Children in monetary poor households and COVID-19: Technical Note

Children suffer poverty differently from adults. Their needs, expectations, and aspirations are different. As children are not supposed to earn a living, it is important to assess directly their material shortcoming and deprivations – in other words measure their child poverty multidimensionally. Nevertheless, in the context of the current pandemic, as parents lose their jobs and source of income, it is also important to measure what happens to children living in monetary poor and impoverished families.

Children living in monetary poor households

It is well known that poorer families tend to have more children. Consequently, it would not be correct to just apply the percentage of children in the total population to obtain the proportion of children among the poor population.

Thus, first we set out to estimate the proportion of children living in poor households, as defined by national standards, across developing countries. We know, from World Bank data[1], the proportion of the population living with income (or consumption, depending on data availability) below the national poverty line[2]. We combine this information with data from MICS and DHS on the distribution of children by deciles[3].

For instance, let us assume there are 100 persons in the country and that 45 of them are children. (i.e. they are 45% of the total population). Let us also assume that monetary poverty is 30% (i.e. 30 persons).

Also, let us assume that the proportion of children in the bottom 30% of the population is 50%. In other words, half of the persons who are monetary poor are children. Then, out of the 30 monetary poor persons, 15 are children.

This means that one third of the children live in monetary poor households. The number of children living in monetary poor households is 15 and the total number of children is 45. I.e. out if the 45 children, 15 (or one in three) live in monetary poor households[4].

Based on 103 countries for which data exists[5], we do estimate that almost 1 out of 3 children in low- and middle-income countries live in monetary poor households, as defined by national poverty lines.

The impact of COVID-19 on children living in poor households

Then, we estimate the likely change in the number of children in poor households due to COVID-19. Several estimates of increases in monetary poverty due to COVID-19 have recently been churned out. For instance, globally, the World Bank has estimated increases in extreme poverty (as measured by the PPP

[1] All data used in this analysis are publicly available.

[2] https://data.worldbank.org/indicator/SI.POV.NAHC

[3] We have processed household survey data for 98 countries from 2010 onwards, including Demographic and Health Surveys (phases 6-7) and Multi Indicator Cluster Surveys (rounds 4-6). Note: In MCIS and DHS these are wealth (not income/consumption) deciles. Nevertheless, this is the best available information which is comparable across countries and can be combined with the other data used in the exercise.

[4] When calculations similar to these ones are carried out in each country, they are not necessarily comparable across countries. Nevertheless, when aggregating across countries, we arrive at the total of people considered monetary poor in each country.

[5] We have relevant data across all parts of the methodology for 86 countries. For 17 countries, we do have all data needed except the population structure (i.e. distribution of children per decile). In those cases, we made modelled the distribution based on other countries in the same world region and income group.

U$1.90 threshold) of 40-60 million[6] people, while similar estimates by the UN (based on the IFPRI poverty model) suggest 84-132 million[7].

To assess the impact of COVID-19 on the number of children living in poor households, we distinguish two effects. One is a per capita income effect. It represents the average decline in income per person. The other one is a distribution effect. It is well known that averages hide disparities. In the current situation, it is safe to assume the decline in income is worse for the lowest end of the income distribution. This assumption is strongly supported by recent evidence on the effects of past pandemics on inequality[8].

We base the income effect on country-by-country estimates of population growth[9] and decline in total output by the IMF[10] and by the World Bank[11], we obtained a range of likely projections (more or less optimistic) of average income per person in 103 countries. The Most Optimistic scenario takes the least expected decline for each country (from any source[12]). Similarly, the Most Pessimistic one takes the largest estimated decline. This exercise provides two boundaries for changes in per capita income.

For the distribution effect, we used the UNU WIDER[13] historical trend data on income distribution to model various scenarios of income distribution change. The information which was used pertained to income shares by decile. Nevertheless, we also checked that the simulated changes were not disproportionate to observed changes in Gini coefficients (a common measure of income distribution). When the changes were too large[14], we made two adjustments. This resulted in three simulations: A Full Distribution effect, a Mild Distribution effect, and a Least Distribution effect. The Full Distribution effect consists of the actually observed changes. In the Mild Distribution effect, any distribution of income shares by decile that resulted in Gini coefficients changes exceeding the 75th percentile of observed changes in Gini was capped at the 75th percentile level and all changes in decile shares adjusted proportionally. In the Least Distribution effect, any distribution of income shares by decile that resulted in Gini coefficients changes exceeding the 50th percentile of observed changes in Gini was capped at the 50th percentile level and all changes in decile shares adjusted proportionally.

Combining the best and worst scenarios for average income change and shifts in income distribution yields six thresholds. Three of them correspond to the Most Pessimistic output scenario (according to the three scenarios regarding the distribution effect). There are also three corresponding scenarios associated to the Most Optimistic output scenario.

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[6] https://blogs.worldbank.org/opendata/impact-covid-19-coronavirus-global-poverty-why-sub-saharan-africa-might-be-region-hardest

[7] https://www.un.org/sites/un2.un.org/files/policy_brief_on_covid_impact_on_children_16_april_2020.pdf

[8] Furceri, D. et al. (2020). Will Covid-19 affect inequality? Evidence from past pandemics. Covid Economics 12, 1 May 2020: 138-157.

[9] United Nations Population Division. World Population Prospects: 2019 Revision.

[10] IMF, World Economic Outlook, April 2020

[11] Various regional economic briefs, April 2020

[12] For Latin America and the Caribbean, further country estimates by the Economic Commission for Latin America and the Caribbean have been available besides those of the IMF and the World Bank.

[13] UN WIDER: World Income Inequality Database

[14] Also, we checked that the changes were not the result of varying time periods. We took the average annual rates of change for all observed changes in the Gini coefficient since the year 2000. In addition, in some cases, the historical trends of the last decade (or more) indicated a continuous improvement in income distribution (i.e. becoming more egalitarian). In this case we took the latest change and assumed that COVID-19 could revert it.

Given the uncertainties and variations around estimates, approximations, assumptions, and underlying data, we include a range for a lower and an upper bound. I.e. instead of a fixed range between X and Y, we estimate a range between a low boundary and a not so low one as well as a high and a higher upper bound.

Out of these six levels, we chose the two outer-most ones. Naturally they are the Most Optimistic with Least Distribution effect and the Most Pessimistic with Full Distribution effect. These provide the widest range of possible outcomes. For the second of the boundaries, we use the ones closest to these two. They happen to be the Most Optimistic and Most Pessimistic output scenarios with Mild Distribution effect.

Summary of main results

The table below shows the regional results. It includes the headcount (rate, in percentage of the child population) of children living in monetary por households as defined by the country-by-country national poverty lines. It also shows the millions[15] of children in this situation in the pre-COVID 19 situation (baseline) and the simulated changes for the four scenarios comprising the upper and lower boundaries of the estimates.

Region	Baseline	Most optimist GDP; Least distribution effect	Most optimist GDP; Mild distribution effect	Most pessimistic GDP; Mild distribution effect	Most pessimistic GDP; Most distribution effect
	Headcount (proportion of children living in monetary poor households)				
East Asia and Pacific	16.5%	15.5%	16.3%	17.3%	17.9%
Europe and Central Asia	13.0%	16.1%	17.2%	17.6%	18.8%
Latin America and Caribbean	38.2%	45.3%	45.8%	46.2%	46.5%
Middle East and North Africa	26.0%	29.8%	29.8%	30.5%	30.5%
South Asia	27.2%	28.3%	28.7%	29.2%	29.3%
Sub-Saharan Africa	45.6%	48.5%	48.8%	49.3%	49.4%
WORLD	**31.9%**	**34.2%**	**34.6%**	**35.2%**	**35.4%**
	Total (in million)	*Increase (in millions)*			
East Asia and Pacific	42.5	17.3	18.9	21.5	22.9
Europe and Central Asia	13.6	3.2	4.4	4.8	6.1 (↑ 44%)
Latin America and Caribbean	71.6	13.2	14.2	15.1	15.6 (↑ 22%)
Middle East and North Africa	41.0	5.9	5.9	7.0	7.0 (↑ 17%)
South Asia	167.5	7.0	9.3	12.6	13.1 (↑ 8%)
Sub-Saharan Africa	250.0	16.1	17.7	20.5	21.3 (↑ 9%)
WORLD	**586.2**	**62.8**	**70.4**	**81.5**	**86.0** (↑ 15%)

[15] As mentioned above, estimates are carried out by country. China is included in the total numbers but excluded in the rates shown in the table as doing so, given the weight of China in the regional average, would present a distorted picture of the situation in the region. This is not the case for India as the headcount rates for the large countries in the region are all very similar.