint distribution of such deprivations makes visible how the same person may be simultaneously affected by multiple COVID-19 risk indicators. The global MPI data help to identify subgroups that are both MPI poor and simultaneously affected by COVID-19 risk indicators – which ultimately helps policymakers to ensure that no one is left behind.

THREE COVID-19 RISK INDICATORS: NUTRITION, DRINKING WATER AND COOKING FUEL

Severe Acute Respiratory Syndrome Coronavirus 2 (SARSCoV2), the virus that causes Coronavirus Disease 19 (COVID-19), is at the root of the pandemic. Certain population subgroups are expected to be particularly vulnerable to suffering more severe symptoms and be at greater risk of dying if they contract the virus.[9]

Among its poverty indicators and associated information platform, the global MPI includes three indicators that can be readily deployed to indicate whether or not a household may include members who are more vulnerable to COVID-19. **Undernutrition** is associated with immunodeficiency, morbidity, and mortality – particularly among children, older persons, and those affected by acute respiratory infections.[10] Through the nutrition indicator, the global MPI captures households with at least one undernourished member, i.e. a child under 5 years of age who is stunted or underweight, or any other person with a low body mass index. Lack of access to safe **drinking water** is associated with immune deficiencies, undernutrition, morbidity, and mortality.[11] The **drinking water** indicator in the global MPI captures individuals who do not have access to safe drinking water according to SDG standards. Solid or unclean **cooking fuel** is associated with indoor air pollution, which is related to much of the global disease burden – including respiratory infections.[12] The Centers for Disease Control and Prevention identify those with preexisting respiratory infections as another possible COVID-19 high-risk group, based on currently available information and clinical expertise.[13] The global MPI captures those who are likely to be affected by indoor air pollution in their homes. These indicators make visible gradients of vulnerability to more severe coronavirus and other diseases.[14]

V. POTENTIAL INFLECTION POINT

This is a crisis that knows no borders. The hope is that, against all odds and in a time of great duress, the COVID-19 response will be a defining inflection point in ending poverty in all its forms – that the sheer scale and devastation of this pandemic will demand bold action on behalf of the most vulnerable. Many hands and minds across governments, UN agencies, the private sector, NGOs, and volunteer groups are battling COVID-19.

The global MPI, with its ability to reveal the deprivations of multidimensional poverty and potential COVID-19 risk conditions, is one tool that is readily available to be deployed in this fight. Strategic efforts and policies to reduce multidimensional poverty will not only free those who are multidimensionally poor from the burden of simultaneous deprivations but also free them to more effectively resist COVID-19's assault – which is a victory for everyone.

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ENDNOTES

1   Suggested citation: Alkire, S., Dirksen, J., Nogales, R., and Oldiges, C. (2020). 'Multidimensional poverty and COVID-19 risk factors: A rapid overview of interlinked deprivations across 5.8 billion people, OPHI Briefing 53a, Oxford Poverty and Human Development Initiative, University of Oxford.

2   For a general overview and the latest information on the COVID-19 pandemic, please refer to the *WHO COVID-19 Coronavirus website.*

3   The full global MPI database covers 107 countries and 5.9 billion people. Botwsana, Cuba, the Seychelles, and Sri Lanka are not included in this briefing. All population aggregates use 2018 data. The data sources and years as well as country briefings, data tables including standard errors, do-files, and an interactive databank are online at *Global MPI Databank.* Data used to compute the global MPI are from 2008–2019, though 5.7 billion of the 5.9 billion people covered and 1.2 billion of the 1.3 billion multidimensionally poor people identified are captured by surveys from 2013 or later.

4   This briefing considers risk indicators within the global MPI that are readily available for rapid analysis. See Alkire, Kanagaratnam, and Suppa (2020) for a detailed description of the indicator definitions. Additional analyses based on wider sets of indicators will shortly be available on the *OPHI website.* There are other important risk factors – including old age and non-communicable diseases such as diabetes, which are less strongly associated with unsafe drinking water and undernutrition, and infectious diseases such as HIV/AIDS and access to quality health infrastructure, such as intensive care beds with ventilators – that we cannot consider here. And, apart from the most immediate risks for critical or lethal coronavirus disease courses analysed here, there are also risk gradients for contracting the virus in the first place – where factors such as access to handwashing facilities and soap as well as overcrowded households, access to information, and the availability of personal protective equipment such as facemasks that can prevent virus transmission are key vulnerability indicators. Lastly, this pandemic also brings with it a multiplicity of socio-economic shocks and associated vulnerable population groups – from home-schooling, social isolation, and domestic violence to unemployment and loss of livelihoods and homes. Many who are already poor will face new or exacerbated deprivations. Others will fall into poverty due to this pandemic and its implications.

5   Bourke, Berkley and Prendergast (2016); Ginsburg et al. (2015).

6   Clasen et al. (2014); Prüss-Ustün et al. (2019).

7   Gordon et al. (2014); Schraufnagel et al. (2019a,b).

8   See also GBD 2017 Causes of Death Collaborators (2018) and The Lancet (2020).

9   See CDC (2020) and WHO (2020).

10 Bourke, Berkley, and Prendergast (2016); Ginsburg et al. (2015).

11 Clasen et al. (2014); Prüss-Ustün et al. (2019).

12 Gordon et al. (2014); Schraufnagel et al. (2019a,b).

13 CDC (2020).

14 The global MPI captures deprivations at the household level. In the case of undernutrition, it considers a household and *all of its members* deprived if at least one household member is evidently undernourished. Thus, the number of people deprived in **nutrition** indicates the number of people who live in a household where **at least one** person is undernourished. Deprivations of clean cooking fuel and safe drinking water, on the other hand, affect all household members equally. A person is deprived in water if they lack safe **drinking water** within a 30-minute walk from home and in **cooking fuel** if they cook with wood, charcoal, or dung. For details see Alkire, Kanagaratnam, and Suppa (2020).

Oxford Poverty and Human Development Initiative (OPHI)

Department of International Development (ODID)
University of Oxford
Queen Elizabeth House (QEH)
3 Mansfield Road
Oxford OX1 3TB, UK

Telephone: +44 (0)1865 271915
Email: ophi@qeh.ox.ac.uk
www.ophi.org.uk
www.mppn.org

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