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**Revisiting Poverty Trends and the Role of Social Protection Systems in
Africa During the COVID-19 Pandemic**

Kibrom A. Abay

Nishant Yonzan

Sikandra Kurdi

Kibrom Tafere

Development Strategy and Governance Division

INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

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AUTHORS

Kibrom A. Abay* (K.Abay@cgiar.org) is a Research Fellow in the Development Strategy and Governance Division and Program Leader of the Egypt Strategy Support Program of the International Food Policy Research Institute (IFPRI), based in Cairo.

Nishant Yonzan (nyonzan@worldbank.org) is an ET Consultant to the Global Poverty and Inequality Data team in the Development Data Group at the World Bank.

Sikandra Kurdi (S.Kurdi@cgiar.org) is a Research Fellow in IFPRI's Development Strategy and Governance Division, based in Dubai.

Kibrom Tafere (ktafere@worldbank.org) is an Economist in the Development Research Group of the World Bank, Washington, DC.

**Corresponding author*

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Abstract

Quantifying the impact of the COVID-19 pandemic on poverty in Africa has been as difficult as predicting the path of the pandemic, mainly due to data limitations. The advent of new data sources, including national accounts and phone survey data, provides an opportunity for a thorough reassessment of the impact of the pandemic and the subsequent expansion of social protection systems on the evolution of poverty in Africa. In this paper, we combine per capita GDP growth from national accounts with data from High-Frequency Phone Surveys for several countries to estimate the net impact of the pandemic on poverty. We find that the pandemic has increased poverty in Africa by 1.5-1.7 percentage points in 2020, relatively smaller than early estimates and projections. We also find that countries affected by Fragility, Conflict, and Violence (FCV) experienced the greatest increases in poverty, about 2.1 percentage points in 2020. Furthermore, we assess and synthesize empirical evidence on the role that social protection systems played in mitigating the adverse impact of the COVID-19 crisis in Africa. We review social protection responses in various African countries, mainly focusing on the impact of these programs and effectiveness of targeting systems. Although the evidence base on the protective role of social protection programs during the pandemic remains scarce, we highlight important findings on the impacts of these programs while also uncovering some vulnerabilities in social protection programming in Africa. We finally draw important lessons related to the delivery, targeting and impact of various social protection programs launched in Africa in response to the pandemic.

The views expressed in this paper are those of the authors. They do not necessarily represent the views of the World Bank Group and IFPRI.

Keywords: Real-time poverty data, Pandemic, Poverty and health, social protection, Africa.

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1. Introduction

The COVID-19 pandemic continues to test global food and social protection systems at an unprecedented scale. Initially starting as a global health crisis, the pandemic has evolved into a major economic crisis, causing disruptions to global economic systems, livelihoods and health. Several waves of the pandemic have prolonged the suffering of households by delaying economic recovery. Developing countries with poor public health infrastructure, limited social protection systems, high levels of food insecurity and poverty rates were projected to be disproportionately affected. The impacts of the pandemic were expected to be highest in African countries, which host about 70 percent of the world's poor. Early projections were particularly pessimistic about the potential impact of the pandemic on poverty, both globally and for Africa (e.g., Laborde et al., 2020; Sumner et al., 2020; Mahler et al., 2020; Mahler et al., 2021a). On the other hand, national accounts data on actual GDP growth for 2020 provide more positive picture than these early projections (Pauw and Thurlow, 2022; McDermott and Swinnen, 2022).

The uncertainty in poverty projections is not surprising because the pandemic has evolved in an unpredictable way affecting various regions, economic sectors, and households differently. The pandemic had a large negative impact on African economies, but effects vary across countries and sectors (Zeufack et al., 2021). Several studies have shown that services and manufacturing sectors suffered the most while agriculture appeared to be relatively resilient (e.g., Arndt et al., 2020; Zeufack et al., 2021; McDermott and Swinnen, 2022). Informal sector workers, the poor, women, and youth experienced the greatest impact. In many cases, urban dwellers primarily employed in the industry and service sectors, including trade, transport and hotel services were disproportionately affected by the economic fallout and associated lockdowns and mobility restrictions.¹ The impacts of the pandemic were also compounded by other shocks, political instabilities and conflicts in many African countries.

However, most of the initial economic projections were built on expected changes in incomes and prices which were in many cases overstated (Pauw and Thurlow, 2022; McDermott and Swinnen, 2022). Several factors drove these pessimist projections. First, initial modeling exercises assumed a uniform economic shock to global growth rates, rather than accounting for heterogeneity in impacts by the demographic structure of countries. Africa, on average, has one of the youngest populations compared to other regions and consequently suffered fewer direct health impacts. Second, following from the first point, modeling exercises assumed more restrictive measures and a longer duration of restrictions than those realized in Africa. Third, the projections failed to account for the counteracting responses of governments and businesses to mitigate the adverse impacts of the pandemic. For example, as the pandemic evolved,

¹ Because of these trends, many argue that the pandemic has increased existing inequalities across societies (e.g., Mahler et al., 2022; Bundervoet et al., 2022; World Bank, 2022).

public health and government measures to counteract the pandemic have adjusted concurrently. The most consequential public health response has been the rapid production and deployment of several vaccines that have slowed the spread of the pandemic and facilitated the gradual lifting of mobility restrictions. Fourth, the external shocks expected to hit economies, including reductions in remittances, were generally less than initially anticipated (Kpodar et al., 2021; Pauw and Thurlow, 2022; McDermott and Swinnen, 2022). These along with the heterogeneity in the impacts of and responses to the pandemic, justify the need to revisit these early projections using new sources of data.

Besides the public health responses, governments' responses to the pandemic included social protection and stimulus packages to support vulnerable sectors and households. Social protection systems have been reinforced through either increasing the size of transfers or expanding the number of beneficiaries. More than 220 countries and territories have initiated or expanded some form of social protection and safety net systems in response to the pandemic (Gentilini et al., 2020). However, the policy responses among African countries were relatively slow. Furthermore, whether (and how much) such social protection and safety net programs have been effective in mitigating the adverse impacts of the pandemic remains generally unknown. Delivering social protection and safety net transfers during an unfolding pandemic was a daunting task and marred by several challenges. For example, targeting of social protection programs and beneficiaries during a pandemic was difficult, especially in the African context where population registers and administrative data are rarely available. Social protection programs in Africa are characterized by their rural focus and limited size of transfers (e.g., Beegle et al., 2018). Thus, identifying the role of social protection policies and lessons learned in delivering social safety nets in Africa during the pandemic can inform future programming and responses to future crises.

This paper serves two purposes: first we use recent data to estimate and reassess the impact of the pandemic on country-level poverty in Africa for 2020. For this purpose, we combine national accounts data – particularly real per capita GDP growth and High-Frequency Phone Surveys (HFPSs or phone surveys henceforth) for several countries. The use of both macro and micro-level sources of data allows us to uncover potential heterogeneities across countries, geographies, and households. We assemble the World Bank's country-level pre-pandemic growth projections, national account data on overall per capita GDP growth and sectoral growth for 2020. Whenever possible, we merge these data with the HFPS collected by the World Bank in collaboration with National Statistical Offices (NSOs). Second, we assess and synthesize empirical evidence on the role of social protection systems to mitigate the adverse impact of the pandemic in Africa. For this purpose, we compile recent studies on the potential impact of social protection programs in cushioning against the adverse impacts of the pandemic. We particularly aim to draw important lessons in the delivery, targeting and impact of various social protection programs launched or expanded in Africa in response to the pandemic.

Our poverty analysis reveals several nuanced patterns and heterogeneities. For 2020, the pandemic has increased the extreme poverty rate – defined as those living on less than \$1.90 a day in 2011 PPP terms – in Africa by 1.5-1.7 percentage points, relatively smaller than early estimates and projections. For example, Sumner et al. (2020) predicted between 2.6 and 11.2 percentage points increase in extreme poverty in Sub-Saharan Africa. However, and most importantly, we also show significant differences in the impacts across countries and regions. Countries affected by Fragility, Conflict, and Violence (FCV) have suffered most, experiencing a 2.1 percentage point increase in extreme poverty. This is intuitive given that conflict remains a major driver of poverty in Africa (Corral et al., 2020) and that political instability and conflicts have been increasing in Africa recently. The World Bank’s 2021 fiscal year FCV report designates 21 of the 54 countries in Africa as affected by some form of conflict or fragility. Fragilities and conflicts are likely to reduce governments’ capacity for social protection responses to the crisis while also prolonging the recovery of economies. Consistent with several other studies, we also find significant heterogeneities across rural and urban areas. Despite some differences across countries, urban households suffered more than rural households.

Our review of the mitigating role of social protection programs in Africa generated several insights. Despite variations across countries, several African countries have responded to the COVID-19 pandemic by introducing and reforming a combination of existing social protection programs, unemployment insurance, and other rescue packages to support those affected by the pandemic (Gentilini et al., 2020; Abay et al., 2021a; Gronbach et al., 2022; Duchoslav and Hirvonen, 2021; Banerjee et al., 2020; Brooks et al., 2021; Alloush et al., 2022). Although the evidence base on their protective role remains scant, some studies show that social protection programs have protected the welfare of vulnerable households. For example, Abay et al. (2021a) show that Ethiopia’s Productive Safety Net (PSNP) absorbs much of the adverse effects of the pandemic on PSNP beneficiaries. Similarly, Banerjee et al. (2020) show that a universal basic income (UBI) scheme in rural Kenya during the pandemic had moderate effects on food security as well as physical and mental health while Brooks et al. (2021) and Kimani et al. (2020) show positive impacts of a one-time cash transfer in Kenya and Uganda, respectively.

However, the pandemic also uncovered important vulnerabilities in social protection programming in Africa. First, delivering social protection and safety net transfers while practicing social distancing has been challenging for several countries who had no digital delivery systems. Second, while social protection programs in Africa have reached some during the pandemic, many of the poor remained unreached because of the limited scale and coverage of these programs. Third, because social protection programs in Africa have traditionally focused on rural areas (Beegle et al., 2018), they were not sufficiently reaching urban households who were disproportionately affected by the pandemic and associated lockdown measures. Fourth, targeting of social protection amidst unfolding pandemic is a daunting task, leaving these programs

susceptible to targeting errors. Finally, expanding social protection programs to reach more people has proven to be challenging, partly because social protection programs and safety nets in Africa heavily rely on funding from development partners, who were also affected by the pandemic.

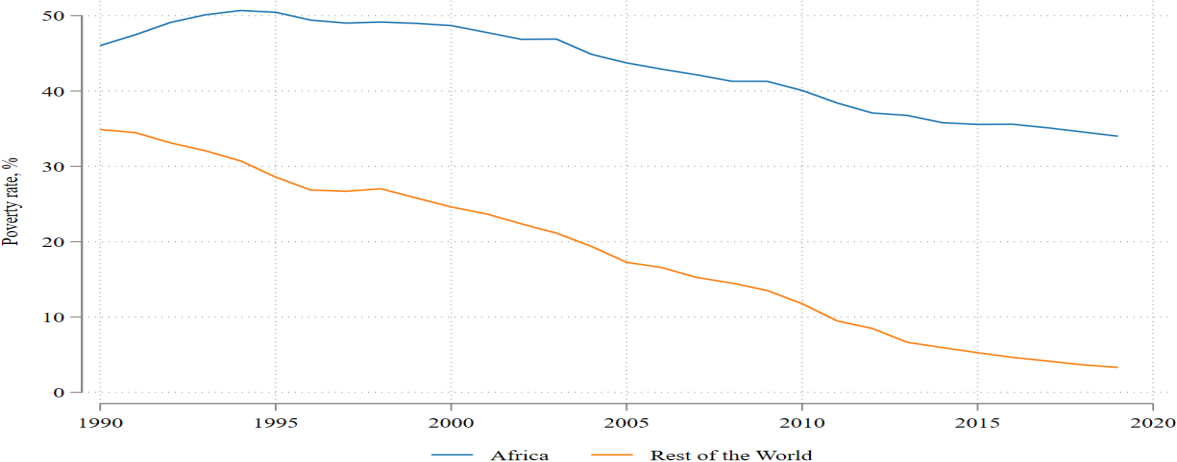
To sum up, although African economies have experienced less than expected effects of the COVID-19 pandemic, post-COVID-19 recovery is likely to be prolonged for several reasons, including the slow progress in vaccination rates and continued conflicts and political instabilities as well as other emerging global challenges. For example, the Russian-Ukraine crisis will continue to delay recovery of African economies, especially for countries that rely heavily on food, fertilizer and oil imports from Russia and Ukraine. These continued and emerging challenges remind the need to reinforce safety net programs to protect vulnerable households from these multiple crises.

2. COVID-19 and Poverty in Africa: Macro-level Evidence

2.1 Historical trends in poverty in Africa

Africa has had a mixed record in reducing poverty in the last three decades. The rate of extreme poverty in Africa has been declining over the last two decades. Figure 1 compares the trends in extreme poverty in Africa with the rest of the world (i.e., the world excluding Africa). Extreme poverty in Africa has decreased from a peak of 51% in 1994 to 34% in 2019 -- a 17 percentage point or 33% decline. However, the rate of change in poverty reduction has been far slower than that of the rest of the world. Poverty in the rest of the world has decreased from 35% in 1990 to 3% in 2019 - more than 90% decline. Another way to look at this is that it has taken the rest of the world three decades to reach a 3% poverty threshold from a poverty rate similar to that in Africa in 2019.

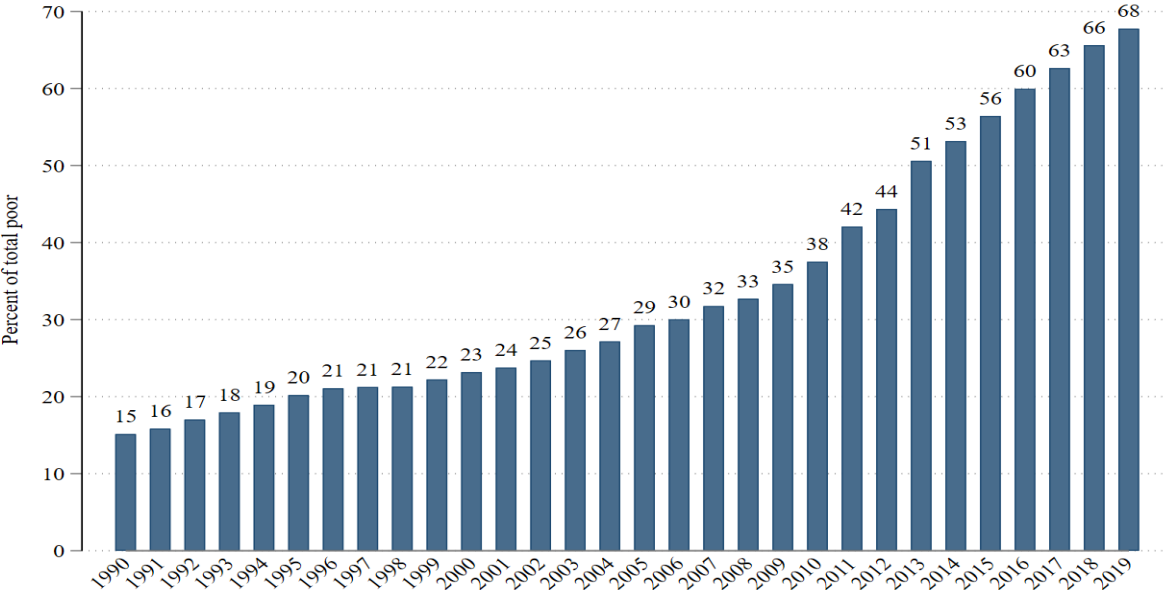
Figure 1: Trends in extreme poverty rate



Source: Authors’ calculation using PovcalNet.

From 1990 to 2019, the number of extreme poor—that is, those living under \$1.90-a-day in 2011 PPP—has *declined* globally from 1.9 billion to 655 million. In the same period, the number of extreme poor in Africa has *increased* from 290 million to 444 million. Figure 2 shows how these patterns have caused a large increase in the share of the global poor living in the continent from 15% in 1990 to 68% in 2019.

Figure 2: Share of global extreme poor in Africa



Source: Author’s calculation using PovcalNet.

One important reason for these differing trends between Africa and the rest of the world is the relatively higher economic growth in the latter. Regions with high levels of extreme poverty in 1990 (namely, East Asia and the Pacific, which hosted 51% of global poor, and South Asia which had 29% of global poor) have since seen rapid increases in their income, coupled with large declines in poverty.² In the decade before 2019, the average annualized per capita growth was 3.1% in East Asia and Pacific, and 3.8% in South Asia. In the same period, average annualized per capita growth was 1.5% in Sub-Saharan Africa and 0.1% in Middle East and North Africa.

2.2 Impact of COVID-19 on poverty

Early estimates of the impact of the pandemic on poverty relied on model-based assumptions about income losses and expected changes in income. These model-based assumptions and projections suffered from lack

² See, <http://iresearch.worldbank.org/PovcalNet/povDuplicateWB.aspx>.

of real-time data on how economies, businesses and governments react to the pandemic. Two years since the outbreak of the pandemic, we now have more data, including national accounts data, that allow us to revisit and refine the early projects on the impact of the pandemic on poverty in Africa. Thus, we utilize realized per capita GDP growth rates along with household survey data to get a sense of the evolution of poverty in Africa. This analysis involves 51 African countries. Growth rates in national accounts allow us to calculate poverty across most countries in the region, although aggregate growth in the economy may not necessarily translate equally to growth of household income (Ravallion 2003; Deaton 2005; Prydz et al., 2021, Lakner et al., 2022). Nevertheless, growth rates in national accounts do a fairly good job of identifying the trends in changes in poverty (Mahler et al., 2021b).³ Macro growth rates are even more important at times when micro data are not widely available. Collection of micro data in the last two years has been especially challenging due to the COVID-19 pandemic. Only a few countries in Africa were able to collect non-traditional sources of survey data, which we discuss and use in the next section.

The procedures to estimate the impact of the pandemic on poverty in Africa are the following (see also, Mahler et al., 2022): first, to project household surveys to 2020, we need distribution of welfare (income or consumption) in 2019 for all countries. However, household surveys are not conducted annually in most low and middle-income countries. In most cases, they are conducted in 3, 5, or even 10-year intervals. To derive a 2019 distribution of welfare for a country without a household survey in 2019, we extrapolate welfare aggregate available in household survey from the last available year, say 2018, using per capita GDP growth rates from the World Development Indicators. We use per capita GDP growth rates to grow household income of all households within a country. Since the applied growth rate is the same across all households, the inequality observed in that country is held fixed.⁴ This allows us to have a baseline distribution for 2019 for all countries.⁵ Then, using the same extrapolation method, we extrapolate the 2019 country distributions forward to 2020 and 2021. Following Mahler et al. (2022), we report two different scenarios projecting poverty for the COVID-19 affected years: (i) a series incorporating the effect of the pandemic (“with COVID-19”), and (ii) one without the effect of the pandemic (“without COVID-19”). The former uses the per capita GDP growth rates from the World Bank’s June-2021 Global Economic Prospects (GEP) report, while the latter uses January-2020 GEP forecasts – that is growth forecasted before the pandemic and thus not incorporating the effects of the pandemic. Whereas (i) is the “actual” poverty series, (ii) acts as a counterfactual for the COVID-19 series – a series reflecting what could have materialized if

³ Short-term growth forecasts fairly predict actual growth rates. Celasun et al. (2021), who compared IMF growth forecasts and realized growth rates over the 2004-2017 period, find little differences between the two.

⁴ Yonzan et al. (2020) outline how poverty estimates could vary due to changes in within-country inequality.

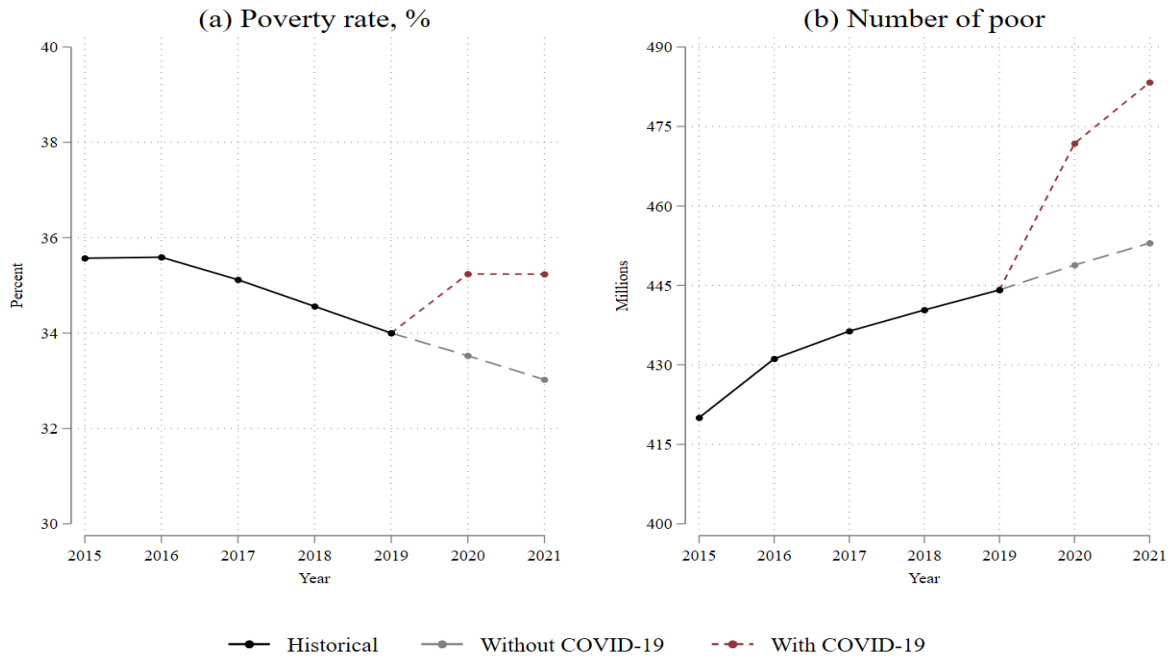
⁵ The extrapolation methodology is similar to the one used by the World Bank to calculate global poverty (for instance, see Ferreira et al. 2016). For those countries without an available household survey, in line with the World Bank, we use regional averages.

the pandemic had not occurred. One reason for reporting the latter series is to net-out the effect of the pandemic from those changes that would have otherwise occurred without the pandemic.

Figure 3 reports the trends in the extreme poverty rate and the number of poor (in millions) in Africa from 2015 to 2021. In 2020, the number of poor in Africa was expected to rise to 449 million from 444 million in 2019 even without the pandemic. Due to the pandemic, the number of poor in 2020 is estimated to have increased to 472 million instead. Thus, we infer that COVID-19 pushed 23 million people into extreme poverty in 2020. The net effect is expected to be 30 million people in 2021. In other words, had the COVID-19 pandemic not happened, there would have been 30 million less extreme poor in Africa in 2021. Before the pandemic, poverty rate was expected to decline from 34% in 2019 to 33.5% in 2020 and further to 33.0% in 2021. Instead, because of the pandemic, poverty rate is expected to increase to 35.2% in 2020 and remain at that level in 2021. For 2020, we find that the net COVID-19 impact is 1.7 percentage points and for 2021 it is 2.2 percentage points.⁶ The increase in the number of poor people despite the declining poverty rate is because in some countries population growth outpaces the rate of poverty reduction.

⁶ It is important to note that both income growth and income inequality can influence poverty (see Lakner et al., 2022 for detail). However, for most countries, inequality changes in 20220 were minimal. Across all 218 World Bank economies, Mahler et al. (2022) find that growth disproportionately played a bigger role in increases in poverty in 2020 compared to inequality. This could be due to the various additional social protection measures that were put in place during the pandemic.

Figure 3: Nowcast of poverty in Africa, 2015-2021



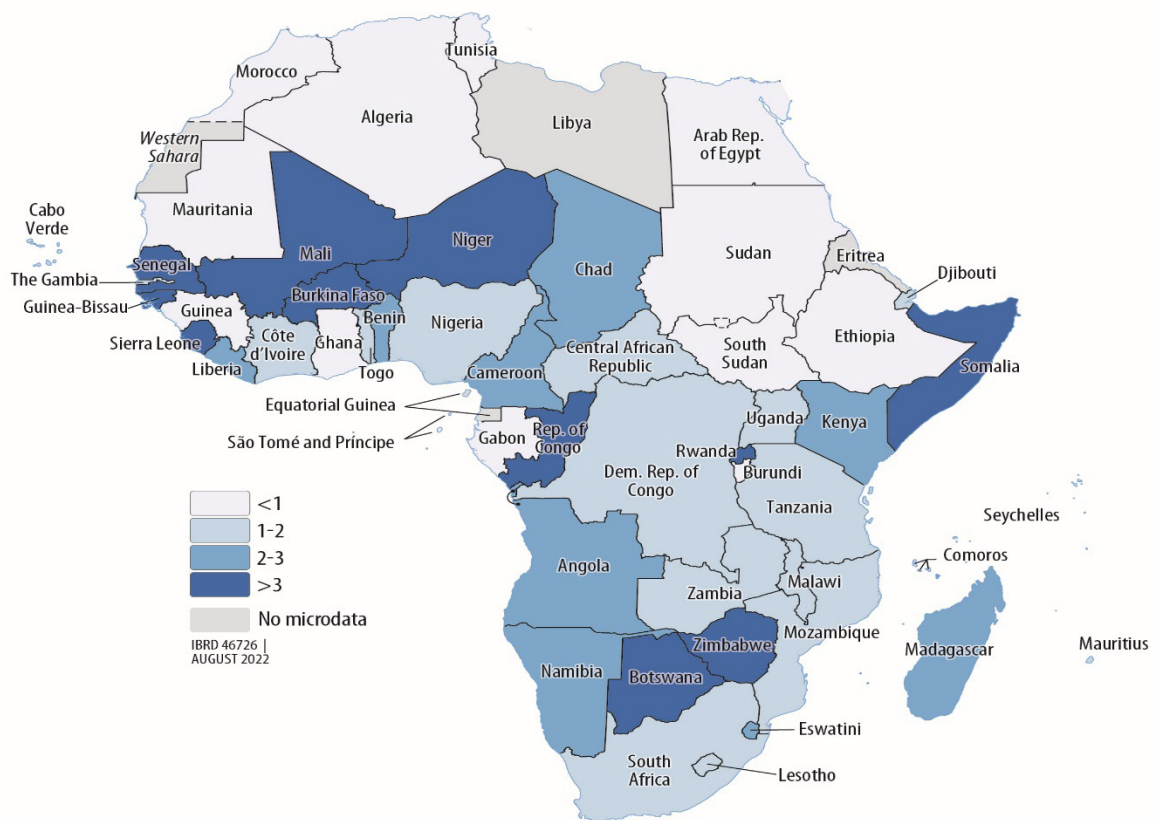
Source: PovcalNet, Mahler et al. (2021b), Global Economic Prospects.

The above estimates of the impact of the pandemic on poverty rates in Africa are relatively smaller than early estimates and projections. Initial fears at the start of the pandemic were that there would be far larger increase in poverty particularly in Africa. This was, among other things, due to the high stock of poor people in the continent, the relatively muted economic growth leading up to the pandemic, and the relatively limited health infrastructure available in the continent. Over the course of the pandemic, the World Bank has come up with various projections for the increased poverty due to the pandemic in 2020. For Sub-Saharan Africa in 2020, the predicted additional poor due to the COVID-19 pandemic has ranged from 26 million – projected in April 2020 – to 34 million – projected in June 2021 (Lakner et al., 2021). Other methods had predicted poverty in Africa to be even worse. For example, simulations accounting for negative GDP growth shock of between 5% and 20% suggested that the pandemic could push between 28-120 million people into extreme poverty in Sub-Saharan Africa in 2020 (e.g., Sumner et al., 2020). Similarly, our country-level poverty estimates are much smaller than early projections (Table A1). For example, our poverty impacts in Nigeria are smaller than those early estimates by Andam et al. (2020) and poverty impacts for South Africa are smaller than those implied by income losses in Arndt et al. (2020). Overall, macro-based evidence suggests that the economic impacts of the pandemic in Africa have been muted compared to what was feared initially.

2.3 Heterogeneity across countries

There is quite a bit of variation in poverty changes across countries due to the COVID-19 pandemic. Figure 4 shows the changes in extreme poverty across the continent grouped into four categories: (i) countries with less than 1 percentage point increase in extreme poverty, (ii) countries with increases between 1 and 2 percentage points, (iii) countries with between 2 and 3 percentage points increase, and (iv) countries with larger than 3 percentage points increases. In general, countries in North Africa had the smallest changes in extreme poverty – likely because they tend to be less poor and hence have less people living close to the international poverty line. Countries in southern and central Africa were moderately affected, while a few countries in west Africa and a couple in southern Africa were most severely affected.

Figure 4: Map of extreme poverty changes in 2020 due to COVID-19



Note: The COVID-19-induced poverty changes are calculated as the difference between with COVID-19 and without COVID-19 scenarios. See Table A1 for country-level poverty estimates for 2020.

2.4 Fragility, Conflict and Violence (FCV)

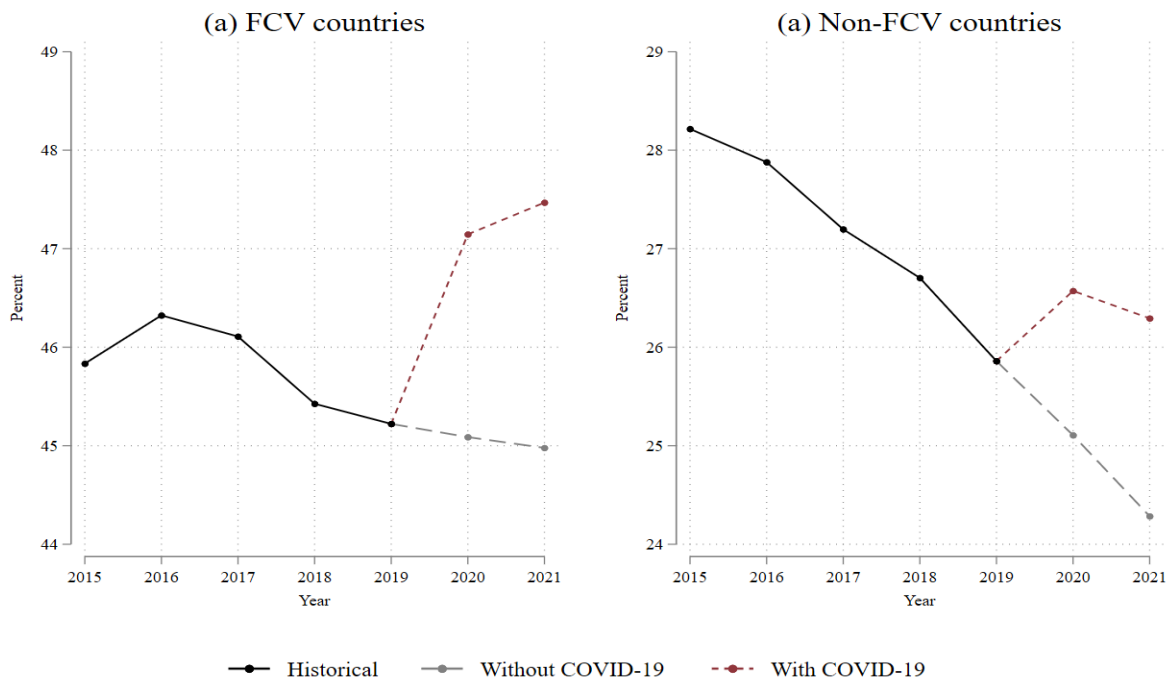
Conflict has been, and most likely will continue to be, a major driver of poverty in Africa. Corral et al. (2020) find that 48% of all extreme poor globally were living in conflict affected regions in 2018. They

predict that, this already high share, will increase to 68% by 2030. This is striking considering these countries only account for around 10% of the global population. We hypothesize that fragility and conflict can compound the impact of the pandemic and reduce capacity for effective social protection responses to cushion the impacts on the most vulnerable. To that end, using the World Bank’s FY2021 FCV list of countries, we disaggregate the total poverty increases in Africa into countries that are in the FCV group and those that are not. Out of the 54 countries in Africa, the World Bank’s FY2021 FCV list designates 21 to be affected by some form of conflict or fragility.⁷ Of the 21 fragile and conflict affected countries, two (Burundi and Eritrea) had minimal to no reported social protection responses, and only eight (38%) had major social protection responses, where we define “major responses” as those including an increase in cash transfers or unemployment insurance that persisted for more than three months. The remainder had moderate social protection responses such as one-off cash transfers increases, or increased food aid. By contrast, of the 32 non-conflict affected states, all had at least moderate social protection responses and 15 (47%) had major social protection responses (Gentilini et al., 2021).

Figure 5 reports the trends in poverty across these groups of countries. First, the levels of poverty in the two groups are drastically different. While 26% of the population (amounting to 196 million people) were living in extreme poverty in the non-FCV group of countries in 2019, there were 45% living in poverty in the FCV countries (amounting to 248 million people) in that same year. For the non-FCV group, an additional 11 million people were pushed into poverty in 2020 (equivalent to 1.5 percentage points increase) and 16 million in 2021 (equivalent to 2 percentage points increase) due to the COVID-19 pandemic. For the FCV group, the expected additional poor is about 12 million people in 2020 (equivalent to 2.1 percentage points increase) and over 14 million in 2021 (equivalent to 2.5 percentage points increase). Not only is the stock of poor higher in conflict ridden countries, the increases due to the pandemic is also estimated to be larger and more persistent.

⁷ <https://thedocs.worldbank.org/en/doc/888211594267968803-0090022020/original/FCSListFY21.pdf>.

Figure 5: Extreme poverty trends in FCV and non-FCV countries in Africa



Source: PovcalNet, Mahler et al. (2021b), Global Economic Prospects. Fragility, Conflict, and Violence (FCV) list of countries from the World Bank: <https://thedocs.worldbank.org/en/doc/888211594267968803-0090022020/original/FCSListFY21.pdf>.

3. COVID-19 and Poverty in Africa: Micro-level Evidence

The macro-level results above assume that the COVID-19 shocks and responses affected all households in a country equally as captured by the aggregated per capita growth rate. We can relax these assumptions using household level phone survey data. In particular, the use of household level data allows us to differentiate trends in poverty in urban and rural areas as well as across various sectors. However, evidence on the scale and size of households' income shocks due to the pandemic remains scarce. Similarly, empirical evidence on the impact of alternative public health and government measures to counteract the adverse impact of the pandemic is not widely available. The lack of household welfare data is in part because data collection in the traditional sense was not feasible during the pandemic. Fortunately, in collaboration with National Statistical Offices (NSOs), the World Bank conducted High Frequency Phone Surveys (HFPSs) in several countries during the pandemic. These phone surveys asked a multitude of questions on household welfare including questions on job losses, income losses, consumption losses, food insecurity, and learning losses. We utilize the information in the phone surveys to gauge the impact of the pandemic on household income or consumption.

HFPSs have been conducted by the World Bank, in collaboration with national statistical offices, in over 80 countries around the world and cover over 100 harmonized indicators. As such, they are designed to be nationally representative by using various weighting measures. Relative to the traditional in-person-based surveys, however, phone surveys (or other remote surveys such as internet surveys) have several limitations. For instance, the phone survey sample is mostly representative of the phone-owning population, which could mean that the surveys potentially underrepresent the poorest populations within a country. In addition, these surveys have been found to collect more information from the respondent who is more likely to be head-of-households, overstating such things as employment rates (Kugler et al. 2021). While the phone surveys are not as comprehensive as the traditional household surveys, they remain important modules for data collection when traditional surveys cannot be conducted – as was mostly the case for 2020.

For poverty calculations, the phone surveys report whether (or not) a household has lost income or consumption because of the pandemic. However, the phone surveys by themselves cannot be used to quantify the welfare changes of households for at least two reasons: (i) no baseline household welfare measure is available in the phone surveys, and (ii) we do not know the size of the welfare changes in the phone surveys, only which households lost or did not lose income or consumption.⁸ To quantify the impact of COVID-19 on poverty, we need to map the income or consumption changes from the phone surveys to a traditional household survey for that country.

Mahler et al. (2022) propose a methodology that can be used to map the income or consumption losses in phone surveys to an underlying welfare distribution (see also Narayan et al., 2022). First, they calculate the probabilities for each type of household defined by the household size, education and age of household head, and area of residence from phone surveys to estimate the income loss probabilities for a particular type of household. These probabilities for each type of household from the phone surveys are then mapped to the 2019 household survey available for each country. Second, whereas one can estimate the probabilities of income losses for each type of household, the size of these losses for each household is still not clear. The sizes of these losses are important for understanding the changes in household income in 2020, and thus, understanding the impact of the pandemic on poverty. To get a sense of the size of the losses, Mahler et al. (2022) rely on sectoral – agriculture, industry, and service – growth rates in national accounts. The underlying assumption in their formulation is that the sum of all household losses (calculated using the first step above) are equivalent to the total loss in national accounts. Using this assumption allows

⁸ Countries reporting the change in household income report either if they lost, gained, or had no change in income since the start of the pandemic. Countries reporting the change in household consumption report if households lost or did not lose consumption since the start of the pandemic. Income aggregate is preferred where available. Table A1 list countries with the respective welfare measure used.

them to identify the size of income losses for each type of household. Essentially, each household, given their probability of incomes loss, gets a fraction of the total sectoral growth rate in national accounts.⁹

Using the sizes of income changes for each household estimated by Mahler et al. (2022), we can use the same extrapolation method as in Section 2 to estimate poverty in 2020. Furthermore, as we did in Section 2, we report (i) a scenario influenced by COVID-19 (“with COVID”) and (ii) a scenario not influenced by COVID-19 (“without COVID”). We also report the net impact of COVID-19, which is the difference between the with COVID and without COVID scenarios. We use this methodology for 20 countries in Africa to estimate poverty changes in 2020.

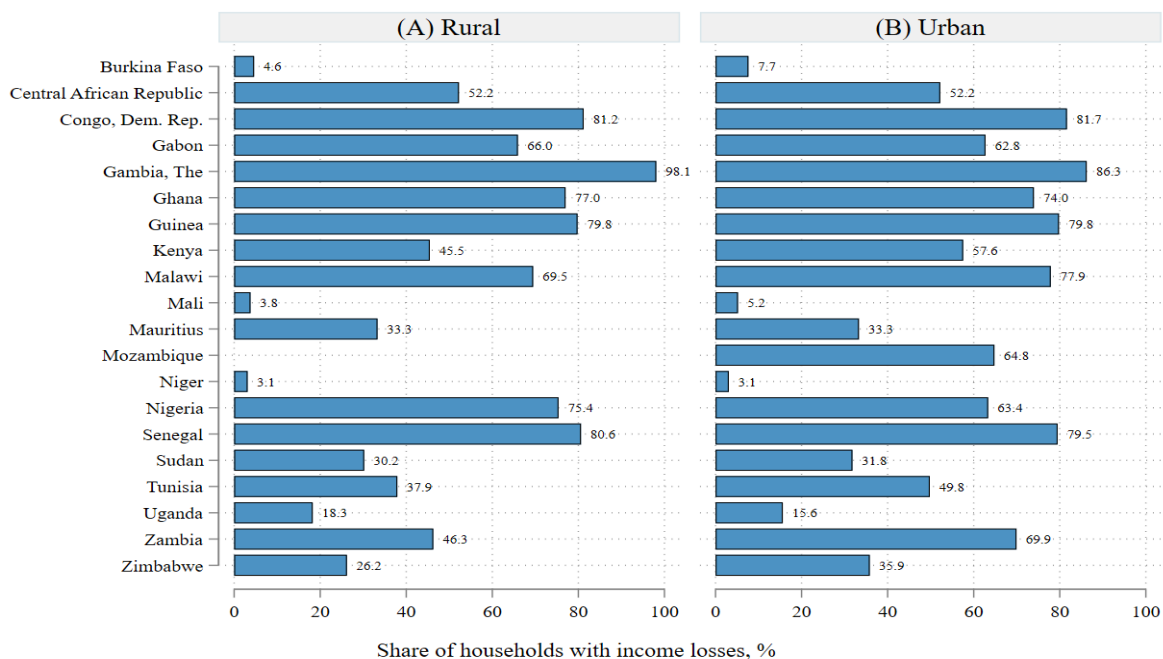
Figure 6 reports the share of households in rural and urban areas that reported a loss of income or consumption in 2020. For these 20 countries, an average of close to 52% of urban and 50% of rural households reported having experienced an income loss.¹⁰ The fact that losses of urban households were on average 2 percentage points larger than losses for rural households provides further support to the wider cross-country literature suggesting that urban workers and those in the informal sector and small businesses were more affected than other types of workers (Bundervoet et al., 2022; Josephson et al., 2021). Yonzan et al. (2022), who study income changes for 34 countries in various regions across the globe, find that the urban poor (i.e., the bottom 40% of the urban income distribution) incurred the largest income losses due to the pandemic. This average, however, masks considerable heterogeneities across countries and within countries.

As shown in Figure 6, the gap between the share of urban and rural households experiencing negative income shocks varies across the 20 countries. For instance, 70% of urban households in Zambia experienced a loss in income, which is 24 percentage points larger than the share for rural households. On the other hand, some countries had more rural households negatively affected by the pandemic than urban households. For instance, 75% of rural household and 63% of urban households in Nigeria reported income losses in 2020. For most countries, however, the share of households with income losses in rural and urban areas were relatively close.

⁹ Sectoral growth rates are available in the World Bank’s Macro and Poverty Outlook. Agriculture sector growth is distributed to the households in rural areas, industry sector growth to households in urban areas, and service sector growth is distributed to rural and urban areas depending on the share of income generated by each area. For methodological detail, in addition to Mahler et al. (2022), see Narayan et al. (2022) and World Bank (2022).

¹⁰ In what follows, we will refer to countries reporting either income or consumption loss as income loss.

Figure 6: Share of households with income losses in rural and urban areas in 2020



Source: Authors' calculation using Mahler et al. (2022).

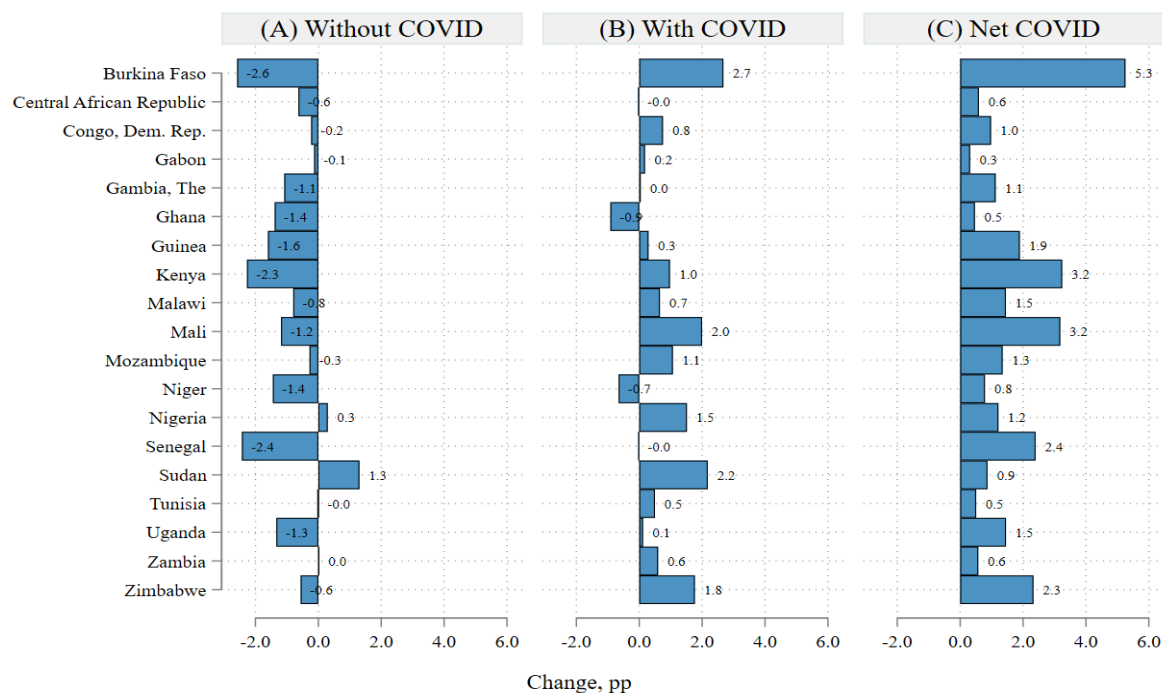
Note: Countries reported in the figure include those reporting loss in income or consumption. For the list of countries reporting income or consumption losses see Table A3. For Mozambique, income change is reported only for urban households due to data constraints.

Figure 7 reports changes in extreme poverty for rural households for each country. Panel A shows the expected percentage points change in rural extreme poverty from 2019 to 2020 without COVID-19; Panel B offers results with COVID-19, and Panel C presents the net changes (i.e., Panel B minus Panel A). For instance, Burkina Faso had the largest expected decline in rural extreme poverty before the pandemic, a 2.6 percentage points decline in 2020 compared to 2019 (Panel A). Strikingly, the pandemic is estimated to have increased extreme poverty in rural Burkina Faso by 2.7 percentage points in 2020 compared to 2019 (Panel B). The net COVID-19-induced increase in rural extreme poverty for Burkina Faso is 5.3 percentage points (Panel C).

Overall, before the pandemic extreme poverty for rural households was expected to *rise* in only 2 of the 20 countries. With the pandemic, however, we estimate poverty to *fall* in only 2 of the 20 countries. Of these latter 2 countries (Ghana and Niger) with expected declines in extreme poverty in 2020 compared to 2019, both are expected to have a considerably muted decline in poverty compared to expectations before the pandemic. Rural extreme poverty in both Ghana and Niger was expected to fall by 1.4 percentage points before the pandemic. Due to the pandemic, poverty will instead fall by 0.9 percentage points in Ghana and by 0.7 percentage points in Niger. For the 20 countries on average, extreme poverty for rural households

was expected to fall by 0.9 percentage points before the pandemic, it will instead rise by 0.7 percentage points suggesting a 1.6 percentage points increase in extreme poverty in rural areas attributable to the pandemic.

Figure 7: Rural extreme poverty changes in 2020

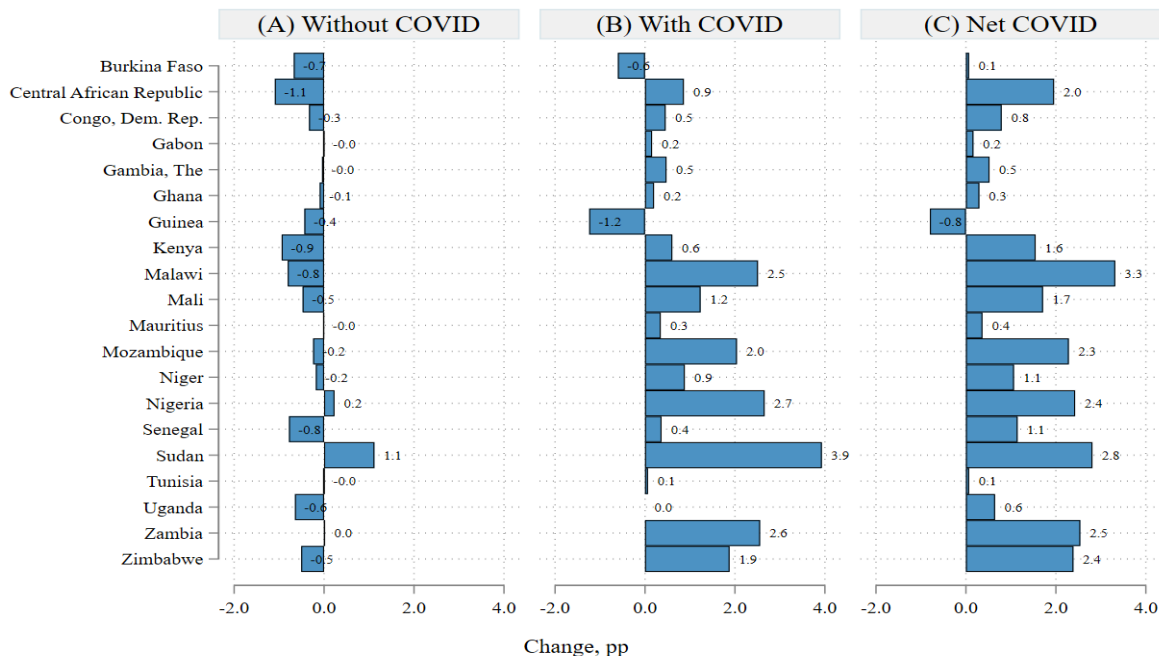


Source: Authors’ calculation using Mahler et al. (2022).

Note: Panels A and B of this figure report the percentage points change in extreme poverty in rural areas from 2019 to 2020 without and with the influence of COVID-19, respectively. Panel C reports the net change in extreme poverty (Panel B minus Panel A) in rural areas due to COVID-19 pandemic in 2020. Extreme poverty rates for both rural and urban areas are reported in Table A4.

Figure 8 replicates the estimates from Figure 7 for urban households. For the 20 countries on average, urban extreme poverty before the pandemic was expected to decline by 0.3 percentage points. The magnitude of this decline is a third of the expected declines in rural areas (0.9 percentage points) mostly because there were fewer people living in extreme poverty in urban areas compared to rural areas. Due to the pandemic, however, extreme poverty is set to increase for urban households by 1 percentage points – which is a 1.3-fold larger increase in poverty compared to rural areas. The net COVID-19-induced average change in extreme poverty in urban areas is expected to be 1.3 percentage points.

Figure 8: Urban extreme poverty changes in 2020

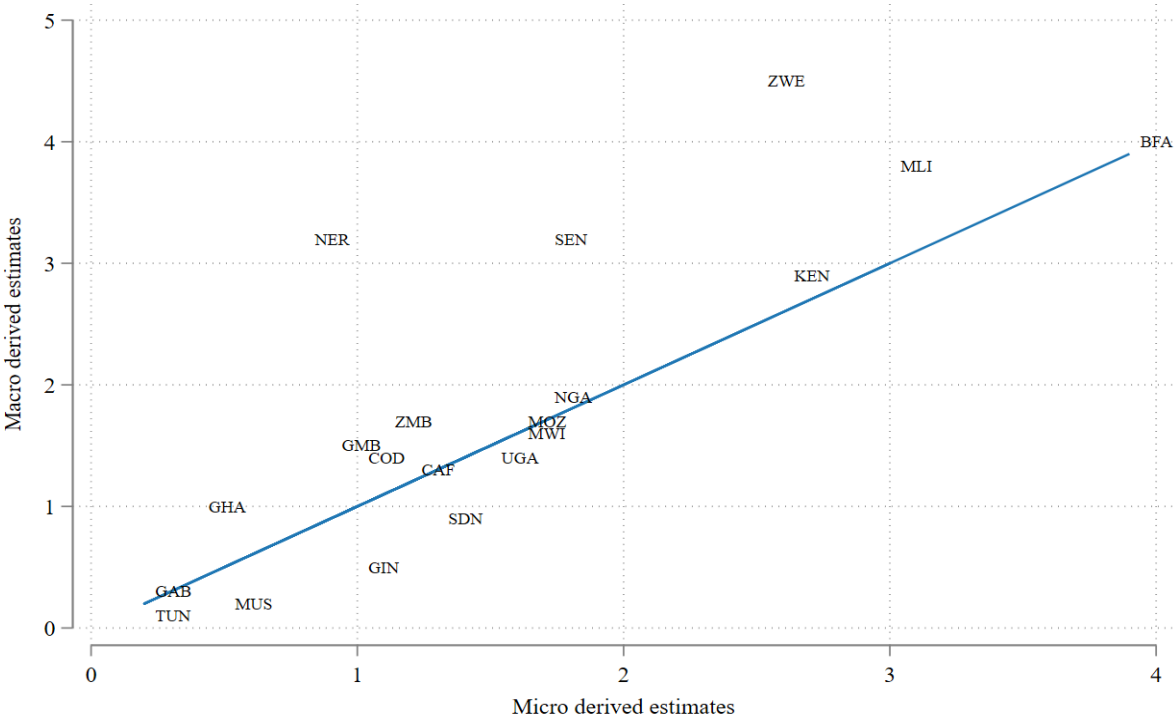


Source: Authors' calculation using Mahler et al. (2022).

Note: Panels A and B of this figure report the percentage points change in extreme poverty in urban areas from 2019 to 2020 without and with the influence of COVID-19, respectively. Panel C reports the net change in extreme poverty (Panel B minus Panel A) in urban areas due to COVID-19 pandemic in 2020.

Finally, to provide some sense of the differences in poverty estimates derived using macro projections in Section 2 and the phone-survey based estimates in this section, Figure 9 compares the net COVID-19-induced extreme poverty changes for the 20 countries using both methods. For most countries, macro and micro derived estimates are relatively close. There are, however, a few discrepancies. Macro-based estimates for Niger, Senegal, and Zimbabwe are significantly larger than the estimates derived using the phone surveys. Nevertheless, we can safely say that the two sets of poverty estimates re-enforce each other. The overall correlation coefficient between the two set of estimates is 0.82. In 2020, the average increase in extreme poverty for a typical country using the macro-based projections was 1.7 percentage points, whereas the micro-informed average increase is 1.5 percentage points.

Figure 9: COVID-19-induced extreme poverty changes, comparing micro and macro-based estimates



Note: Micro derived net COVID-19-induced estimates are the difference between the with COVID and without COVID national poverty rates in Table A4. See Table A2 for macro derived estimates. Both use national poverty rates.

4. COVID-19 and the Role of Social Protection Systems in Africa

4.1 Access to social protection programs during the pandemic

Despite the substantial progresses in reducing poverty rates in Africa, a large fraction of households find themselves in a state of transient poverty, vulnerable to falling back into poverty even due to small shocks. Increases in climate change related weather shocks and conflicts in the continent have amplified the precarious conditions households living at the edge of poverty face. In recognition of this fact, social protection programs have grown in popularity in recent years as important policy tools to reduce the vulnerability of the poor to a variety of shocks. Most African countries currently have at least one operational social protection program (Beegle et al., 2018). The pandemic accelerated the expansion of social protection programs with several governments expanding existing programs as well as establishing new ones to offset the impact of the pandemic on households and firms (Gentilini et al., 2020).

While the number of social protection programs in Africa has increased dramatically in the last few decades, their reach remains limited, with only small share of the population covered by the programs. The coverage of social protection programs in Africa is particularly low in countries with high extreme poverty rates. Using the Atlas of Social Protection Indicators of Resilience and Equity (ASPIRE) database at the World Bank, Figure 10 provides the relationships between coverage by some form of social protection program in each country and share of people living in extreme poverty. Although the coverage rates for some African countries is high, the adequacy and benefit sizes are amongst the lowest in the world. As a result, the vast majority of poor and vulnerable households are excluded from the programs. Programs are often very small and designed to deal with short-term emergency situations, leading to lack of continuity in coverage and predictability of transfers (Beegle et al., 2018).

improved targeting and efficiency of social protection programs. The majority of the social protection responses to COVID-19 in the region were built on existing social protection systems and were highly dependent on external financing (Gentilini et al., 2020). Governments' responses included increasing the benefit size (e.g., Niger, South Africa, Uganda and Zimbabwe) and expanding the number of beneficiaries by relaxing eligibility criteria, suspending verification of eligibility or waiving conditionalities (e.g., Ethiopia, Egypt, and Tanzania) (Gentilini et al., 2020). Yet, social protection coverage rates during the pandemic remained low relative to the scale of the need and much of the poor population in Africa remained unreached during the pandemic. Leveraging existing programs had the benefit of moving quickly and reaching poorer households, but lack of data and administrative structures limited the ability to target the most affected households and the scale of the responses was limited by funding constraints.

4.2 Evidence on impact of social protection programs during the pandemic

While the impact of social protection programs on a range of welfare outcomes during normal times is well established (e.g., Ardington et al., 2009; Andersson et al., 2011; Baird et al., 2011; Berhane et al., 2014; Robertson et al., 2013; Banerjee et al., 2015; Haushofer and Shapiro, 2016; Hidrobo et al., 2018), we are only starting to understand the effectiveness of these programs during the COVID-19 pandemic. An emerging literature establishes that social protection programs in Africa protected vulnerable households against food insecurity while also improving physical and mental health as well as firm profits.

Banerjee et al. (2020) study the impacts of a large scale universal basic income (UBI) experiment in Kenya on a range of welfare outcomes. Prior to the COVID-19 pandemic, the researchers randomized 295 villages into three treatment arms that delivered cash transfers to households as (i) a long-term universal basic income treatment where each adult receives \$0.75 per day for 12 years; (ii) a short-term universal basic income treatment where each adult receives \$0.75 per day for 2 years; and (iii) a lumpsum transfer where each adult receives a one-time transfer of \$500; and a control group. They find that the transfers had significant benefits during the pandemic. All three transfers had a modest impact on food security, physical and mental health. The transfers also reduced social interaction during the pandemic, potentially reducing contagion rates.

In another study in Kenya, Brooks et al. (2021) implemented unconditional cash transfers to female owned microenterprises in a slum outside of Nairobi. In the study sample, business profits had significantly dropped following the emergence of COVID-19. Business owners who were randomly selected for treatment received \$50 and the control group received \$5 using mobile money right before infection rates started rising rapidly. The paper finds that the transfer led to increase in reopening of businesses that had temporarily closed, increase in business profits by a third of the decline observed in the first months of the pandemic, and increase in household food expenditures. Spending on personal protective equipment (PPE)

also increased in the treatment sample, but only among those who perceived COVID-19 a major health risk, which suggests potential complementarity between cash transfers and information campaigns to reduce the risk of contagion while minimizing impacts on economic activities.

Abay et al. (2021a) study whether the Ethiopian Productive Safety Net Program (PSNP) played a positive role in protecting beneficiaries of the program from the malign impacts of the COVID-19 pandemic on food security. The authors combine pre-pandemic face-to-face survey and a phone survey conducted during the pandemic to compare the evolution of food security outcomes of beneficiaries and non-beneficiaries before and after the onset of the pandemic. They find that food insecurity increased significantly less among PSNP beneficiaries, especially for poor households and those living in remote areas. They also find that PSNP beneficiaries were less likely to reduce expenditure on education, health, and agricultural inputs. Strupat (2021) employs a similar difference-in-differences strategy to study the impacts of the National Safety Net Programme (NSNP) and the Hunger Safety Net Programme (HSNP) in Kenya. The study combines nationally representative in-person surveys before and after the first wave of COVID-19 in Kenya to study impacts of the programs on household incomes, coping strategies and social cohesion. The study finds that beneficiaries experienced lower loss of incomes, and they did not sell their assets to cope with the impacts of the pandemic. Social cohesion, measured in terms of trust in government and parliament as well as cooperation with others to do voluntary work, remained stable among beneficiaries but declined significantly among non-beneficiaries. These findings suggest that existing social protection programs can play a key protective role during covariate shocks such as COVID-19.

Kimani et al. (2020) worked with GiveDirectly to implement an unconditional cash transfer program in a Refugee Settlement in Uganda. The researchers employed a randomized staggered design where the study sample is divided into 24 cohorts and beneficiaries in each cohort receive a one-time lumpsum grant of \$1,000 in monthly intervals. The first cohort received transfer about a month before the first case of COVID-19 was recorded in Uganda in March 2020 and lockdown measures were put in place. The paper found that though food insecurity generally increased during the pandemic, households who received transfers before the pandemic were less affected (and hence less food insecure). The study also found that mask wearing was higher among cash recipients, who reported higher perception of the risk of contracting COVID-19.

Alloush et al. (2022) examined the effects of South Africa's Older Person's Grant program on economic and psychological well-being during the pandemic. They exploit an age-eligibility criteria to identify the impacts of access to this program and show that beneficiary households reported improved economic wellbeing. They particularly find that access to the pension program and associated transfers have improved food security (reduced hunger) and psychological wellbeing (reduced mental health).

Besides these direct evaluations, there are other indirect pieces of evidence showing the potential of social protection programs to mitigate some of the adverse impacts of the pandemic. For example, Abay et al. (2021b) evaluate whether COVID-19 induced disruptions in school feeding programs affect beneficiary households in Nigeria. They find that disruptions in school feeding services, because of nationwide suspension of schools, have disproportionately affected communities who used to benefit from school feeding services, evidence that highlights the counterfactual role of these social protection services. Other evaluations from the rest of the world also show some encouraging evidence. For instance, Londoño-Vélez and Querubin (2020) evaluate an unconditional cash transfer program in Colombia and show positive impacts on food access while Bottan, et al. (2021) show that a large-scale noncontributory pension program in Bolivia has significant impacts in protecting households' food security during the pandemic.

5. Limitations and challenges in delivering social protection programs in Africa

Despite the instrumental role of social protection programs in Africa, delivering these programs during a pandemic entails several important challenges that can limit the effectiveness of these programs. Most of these challenges relate to targeting, coverage, timeliness, and financing of social protection programs.

5.1 Targeting of social protection programs during a pandemic

Ideally, the social protection responses to the COVID-19 shock should be targeted to those households most likely to be tipped into poverty as a result of the lockdowns and global disruptions in food systems. As discussed in Section 4, short-term safety net transfers can protect vulnerable households from falling into extreme poverty or prevent those households from engaging in costly risk coping mechanisms such as selling-off assets or migrating away from employment that could result in these households joining the ranks of the chronically poor.

Before the pandemic, social safety net targeting in Africa was mostly oriented towards identifying chronically poor households rather than vulnerability to shocks. Most social safety net programs developed in Africa in the first decade of the twenty-first century employed Proxy Means Testing (PMT) for targeting beneficiaries (del Ninno and Mills, 2015). PMT targeting provides a standardized and objective way to identify chronically poor households at relatively low cost. The targeting accuracy of the PMT approach is moderately effective in general (Coady et al., 2004; Brown et al., 2018), but because it is based on household assets at some point in the past, it is least effective at identifying households most vulnerable to shocks such as the COVID-19 pandemic. Furthermore, collecting household surveys during the pandemic was impossible and most safety net programming during the pandemic had to rely on information collected few years ago. For example, in Egypt, the national cash transfer program that was expanded in response to the COVID-19 crisis targets households based on survey data that was collected up to four years ago.

The COVID-19 pandemic also emerged at a stage when social protection programming in some African countries were striving to be shock-responsive. These institutional arrangements in countries such as Kenya and Uganda were being oriented to rapidly scale up programs in certain geographical areas to respond to weather shocks but were not yet widespread in Africa and were poorly prepared to respond to a new type of shock (Beazley et al., 2021). Shock-responsiveness requires investments in data infrastructure and social registry which can aggregate administrative data and program beneficiary status across a variety of social protection programs, allowing for efficient coordination and identification of new beneficiaries without the necessity of collecting household data in the field. Only 12 countries in Africa were classified in 2018 as having a unified social registry operating at a medium to large scale. Even if some of these data may be available, the lack of digitalization and data sharing procedures may complicate their use for efficiently targeting safety net programs. In a case study of Kenya's social protection expansion, it was noted that the value of social registry was compromised by incomplete data and bureaucratic delays with sharing access with the necessary stakeholders to facilitate the roll-out of new programs (Doyle and Ikutwa, 2021).

Targeting based on existing listings and associated limitations

Even where the use of existing listings for scaling worked most smoothly, basing short-term aid responses for COVID-19 on eligibility for long-term existing programs or social registries risks excluding certain groups, such as migrants and the undocumented. Migrant-receiving countries in southern Africa such as Botswana, Namibia, and South Africa did not have any formal program during the COVID-19 lockdowns to support migrant workers who suddenly found themselves unemployed and cut-off from their home country (Dafuleya, 2020). New program enrollment often required a national ID or mobile phone in one's own name, which disadvantages women and ethnic minorities (Doyle and Ikutwa, 2021).

Finally, in general, the challenge for targeting using existing lists was that the most severely affected households in the COVID-19 crisis were urban households while safety nets in Africa have traditionally focused on rural areas (Beegle et al., 2018). The pandemic has particularly affected urban dwellers dependent on the informal sector of the economy (e.g., Zeufack et al., 2021). The informal sector in Africa comprises 76.8% of non-agricultural employment, with a disproportional share of migrants and women (Guyen et al., 2021). These households are not poor enough to be included in social assistance programs targeting the poorest and because of the informal nature of their employment they are less likely to benefit from formal social insurance, which on average covers only 10.9% of the working population in Africa (Guyen et al., 2021). Some social protection expansions in North and West Africa attempted to target informal workers, including in Benin, Burkina Faso, Sierra Leone, Egypt, Morocco, and Tunisia,

Madagascar and Mauritius. However, this was difficult in practice as there was less potential to build on existing databases.

Alternative targeting approaches

In addition to targeted cash transfers, other forms of social protection responses especially in Central and West Africa included provision of subsidies or waiver for utility payments. Angola, Benin, Capo Verde, Chad, DRC, Rep Congo, Cote d'Ivoire, Gabon, Ghana, Guinea, Guyana, Liberia, Madagascar, Mali, Mauritania, Namibia, Togo, and Zambia all implemented some version of utility payment relief (Gentilini et al., 2020). While in theory, this type of social protection response allows targeting based on past usage levels, many countries skipped this step and simply reduced payments or implemented moratoriums on cutting off utilities across the board. As wealthier households consume more utilities, this even-handed approach is likely to end up disproportionately benefitting the better-off. Even when the utility subsidy was targeted based on past usage levels, in practice, utility subsidies may still be regressive. A household level panel survey in Accra, Ghana, showed limited impact of the utility subsidy on protecting food security or increasing consumption (Berkower, 2022). A major contributor to this lack of impact was that for poor households, it is common to share a meter for multiple households or for the landlord's name to be on the electric bill, so the program ended up being poorly targeted.

A new targeting approach pioneered in Togo used mobile phone usage patterns to identify poor households. While this approach does not reach the level of targeting effectiveness of the ideal unified social registry approach, it did compare favorably to broad-based geographical targeting (Aiken et al. 2022).

5.2 Evidence on targeting performance during the pandemic

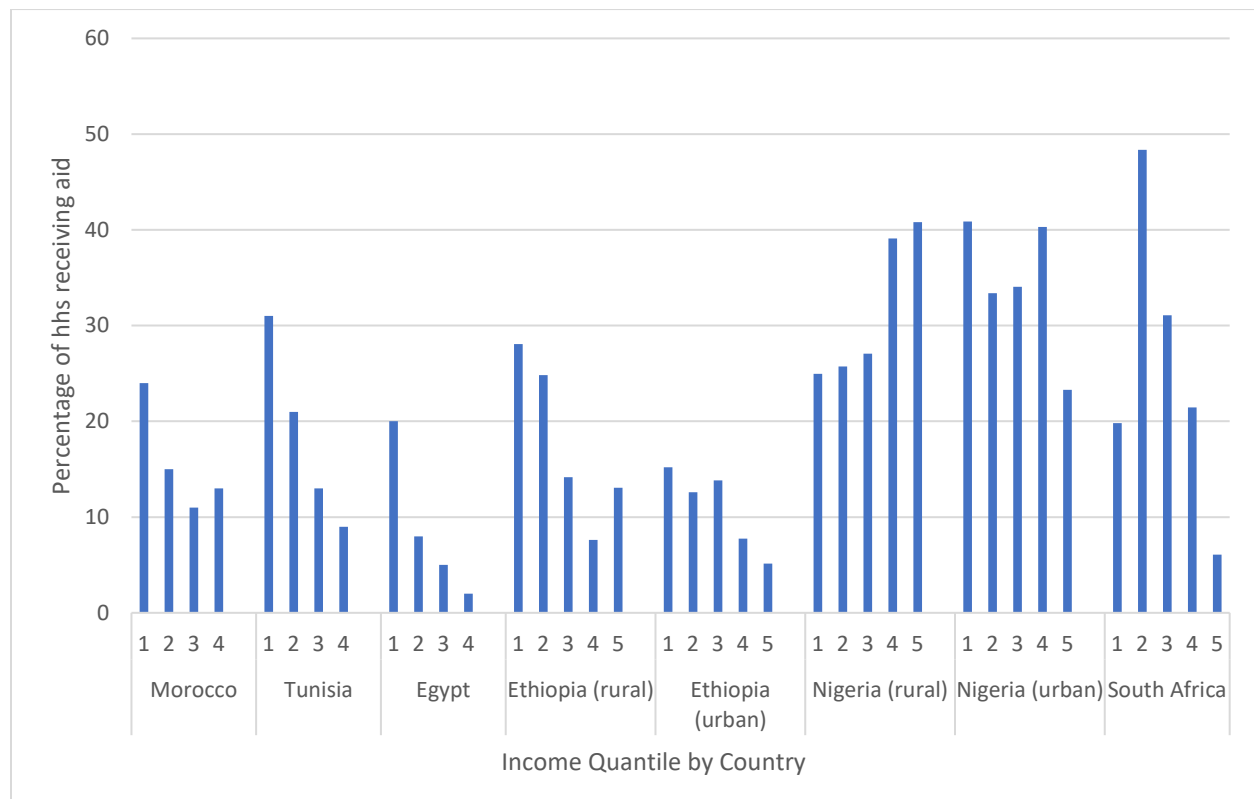
Targeting analysis of the COVID-19 social protection response is already available for some selected countries in spite of the constraints on collecting household level data and subject to the caveats noted above that the ideal response would not necessarily target the household which were poorest pre-COVID. Labor market monitoring surveys in Tunisia, Morocco, and Egypt in February 2021 show that social protection targeting was fairly progressive in Egypt with the poorest (pre-COVID) income quartile having almost double the average probability of receiving assistance. On the other hand, in Tunisia, the poorest quartile only had 1.5 times the average probability of receiving assistance and in Morocco, the poorest quartile was only slightly more likely to receive assistance than average. Beyond income quintiles, in Egypt and Morocco, informal workers were two to four times more likely to have lost their work during the pandemic than formal sector workers. Egypt's social protection response specifically targeted informal workers, and informal sector workers were more likely to report receiving government assistance than public or formal

sector workers. In Morocco, by contrast, public formal sector workers were significantly more likely to be receiving assistance (Krafft et al., 2021).

The World Bank, together with NSOs, collected HFPS data to monitor the impact of the pandemic on households in several African countries. These data can be used to evaluate the potential and targeting of social protection programs. Duchoslav and Hirvonen (2021) use these data to evaluate targeting of social protection and social assistance transfers in Ethiopia, Malawi, and Nigeria based on pre-COVID wealth quintiles. The targeting in Ethiopia which was primarily based on an expansion of the existing Productive Safety Net Program (PSNP) was progressive and covered about 27% of the poorest households in rural areas but was much less effective in urban areas. In Nigeria, there was a major expansion of cash transfers, but survey data showed only mildly effective targeting of government aid in urban areas, and a regressive distribution of probability of receiving aid in rural areas (Duchoslav and Hirvonen, 2021). In Malawi, major government plans to expand social protection did not materialize, so reported aid consisted of mostly uncoordinated privately run initiatives, which were poorly coordinated.

The targeting efficiency of the social protection response in South Africa has also been found to be generally pro-poor. South Africa benefited from a pre-existing means-tested comprehensive social protection system for which payment sizes were increased after the outbreak of the pandemic. The poorest two deciles of households, however, while being most affected by the lockdowns in terms of lost income, were less likely than households higher in the income distribution to have benefited from the expanded social protection as of April 2020, due to delays in enrollment and confusion about eligibility (Kohler Bhorat, 2020). Figure 11 compares the targeting performance reported in phone surveys in Morocco, Tunisia, Egypt, Ethiopia, Nigeria, and South Africa. Notably, in spite of the limitations mentioned above, the countries with the largest existing social national protection systems were able to expand quickly while maintaining overall pro-poor targeting.

Figure 11: Targeting performance in selected African countries during the COVID-19 pandemic



Sources: Duchoslav and Hiroven (2022), Kohler and Borat (2020), and Krafft et al. (2021).

5.3 Timeliness

Concerns about proper targeting are in tension with another major challenge in social protection programming: timeliness. Across Africa, there was generally a tradeoff between fast registration of new beneficiaries on existing systems, with the associated challenges reviewed above, versus rolling out new programs that targeted the right households but arrived too late (Devereux, 2021). Compared to other regions, Sub-Saharan Africa had the longest lag time between the stay-home orders and first payments at 132 days, about twice the global average (Beazley et al., 2021). This is likely to be driven by lack of institutional emergency responses mechanisms, absence of digital infrastructure and social registry to identify potential beneficiaries. In Kenya, just 50% of target beneficiaries in a new program to support urban informal workers had received support by August 2020, long after the most severe economic impacts of the lockdown (Kimani, 2021). The difference for household welfare between receiving aid during the most severe impacts of lockdowns compared to months later could be substantial. Suggestive evidence on the importance of timing is given by a study in Bangladesh, which showed that anticipatory transfers that provide support to households in advance of an expected flood shock were more helpful the earlier that they were received (Pople et al., 2021)

5.4 Financing of social protection programs and associated limitations

A final and enduring challenge related to the COVID-19 social protection response has been financing of safety net programs. Even before the pandemic, more than half of the funding for social protection programs in Africa came from development partners (Bossuroy and Coudouel, 2018). During the pandemic, social protection responses in Africa have relied heavily on loans and grants from international financial institutions and NGOs. This has inhibited expansion of social protection programs because funding from development partners, which were also affected by the pandemic, has significantly declined. In a selected group of African countries for which data was available in 2020, only 23% of spending on COVID-19 expansions of social protection was from domestic financing (Alfemni, 2020). This tendency to rely on donor funding also explains the relatively slow rate of the social protection response in Africa.

On the other hand, some countries such as Kenya and South Africa ran considerable fiscal deficits in order to fund the COVID-19 social protection responses (Alfemni, 2020). While the macroeconomic implications of spending on social protection are still relatively understudied, the potential drag on long-term growth of reduced productive investment is worth comparing to the short-term benefits for households (Breisinger et al., 2021).

Nor is the use of external financing without tradeoffs. Total aid flows to Africa increased in 2020, but remained small compared to total projected needs and in general were characterized by a sectoral reallocation in favor of social protection at the cost of investments in energy, transportation and storage. The bulk of the increase in official development aid came from international financial institutions, particularly the World Bank, and this aid surge is unlikely to be sustained. After high domestic spending during COVID-19 and now the economic implications of the Ukraine war, the largest bilateral donors are likely to have reduced development aid budgets (McCord et al., 2021).

6. Concluding Remarks

This paper employs recent sources of data to estimate and reassess the impact of the pandemic on country-level poverty in Africa. We combine national accounts data along with High-Frequency Phone Surveys for several countries to estimate the impact of the pandemic on poverty. These data can help refine and update early poverty projections which were built on several assumptions about expected changes in income as well as trends about the evolution of the pandemic and public health measures. We also review and synthesize empirical evidence on the role of social protection systems to mitigate the adverse impact of the pandemic in Africa. Our review pays particular attention to lessons learned on the delivery, targeting and impact of various social protection programs launched in Africa in response to the pandemic.

We estimate that the pandemic increased extreme poverty rate –i.e. those living on less than \$1.90-a-day in 2011 PPP –in Africa by 1.5-1.7 percentage points in 2020. This is relatively smaller than early

estimates and projections. There are several plausible explanations for these relatively smaller effects, including: (i) a younger population composition that has resulted in fewer direct health impacts, (ii) overestimation in the duration and potential impact more restrictive public health measures, and (iii) failure to account for counteracting responses of governments and businesses to mitigate the adverse impacts of the pandemic. We also document significant differences in the impacts across countries and regions. Countries affected by Fragility, Conflict, and Violence have suffered most because of the pandemic, experiencing a 2.1 percentage point increase in extreme poverty. This is intuitive given that conflict remains a major driver of poverty in Africa (Corral et al., 2020) and that political instability and conflicts have recently been increasing in Africa and may have impeded the social protection responses necessary to counteract the negative shocks experienced by households as a result of COVID-19. Consistent with several other studies, we also find significant heterogeneities across rural and urban areas. Despite some differences across countries, urban households suffered more than rural households.

Despite variations across countries, several African countries have responded to the COVID-19 pandemic by introducing and reforming a combination of existing social protection programs, unemployment insurance, and other rescue packages to support those affected by the pandemic (Gentilini et al., 2020; Abay et al., 2021a; Gronbach et al., 2022; Duchoslav and Hirvonen, 2021; Banerjee et al., 2020; Brooks et al., 2021; Alloush et al., 2022). Although the evidence base on their protective role remains scarce, some of these studies show that social protection programs have protected the welfare of vulnerable households. For example, Abay et al. (2021a) show that Ethiopia's Productive Safety Net (PSNP) absorbs much of the adverse effects of the pandemic on PSNP beneficiaries. Similarly, Banerjee et al. (2020) show that a universal basic income (UBI) scheme in rural Kenya during the pandemic had significant effects on food security as well as physical and mental health while Brooks et al. (2021) and Kimani et al. (2020) show positive impacts of a one-time cash transfer in Kenya and Uganda, respectively.

However, the pandemic also uncovered important vulnerabilities in social protection programming in Africa. First, because social protection programs in Africa target chronic poverty and not vulnerability to shocks and have traditionally focused on rural areas (Beegle et al., 2018), they were not sufficiently reaching urban households who were disproportionately affected by the pandemic and associated lockdown measures. Where large social protection systems existed, progressive expansion of benefits both vertically and horizontally could be accomplished relatively quickly and efficiently, while suffering from exclusion errors which particularly affected migrants, women, and the undocumented. Countries with more limited social protection infrastructure also rolled out numerous programs, but experienced greater challenges with targeting. Second, while social protection programs in Africa have reached some during the pandemic, many of the poor remained unreached, partly because many African countries have limited fiscal space to expand social protection programs, partly because social protection programs and safety nets in Africa

heavily rely on funding from development partners, which were also affected by the pandemic. The sustainability of social protection programs in African remains a particular concern and the impacts of investments on these programs on long-term economic stability remains to be seen.

Looking forward, although African economies have experienced less than expected effects of the COVID-19 pandemic and agriculture and agri-food systems continue to facilitate post-pandemic recovery of economies in Africa (Zeufack et al., 2021), post-COVID-19 recovery is likely to be prolonged for several reasons. First, inequity in access to vaccines and hence Africa's slow progress in vaccination rates continues to delay the recovery of economies. After two years into the pandemic, only 15 percent of the African population is fully vaccinated (WHO, 2022). Second, protracted conflicts and political instabilities, which have recently seen an increasing trend in the continent, could continue to delay recovery of economies and livelihoods. Third, the Russian-Ukraine crisis has important ramifications on food security and food prices in African countries that rely on Russia and Ukraine for cereal and fertilizer imports. These continued challenges remind the need to reinforce social protection programs to protect vulnerable households from these conflicts and food crises. In particular, social protection programming in Africa needs to be "shock-responsive" and evolve dynamically in response to the needs and challenges arising from covariate shocks (Roelen, et al., 2018). This requires investing in digital and data infrastructure to facilitate both the delivery and targeting of social protection programs as well as devising sustainable sources and modalities of financing social protection programs.

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Appendix

Table A1: Extreme poverty rate and number of poor in 2020 (macro projection)

Country	Code	Year	Poverty rate, %		Number of poor, millions	
			Without COVID	With COVID	Without COVID	With COVID
Angola	AGO	2020	52.2	54.9	17.2	18.0
Burundi	BDI	2020	80.0	80.5	9.5	9.6
Benin	BEN	2020	41.7	43.8	5.1	5.3
Burkina Faso	BFA	2020	30.6	34.6	6.4	7.2
Botswana	BWA	2020	12.5	16.2	0.3	0.4
Central African Republic	CAF	2020	70.2	71.5	3.4	3.5
Côte d'Ivoire	CIV	2020	20.4	22.3	5.4	5.9
Cameroon	CMR	2020	22.2	24.4	5.9	6.5
Congo, Dem. Rep.	COD	2020	70.7	72.1	63.3	64.6
Congo, Rep.	COG	2020	54.9	59.8	3.0	3.3
Comoros	COM	2020	17.9	19.2	0.2	0.2
Cabo Verde	CPV	2020	1.8	3.3	0.0	0.0
Djibouti	DJI	2020	13.2	14.4	0.1	0.1
Algeria	DZA	2020	0.3	0.3	0.1	0.1
Egypt, Arab Rep.	EGY	2020	3.4	3.8	3.5	3.9
Ethiopia	ETH	2020	18.4	19.0	21.2	21.8
Gabon	GAB	2020	3.3	3.6	0.1	0.1
Ghana	GHA	2020	9.9	10.9	3.1	3.4
Guinea	GIN	2020	20.0	20.5	2.6	2.7
Gambia	GMB	2020	7.1	8.6	0.2	0.2
Guinea-Bissau	GNB	2020	61.6	64.7	1.2	1.3
Kenya	KEN	2020	29.6	32.5	15.9	17.5
Liberia	LBR	2020	49.2	51.4	2.5	2.6
Lesotho	LSO	2020	28.5	31.1	0.6	0.7
Morocco	MAR	2020	0.5	0.8	0.2	0.3
Madagascar	MDG	2020	75.8	78.6	21.0	21.8
Mali	MLI	2020	41.3	45.1	8.4	9.1
Mozambique	MOZ	2020	62.1	63.8	19.4	19.9
Mauritania	MRT	2020	5.1	5.9	0.2	0.3
Mauritius	MUS	2020	0.1	0.3	0.0	0.0
Malawi	MWI	2020	66.7	68.3	12.8	13.1
Namibia	NAM	2020	16.0	18.1	0.4	0.5
Niger	NER	2020	38.0	41.2	9.2	10.0
Nigeria	NGA	2020	39.5	41.4	81.4	85.3
Rwanda	RWA	2020	46.0	51.9	6.0	6.7
Sudan	SDN	2020	14.7	15.6	6.4	6.8
Senegal	SEN	2020	25.8	29.0	4.3	4.9
Sierra Leone	SLE	2020	38.6	43.2	3.1	3.4
Somalia	SOM	2020	67.4	71.2	10.7	11.3

Country	Code	Year	Poverty rate, %		Number of poor, millions	
			Without COVID	With COVID	Without COVID	With COVID
South Sudan	SSD	2020	80.0	80.3	9.0	9.0
São Tomé and Príncipe	STP	2020	34.7	35.1	0.1	0.1
Eswatini	SWZ	2020	26.9	29.3	0.3	0.3
Seychelles	SYC	2020	0.3	0.5	0.0	0.0
Chad	TCD	2020	40.1	43.0	6.6	7.1
Togo	TGO	2020	44.0	45.8	3.6	3.8
Tunisia	TUN	2020	0.2	0.3	0.0	0.0
Tanzania	TZA	2020	46.2	48.2	27.6	28.8
Uganda	UGA	2020	36.8	38.2	16.8	17.5
South Africa	ZAF	2020	19.7	21.7	11.7	12.9
Zambia	ZMB	2020	58.6	60.3	10.8	11.1
Zimbabwe	ZWE	2020	39.0	43.5	5.8	6.5

Note: For the three countries -- Eritrea, Equatorial Guinea, and Libya -- with microdata not available in PovcalNet, we use average regional poverty to calculate poverty of the region. For detail, see Ferreira et al. (2016).

Table A2: COVID-19-induced poverty changes in 2020 and 2021 in Africa at various poverty lines

Year	Poverty line	COVID-19-induced poverty	
		Rate, %	Millions of poor
2020	\$1.90	1.7	23.0
2021	\$1.90	2.2	30.3
2020	\$3.20	1.7	22.8
2021	\$3.20	2.3	31.6
2020	\$5.50	1.3	17.7
2021	\$5.50	1.6	21.9

Note: COVID-19-induced poverty is calculated as the difference between poverty estimates using the with COVID-19 projection and one without COVID-19 projection. See also Table A1.

Table A3: Share of households reporting income and consumption changes in phone surveys

Country	Welfare measure	Rural household, %			Urban household, %		
		Increase	No change	Decrease	Increase	No change	Decrease
Burkina Faso	Consumption		95.4	4.6		92.4	7.7
Central African Republic	Consumption		47.8	52.2		47.8	52.2
Congo, Dem. Rep.	Consumption		18.8	81.2		18.3	81.7
Gabon	Income	2.8	31.3	66.0	0.4	36.8	62.8
Ghana	Income	5.0	18.0	77.0	4.0	22.0	74.0
Guinea	Income	3.2	17.0	79.8	3.2	17.0	79.8
Gambia	Income	0.0	1.9	98.1	0.6	13.2	86.3
Kenya	Consumption		54.5	45.5		42.4	57.6
Mali	Consumption		96.2	3.8		94.8	5.2
Mozambique	Income				5.7	29.5	64.8
Mauritius	Income	13.3	53.4	33.3	13.3	53.4	33.3
Malawi	Income	4.7	25.8	69.5	3.0	19.1	77.9
Niger	Consumption		96.9	3.1		96.9	3.1
Nigeria	Income	7.7	16.9	75.4	1.8	34.9	63.4
Sudan	Consumption		69.8	30.2		68.2	31.8
Senegal	Income	3.9	15.5	80.6	2.4	18.1	79.5
Tunisia	Income	2.2	59.9	37.9	4.1	46.1	49.8
Uganda	Consumption		81.7	18.3		84.4	15.6
Zambia	Income	1.2	52.5	46.3	4.3	25.8	69.9
Zimbabwe	Consumption		73.8	26.2		64.2	35.9

Note: Welfare measure lists either the change in income or loss in consumption reported in phone surveys. Households reporting income changes report either household income decrease, increase, or no change. Households reporting consumption changes report either household consumption decrease or no decrease. Income change is reported only for urban households in Mozambique.

Table A4: Estimates of extreme poverty (based on phone surveys)

Country	Rural			Urban			National		
	2019	2020		2019	2020		2019	2020	
		Without COVID	With COVID		Without COVID	With COVID		Without COVID	With COVID
Burkina Faso	39.0	36.4	41.7	10.8	10.1	10.2	32.8	30.7	34.6
Central African Republic	79.1	78.5	79.1	56.6	55.5	57.5	70.8	69.9	71.1
Congo, Dem. Rep.	84.7	84.5	85.5	49.1	48.7	49.5	71.0	70.7	71.7
Gabon	10.3	10.2	10.5	1.9	1.9	2.1	3.4	3.4	3.6
Ghana	20.2	18.8	19.3	1.5	1.4	1.7	10.7	10.0	10.4
Guinea	28.5	26.9	28.8	6.2	5.7	4.9	21.2	20.0	21.0
Gambia	16.1	15.0	16.1	1.3	1.3	1.8	8.0	7.4	8.3
Kenya	41.3	39.0	42.3	13.3	12.3	13.9	31.2	29.5	32.1
Mali	51.5	50.3	53.5	9.6	9.1	10.8	42.3	41.2	44.2
Mozambique	72.2	71.9	73.3	40.9	40.7	43.0	62.3	62.0	63.6
Mauritius				0.1	0.1	0.5			
Malawi	78.2	77.4	78.9	22.0	21.2	24.5	67.6	66.7	68.3
Niger	46.1	44.7	45.4	4.0	3.8	4.9	39.2	38.1	38.9
Nigeria	51.1	51.4	52.7	17.3	17.5	19.9	39.2	39.5	41.2
Sudan	15.8	17.1	17.9	9.6	10.8	13.6	13.6	14.9	16.2
Senegal	42.6	40.2	42.6	7.7	7.0	8.1	27.5	25.8	27.5
Tunisia	0.6	0.6	1.1	0.0	0.0	0.1	0.2	0.2	0.4
Uganda	44.8	43.5	44.9	16.9	16.3	16.9	38.0	36.8	38.3
Zambia	81.6	81.6	82.2	26.3	26.3	28.8	58.5	58.5	59.6
Zimbabwe	52.3	51.8	54.1	10.9	10.4	12.8	39.5	39.0	41.5

Note: This table reports the rate of extreme poverty—that is, those living under \$1.90-a-day (2011 PPP). “Without COVID” column reports expected estimates before the start of the COVID-19 pandemic, while “with COVID” column reports estimates influenced by the pandemic.

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Tel.: +1-202-862-5600
Fax: +1-202-862-5606
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