



# POVERTY & EQUITY NOTES

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## Comparing Approaches to Project COVID-19 Effects on Poverty

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*Different studies use different approaches to forecast how many people will fall into poverty due to the outbreak of COVID-19, with largely different results. Even when using the same growth forecasts and poverty lines, poverty projections differ largely by approaches: one projects poverty to increase by around 400 million individuals, while another estimates as few as 49 million individuals will fall into poverty. This Note compares approaches and how their specific methodological details lead to different estimates of poverty effects from the COVID-19 pandemic.*

### Different approaches to project COVID-19 effects on poverty come to different conclusions because they use different methodologies and growth projections.

Sumner et al. (2020)<sup>2</sup>, for instance, found that around 400 million people could fall into poverty measured at the international poverty line of US\$1.90 per day per capita in 2020 due to the pandemic. On the other hand, a recent blog by Mahler et al. (2020)<sup>3</sup> based on the WEO April 2020 projected that around 50 million people would fall into poverty measured at the same poverty line. Sumner et al. (2020) assume a global economic contraction of 20 percent in 2020, while Mahler et al. (2020) assume contraction of 3 percent in 2020.

### This Note seeks to compare how the projection methodology affects poverty results.

Using the same growth forecasts—WEO October 2019 for pre-crisis projections and WEO April 2020 for post-crisis projections—and the same US\$1.90 per day per capita poverty line, this Note examines how

methodological differences in 4 different approaches affect poverty projections.

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### Four Approaches

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**The 4 main approaches for projecting COVID-19 poverty effects, differ in terms of key methodological features** (see Table 1 for summary).

**Global Distribution Neutral (GDN):** This approach estimates poverty rates using PovcalNet (Castañeda et al. 2019<sup>4</sup>) while assuming all countries and all households in the world grow at the same rate. This comparison study uses world average growth rates from both rounds of WEO databases (WEO April 2020 and October 2019) for poverty projections. Since PovcalNet uses household expenditure or income per capita data for projections, GDP per capita growth rates need to be converted into household expenditure or income per capita. The conversion rate is called a “pass-through” rate. Here we assume a pass-

<sup>1</sup> All are from Poverty and Equity Global Practice, the World Bank.

<sup>2</sup> Sumner, A., C. Hoy, and E. Ortiz-Juarez (2020). “Estimates of the impact of COVID-19 on global poverty.” UNU- WIDER Working Paper 2020/43.

<sup>3</sup> Mahler, D.G., C. Lakner, R.A. Castaneda Aguilar, and H. Wu. 2020. “The impact of COVID-19 (Coronavirus) on global poverty: Why Sub-Saharan Africa might be the region hardest hit.” World Bank Blog. April 20. <https://blogs.worldbank.org/opendata/impact-covid-19-coronavirus-global-poverty-why-sub-saharan-africa-might-be-region-hardest>.

<sup>4</sup> Castañeda Aguilar, R. A., C. Lakner, E.B. Prydz, J. Soler Lopez, R. Wu, and Q. Zhao. (2019). “Estimating Global Poverty in Stata. The povcalnet command.” Global Poverty Monitoring Technical Note 9. World Bank: Washington DC.

through rate of “1” following the official PovcalNet lining-up technique. With the STATA command of Castañeda et al. 2019, this approach is extremely easy to implement and is popular among development practitioners (e.g., Sumner et al. 2020 and Melaine and Nonvide, 2020<sup>5</sup>).

**Global Growth Elasticity (GGE):** It is also possible to use growth elasticities of poverty—the percentage change in poverty rates that results from a 1 percent growth in GDP per capita—to project poverty rates. Here, since high-income countries' contributions to the world poverty rate is less than 1 percent, we estimate the growth elasticity from past growth rates of Emerging Market and Developing Economies (EMDE) in Global Economic Prospects (GEPs) and PovcalNet world poverty rates. We project poverty rates for 2019, 2020, and 2021 applying the WEO growth forecasts of EMDE with the above growth elasticity.

**Country Specific Distribution Neutral (CDN):** This approach assumes distribution-neutral growth with a pass-through rate of 0.85 for all countries. This passthrough rate is estimated from the observed relationship between growth from national accounts and growth from household surveys from 1,429 survey spells. An important difference from GDN is that CDN uses country specific growth rates from WEO databases, while GDN assumes that all countries grow at the same rate as the world average. Another difference is the pass-through rate: CDN assumes the pass-through rate of 0.85 while GDN assumes it is 1.

**Full Country Specific Projection (FCP):** This approach modifies CDN. Like CDN, it uses country specific growth forecasts for poverty projections, but unlike CDN, this approach uses a country specific poverty projection method for each country, as provided by Macro and Poverty Outlooks (MPOs) and a recent Fragility, Conflict and Violence (FCV) report (Corral et al. 2020<sup>6</sup>). MPOs are published twice a year and include World

Bank growth and poverty projections for most member countries. The FCV report develops a special poverty projection method for FCV countries. This approach uses the country specific projection methods for MPO and FCV countries and uses Mahler et al. (2020) poverty projections for the rest of the countries, which are mainly high-income countries.

**Using a unique growth projection method leads to very different conclusions.** Both WEO rounds (October 2019 and April 2020) show large variation in growth forecasts for 2020 across countries (Figure 1a). Furthermore, there is a systematic difference in growth forecasts by income groups (Figure 1b). In WEO April 2020, growth forecasts for low-income countries are systematically higher than those of developing countries as a whole and those of all countries. Since contributions of low-income countries to global extreme poverty are high, the use of the global average growth projection likely leads to overestimation of the global poverty projection for 2020.

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### Comparing COVID-19 Poverty Projection Results

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**The increase in poverty differs largely by projection approach.** To compare COVID-19's impact on poverty across the 4 approaches, we use two measures: (a) the increase in the poor population (Figure 2a), and (b) the full COVID-19 impact measured by the increase in the poor population compared with the pre-crisis projections (Figure 2b). Figure 2a shows that even after addressing differences in growth forecasts, the increase in poverty differs significantly by approach: GDN projects the poor population increases globally by 73 million, more than double the number of CDN. This is because GDN assigns the same growth rate to all countries while CDN tends to assign higher growth rates to poorer countries. The pace of recovery also differs by

<sup>5</sup> Melaine, G. and A. Nonvide. (2020) “Short-term impact of COVID-19 on poverty in Africa.” Covid Economics 15, 7 May 2020: 184-195.

<sup>6</sup> Corral, P., A. Irwin, N. Krishnan, D. G. Mahler, and T. Vishwanath. (2020). Fragility and Conflict on the Front Lines on the Fight against Poverty. The World Bank: Washington DC.

approach: FCP and CDN show that the number of poor in 2021 is still higher than that in 2019, while GGE and GDN show the number of poor in 2021 is smaller than that in 2019. Finally, by allowing country specific poverty projection methods, FCP shows a bigger increase in poverty in 2020 and a slower recovery in 2021 than CDN.

**To understand the full impact of COVID-19, we also need to include the reduction in poor populations that would have been achieved if the pandemic had not occurred.** Using pre-crisis projections (WEO October 2019), all projection approaches show continued reduction in poverty since 2019. To see the full impact of the COVID-19 outbreak, we must not only estimate the changes in poor population over time but also add lost opportunities; that is, the reduction in poor populations that would have been achieved if COVID-19 had not occurred. Figure 2b shows the full impact by including the lost opportunities. GDN records the biggest impact for the period 2019 to 2020, indicating the poor population would rise by almost 100 million due to the COVID-19 outbreak. For a longer interval between 2019 and 2021, the FCP approach predicts the slowest recovery.

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### Summary

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**Once addressing differences in growth forecasts, differences in poverty projections shrink; but important differences in COVID-19 impacts and pace of recovery remain due to the methodological differences.** First, GDN used by Sumner et al. (2020) and Melaine and Nonvide (2020)<sup>7</sup> projects almost double the increase in poor population between 2019 and 2020 and a quicker recovery by 2021 than CDN used by Mahler et al. (2020). Another observation is that by allowing country specific poverty projection methods, FCP

shows a larger increase in poor population in 2020 and a slower recovery in 2021 than CDN.

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### Next Steps

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**All projections should be treated as tentative.**

For one thing, revisions of poverty estimates and subsequent projections in 2 large countries (Nigeria and India) are likely. Also, growth forecasts will keep updating, and MPO poverty projection methods will likely be updated. Furthermore, all these poverty projections use only growth forecasts as inputs to estimate poverty rates. However, economic growth alone may not be adequate to provide accurate poverty projections since a number of other factors may affect the incidence of poverty (such as reduced remittances and social safety nets).

**High frequency phone surveys will provide more recent and timely inputs for poverty projections.**

Phone surveys currently being conducted in many developing countries will collect data on the socio-economic impact of COVID-19 on households. These inputs are likely to improve the accuracy of poverty projections.

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<sup>7</sup> Melaine, G. and A. Nonvide. (2020) "Short-term impact of COVID-19 on poverty in Africa." Covid Economics 15, 7 May 2020: 184-195.

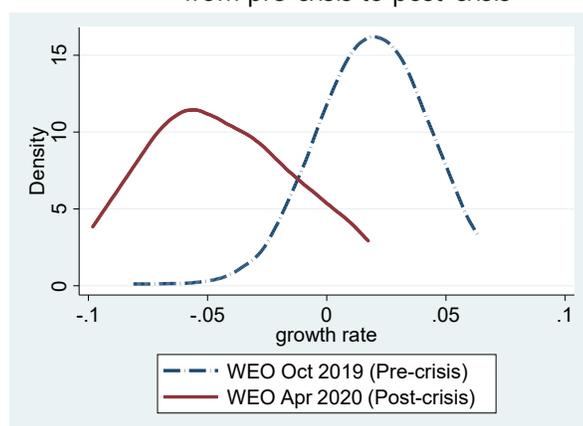
**Table 1. Comparison of Poverty Projection Approaches**

Approach	Growth forecasts	Poverty projection approach
GDN	Global growth forecasts in WEOs	Globally unique method
GGE	EMDE growth forecasts in WEOs	Globally unique method
CDN	Country specific growth forecasts in WEOs	Globally unique method
FCP	Country specific growth forecasts in WEOs	Country specific method

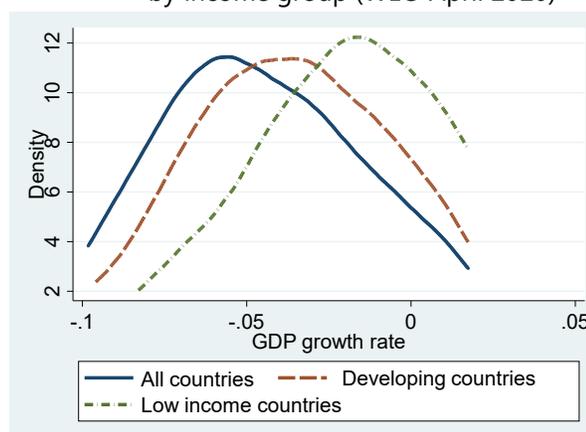
Note: GDN = Global Distribution Neutral, GGE = Global Growth Elasticity, CDN = Country Specific Distribution Neutral, FCP = Full Country Specific Projection, EMDE = Emerging Markets and Developing Economies.

**Figure 1. Growth Forecasts Differ Largely across Countries**

a. Changes in growth forecasts for 2020 from pre-crisis to post-crisis



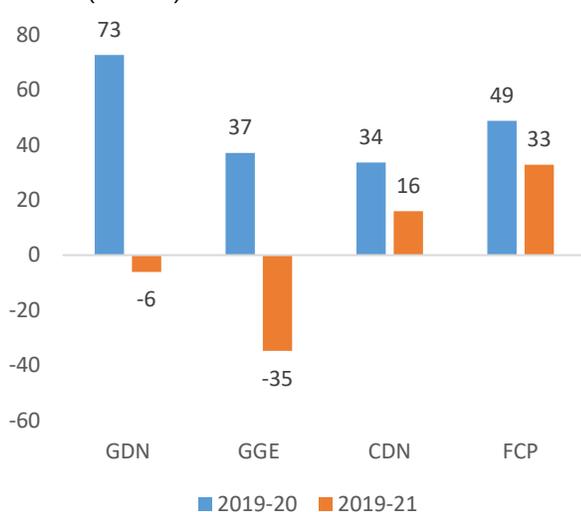
b. Comparison of growth forecasts for 2020 by income group (WEO April 2020)



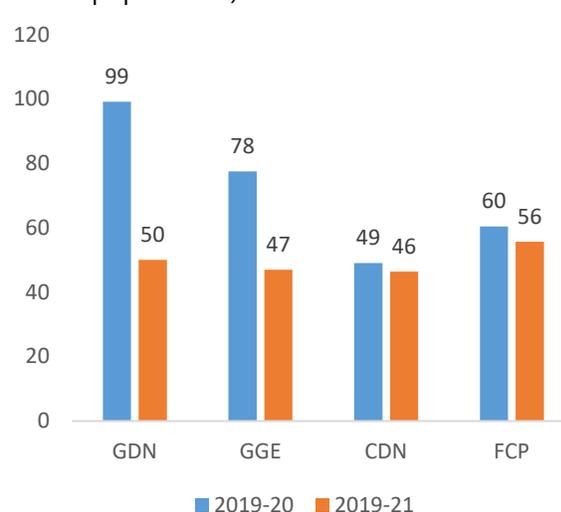
Source: WEO October 2019 and April 2020 databases.

**Figure 2. Approach Matters**

a. Changes in poor population over time (million)



b. Full COVID-19 impact (millions of poor populations)



Source: Authors' calculations using growth forecasts in WEOs (October 2019 and April 2020), World Development Indicators, and PovcalNet  
 Note: GDN = Global Distribution Neutral, GGE = Global Growth Elasticity, CDN = Country Specific Distribution Neutral, FCP = Full Country Specific Projection