Measuring global poverty before and during the pandemic: a political economy of overoptimism

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ABSTRACT
The contribution of this paper is to question the ‘official’ estimates of global monetary poverty up to and during the COVID-19 pandemic. We argue there is a political economy of overoptimism in the measurement of global poverty. Specifically, we show that the methodological and presentational choices can lead to an over optimistic view of the levels of, and trends in, global poverty. We provide an up-to-date critique of the global poverty estimates and demonstrate how patterns of poverty would differ if small changes in methodology were implemented. We conclude with a theoretical discussion of why such methodological choices that lead to an optimistic view of global poverty levels and trends are made. Subsequently, we propose an alternative approach to global poverty measurement.

Introduction
The contribution of this paper is to question the ‘official’ estimates of global monetary poverty up to and during the COVID-19 pandemic. We use the same data set employed by the World Bank to produce estimates of global poverty – specifically, the PovcalNet data set of harmonised household surveys (the March 2021 update). Based on this, we argue there is a political economy of overoptimism in the measurement of global poverty. We demonstrate that the methodological and presentational choices can support an overoptimistic view of the levels of, and trends in, global poverty. In short, the estimates are hypersensitive, meaning that very small changes in the value of the income poverty line make a surprising difference to poverty estimates.

The paper is structured as follows: We provide a critique of global poverty measurement with a focus on how methodological and presentational choices produce optimistic trends and levels of poverty. Then we survey the World Bank’s estimates of the pandemic’s poverty impact, again suggesting that the methodology employed by the World Bank is likely over-optimistic and inclined to produce lower range estimates of the poverty impact. Finally, the
paper proposes a theory as to why the World Bank is over optimistic and subsequently outlines an alternative approach to poverty measurement.

**Estimating global poverty before the pandemic**

Measuring global poverty entails a long list of methodological choices (see for discussion Fischer 2018; Reddy and Lahoti 2015). To skim the surface, three illustrations of these choices are as follows: First, the precise indispensable food and non-food items as well as what constitutes a minimum standard of living in any country have to be decided. Second, this leads to questions of which exact national prices to use and how to estimate price changes over time – a general price index of average consumption or a food price inflation index better reflecting the price rise of items consumed by those in poverty (further complicated if official price data is not collected in rural areas). There are also questions about price comparisons between countries, because what may be considered a staple necessity in one country may be rarely consumed in another, while international price data collection (purchasing power parity, PPP) may focus on average consumption habits rather than on food and other necessities. Third, there is the question of which countries’ national poverty lines should be used to estimate a global poverty line and how meaningful an average of countries is if there is substantial variation in the values of national poverty lines and given that most of the world’s poor do not live in those countries. These three issues are by no means exhaustive, but they are illustrative of the importance of methodological choices in the ultimate determination of the level and trends in global monetary poverty as well as the latter’s distribution around the world.

The dominant definition of monetary poverty – and the indicator of target 1.1 of the first United Nations (UN) Sustainable Development Goal (SDG 1) – is the international monetary poverty line developed by the World Bank, referred to as the ‘extreme poverty’ line. This threshold has been revised from the original one-dollar-a-day line (which used 1985 PPP) to, ultimately, $1.90 a day in 2011 PPP (see Table 1; Ravallion, Datt, and van de Walle (1991), Ravallion, Chen, and Sangraula (2009), Ferreira et al. (2016) and Jolliffe and Prydz (2016) for history, methodology and revisions; for in-depth critique in particular, see Fischer (2018) and Reddy and Lahoti (2015); and, historically, the work of Reddy and Pogge (2002)). Over time, the reference countries used to estimate the global poverty line have changed, as has the value of those countries’ national poverty lines. The value of the poverty line in constant (1985) dollars has fluctuated and remains below the original dollar-a-day line (see Table 1).

The World Bank does estimate higher poverty lines at $3.20 and $5.50 a day. The $3.20 and $5.50 a day lines are, respectively, the median values of the national poverty lines of lower middle and upper middle-income countries (LMICs and UMICs, respectively) in 2014 (Jolliffe and Prydz 2016). However, in most World Bank communications with broader audiences, these lines are much less emphasised, and they are often not included in discussions (and they are absent in the SDGs and related debates). Thus, to a considerable extent, ‘ending’ poverty has become equated to ending $1.90 a day poverty.

The $1.90 a day or extreme poverty line is designed to be consistent with the earlier iterations of the World Bank’s poverty line, in particular with the precursor, the $1.25 a day line constructed with 2005 PPP. Table 1 shows the $1.90 a day threshold is derived from 15 countries’ national poverty lines. However, those lines largely date from the 1990s, meaning many years of Consumer Price Index (CPI) data are required to update them, and the values
of those national poverty lines in 2011 PPP vary substantially – they range from $0.88 to $3.18 (see Figure 1). The oldest threshold in the set, that of Mali, is from 1988/89. The determination of the $1.90 value relies heavily on two decades’ worth of CPI data for some of the world’s poorest countries, which is problematic since errors could change the overall value of the poverty line. In fact, in three countries (Ghana, Malawi and Tajikistan), the CPI data was thought to be so questionable that the World Bank used household survey data to construct a temporal deflator.

Moreover, most of the world’s extreme poor (according to the $1.90 a day line or the United Nations Development Programme (UNDP)/Oxford Poverty & Human Development Initiative (OPHI) non-monetary Multidimensional Poverty Index (MPI)) are not living in the countries used to construct the $1.90 threshold. Lastly, comparisons of multidimensional and monetary poverty headcounts indicate the strongest correlation around the World Bank’s higher poverty line of $3.20 a day or more (Hoy and Sumner 2016).

A potentially more convincing justification for the use of the $1.90 a day poverty line (put forward by Jolliffe and Prydz 2016) is that the value corresponds to the median of the national poverty lines of low-income countries (LICs), or at least it did in 2014. However, the

### Table 1. The evolution of the World Bank’s global poverty line.

| World Bank global poverty line | $1/day | $1.08/day | $1.25/day | $1.90/day (i) | $1.90/day (ii) |
|--------------------------------|--------|-----------|-----------|--------------|--------------|
| Date released                 | 1990   | 2001      | 2008      | 2015         | 2015         |
| PPP data used                 | 1985 PPP | 1993 PPP | 2005 PPP | 2011 PPP     | 2011 PPP     |
| Countries in ‘reference group’ used to estimate a global poverty line | Bangladesh, Indonesia, Kenya, Morocco, Nepal, Pakistan, Philippines, Tanzania | Bangladesh, China, India, Indonesia, Nepal, Pakistan, Tanzania, Thailand, Tunisia, Zambia | Chad, Ethiopia, The Gambia, Ghana, Guinea-Bissau, Malawi, Mali, Mozambique, Nepal, Niger, Rwanda, Sierra Leone, Tajikistan, Tanzania, Uganda | Same as 2008 (a) 29 countries in the poorest quartile of per capita household final consumption expenditure (b) 33 countries in the World Bank’s low-income category |

| ‘Inspection’ | Mean | Median | Mean (rounded from $1.88/day) | Median (rounded from $1.91/day) |
|--------------|------|--------|-------------------------------|-------------------------------|
| Value of global poverty line across reference countries | $1.01 | $0.80 | $0.69 | $0.91 | $0.91 |

| Value of poverty line in constant 1985 USD | $1.01 | $0.80 | $0.69 | $0.91 | $0.91 |

| References | World Bank (1990); Ravallion, Datt, and van de Walle (1991) | Chen and Ravallion (2001) | Ravallion, Chen, and Sangraula (2009) | Ferreira et al. (2016) | Jolliffe and Prydz (2016) |

PPP = Purchasing Power Parity.

Source: Adapted from Ferreira et al. (2016, 145) and Jolliffe and Prydz (2016, 195).

Notes:

(a) Benin, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Comoros, Republic of Congo, Democratic Republic of the Congo, Ethiopia, The Gambia, Ghana, Guinea, Kenya, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Nepal, Niger, Rwanda, Senegal, Sierra Leone, Tajikistan, Tanzania, Togo, Uganda.

(b) Azerbaijan, Benin, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Comoros, Republic of Congo, Ethiopia, The Gambia, Ghana, Guinea, Guinea-Bissau, Haiti, Kenya, Kyrgyz Republic, Liberia, Madagascar, Malawi, Mali, Mozambique, Nepal, Niger, Pakistan, Rwanda, Senegal, Sierra Leone, Tajikistan, Tanzania, Togo, Uganda, Zambia.
composition of countries in the LICs group has since changed (some countries have moved into the category LMICs and some have been downgraded from LMIC to LIC). Furthermore, the PPPs themselves have been through another round of revisions and are thus no longer the most recent PPP data. A new series of 2017 PPP exchange rates was published in May 2020, and thus the World Bank poverty lines will be revised upwards in due course (Atamanov et al. 2020).

The final, precise, chosen value of the poverty line matters enormously because of the hyper-sensitivity of poverty headcounts. For example, in 2019, prior to the pandemic, 681 million people were living below the $1.90 a day poverty line. For every 10 cents in 2011 PPP added on top of the $1.90 poverty threshold, the global poverty headcount increases by almost 70 million people, on average (see Figure 2, which plots incomes per capita up to $13 a day since this line is associated with a permanent escape from poverty – see later discussion). Furthermore, many populous developing countries have very sensitive headcounts around the $1.90 a day consumption/income level (Edward and Sumner 2019). Moreover, the average value of national poverty lines across all developing countries is approximately $2.50 a day, which would add another half a billion people to the poverty count (see Figure 2). Additionally, altering the poverty line changes the geographical distribution of global poverty. As Deaton (2010) originally noted a decade ago: lower poverty lines ‘push’ global poverty into sub-Saharan Africa, while slightly higher lines ‘asianise’ it (see Figure 3). Thus, the narrative that global poverty is concentrated in sub-Saharan Africa too is dependent on the line employed.

Another important issue not yet covered is that there is no real data for poverty in India for almost a decade (since the last survey was conducted in 2011/2012) nor population data since 2013, which impacts the Gross Domestic Product (GDP) growth numbers and forecasts used in the estimate of the pandemic’s poverty impact. Instead, the World Bank PovcalNet...
database extrapolates poverty in India from 2011 to 2017 (not 2019, though why is not clear) by multiplying each value of household per capita consumption in the survey by the latter’s annual per capita growth rate between the current and the subsequent year as reported in national accounts. The World Bank uses the growth in per capita household final consumption expenditure (HFCE, from national accounts) to extrapolate from the actual to the reference year in poverty estimates. In this process, usually a pass-through rate (from

Figure 2. Poverty headcounts (millions of people) by daily per capita income, $1.90–$13 a day. Source: Authors’ estimates based on World Bank data (March 2021 global poverty update).

Note: For 166 countries, the data is from or extrapolated to 2019; for India it is extrapolated to 2017 by the World Bank.

Figure 3. Regional distribution of global poverty by daily per capita expenditure (excludes high-income countries), $0–$13 a day. Source: Authors’ estimates based on World Bank data (March 2021 global poverty update).

Note: For 166 countries, the data is from or extrapolated to 2019; for India it is extrapolated to 2017 by the World Bank.
HFCE in national accounts to household expenditure) of 1 is used, which is optimistic (see World Bank 2020a, 73, fn 13). The only exception is India, where the employed rate is 0.67. To estimate the impact of the pandemic on poverty between 2019 and 2020, the World Bank uses GDP per capita growth instead of HFCE growth, and thus employs a pass-through rate of 0.85 based on comparisons between past growth in national accounts and household surveys (World Bank 2020a; Lakner, Mahler, et al. 2020). Yet in the current context this also seems optimistic, as it implies the full economic contraction will not pass through to households during a GDP contraction. In reality, economy-wide shutdowns may actually impact household welfare more. The absence of data on India throws a question mark over any estimates – official or otherwise – of global poverty given the magnitude of India’s population. In general, extensive distribution-neutral interpolation and extrapolation is an inherent feature of global poverty estimates. In fact, of the more than 6200 income or consumption distributions in the PovcalNet database, only 1858 are ‘real’ survey-year data (see Figure 4).

This highly technical issue – how poverty is measured – matters because there is a dominant and widely held belief that global poverty has fallen dramatically since the early 1980s although this depends on the line used: the data show that when measured at both the extreme poverty line of $1.90 per day and the ‘moderate’ poverty line of $3.20 a day, global poverty has indeed decreased since the 1980s. However, many previously ‘poor’ people have simply moved just above one of the World Bank’s poverty lines but are not yet secure from the risk of falling back into poverty in the future (see discussion later). Thus, the oft-cited record of poverty reduction is somewhat fragile. In fact, small methodological changes, for example in CPI or PPP data in the reference group of national poverty lines, could be sufficient to shift the overall poverty line and thus the level and trend of poverty.

Figures 5 and 6 show daily consumption per capita of the global population with and without China, respectively. At the lowest line, $1.90 a day, the absolute global monetary poverty headcount has fallen from 1.9 billion people to approximately 0.7 billion, or from...
43% of the global population to just 9%. However, four countries account for this reduction in absolute numbers (China accounts for two-thirds and India, Indonesia and Viet Nam collectively account for the remainder). Furthermore, this decline in ‘extreme’ poverty has led to a burgeoning group of people not far above $1.90 a day. In fact, about a billion people now live between $1.90 a day and the next poverty line, $3.20. Moreover, there is a large group living between $3.20 and $13 a day (see Figure 5), a line associated with security from the risk of future poverty as will be outlined below. This latter group has grown from about 20% of the world’s population in 1981 to more than 40% in 2019. In absolute terms, the global monetary headcount at $13 a day has increased from 3.48 billion people in 1981 to 5.07 billion by 2019. Of course, there has been much population growth. In relative terms, though, the headcount at the $13 line has only fallen from 79% of the world’s population in 1981 to about 68% in 2019. If we focus on the world excluding China (see Figure 6), less has changed since the early 1980s: in fact, if China is not included, the headcount at $13 a day as a proportion of the world’s population has changed little in almost 40 years.

To be clear, we are not arguing that the income growth among the poorest in the world has not been positive. Rather, we are demonstrating that global poverty reduction since the Cold War has been mostly about moving people from below to not far above a low poverty line and that the poverty line might change if CPI or PPP data were adjusted or revised, or if food CPI data were used. Highlighting this trend often ignites heated debates, but one cannot overlook the fact that absolute poverty has not fallen at more reasonable poverty lines despite significant economic growth across many developing countries since 1990 and irrespective of the fact that the size of the global economy has tripled in that period. Estimates at higher lines suggest either that many, many hundreds of years will pass before the end of all poverty is reached or that a completely new global economic model is required based on enormous global and national redistribution. In sum, using very low poverty lines and communicating the trends and levels based on these lines may lead to a storyline that

Figure 5. Population (%) of the world by daily income or consumption per capita group, 1981–2019. Source: Authors’ estimates based on World Bank data (March 2021 global poverty update). Note: The data for India in 2018 and 2019 are assumed to remain unchanged at the extrapolated level of 2017.
absolute poverty will be ended, without any changes to the workings of the global economy or the contemporary model of economic development.

**Estimating the poverty impact of the pandemic**

Much discussion about the pandemic’s impact in developing countries evolved around health-related and macro-economic factors (Addison, Sen, and Tarp 2020). Some, but few, debates focused on the pandemic’s influence on poverty rates in developing countries via increased unemployment and labour income disruptions for those who cannot work from home, as lockdowns have been the predominant policy measure to curb the virus. Assessing these poverty impacts is critical given that social protection systems in developing countries are frequently fragmented and do not include many informal workers whose income-generating capacities are especially obstructed by lockdowns (ILO 2020).

According to Dingel and Neiman (2020), at most an estimated 25% of jobs in developing countries can be performed from home, compared to an average share of 37% of jobs in high-income countries (HICs) that are amenable to remote working. In LICs, the share is lower, at a mean of 11% (see Table 2). Hatayama, Viollaz, and Winkler (2020) illustrate that informal-sector jobs are also less likely to be workable from home, and that there is a positive correlation between feasibility of remote working and a country’s level of economic development. These numbers underline the importance of social safety nets, which many developing countries have already implemented but whose benefits need to be universal or more broadly accessible, especially to informal-sector workers, requiring a significant increase in funding (see Gentilini et al. (2021) for a discussion of the social policy enhancements implemented in response to COVID-19).

Different estimates of the pandemic’s impact on developing countries have been made. Initially, estimates attempted to evaluate whether the economic consequences of the
The pandemic will be of similar magnitude to the health-related ones. On the one hand, the share of the population at high risk might be smaller in developing countries due to lower average age. On the other hand, developing countries’ health care systems are generally weaker than those of industrialised nations. Moreover, developing countries’ populations might face increased vulnerability to COVID-19 due to pre-existing conditions of poverty (Alkire et al. 2020). For instance, higher rates of COVID-19 morbidity and mortality are associated with hypertension, diabetes, pollution and malnutrition (Schellekens and Sourrouille 2020).

When estimating the pandemic’s impact on poverty, several challenges arise. In fact, determining the exact impact is and will remain impossible given doing so would require pre- and post-pandemic household surveys. While the former do not exist for all countries, it is also difficult to establish a precise end date of the pandemic since infections will likely continue for years in many developing countries if the global distribution of vaccines does not change dramatically. Instead, the pandemic’s impact on income poverty has been estimated either by using GDP growth forecasts – the International Monetary Fund (IMF’s) World Economic Outlook (April or October 2020) or the World Bank’s Global Economic Prospects (June 2020) and Macro Poverty Outlook (October 2020) – or by estimating the number of people living just above the poverty threshold and how many people would fall into poverty in the face of income shocks of various degrees. Since the GDP growth forecasts are tentative and the income shocks are scenarios, the estimates of the pandemic’s poverty impact are all preliminary. Indeed, the actual impact will depend on what governments do to counteract the impact of the pandemic.

Table 3 surveys World Bank estimates of the pandemic’s impact on extreme ($1.90 a day) poverty. In April 2020, using the then latest GDP growth forecasts, the World Bank estimated that 61.9 million additional people would be living on less than $1.90 a day because of the pandemic. In October 2020 and based on updated growth forecasts by World Bank and IMF, the World Bank more than doubled its projections, to 125–131 million additional extremely poor people. Hence, instead of only 0.8 percentage points more extreme poverty globally, the estimates were increased to 1.6 to 1.7 additional percentage points. The pre-pandemic poverty estimates vary between the different World Bank analyses due to an update of, and the integration of further surveys into, the PovcalNet database taking place between the earlier and later estimates. In contrast, this paper presents new estimates (updating earlier estimates in Sumner, Ortiz-Juarez, and Hoy 2020), employing the poverty incidence indicated by the World Bank for 2019, which is calculated using surveys up to that year (except for India with data corresponding to 2017), leading to a higher baseline of 681 million people living under $1.90 a day before the pandemic.
Assessing the accuracy of any GDP growth forecast is not possible until several years have passed. Historical assessments of both the World Bank and IMF’s growth forecasts suggest the latter tend to be unreliable in general and especially so during crises and GDP contractions (Genberg and Martinez 2014; Heinisch and Lindner 2019). Surprisingly given their use by investors, the IMF growth forecasts neither are based on a global model nor do they apply a consistent underlying methodology. Instead, they are estimates by desk staff in country offices, or ‘subjective judgements’ as Sandefur and Subramanian (2020, 3–4) remark. In short, rather than being embedded in a global model incorporating the interdependency between countries and potential simultaneous recessions in different economies, country-level forecasts are made without considering the global context and by applying methodologies that differ from country to country and series to series.

In contrast, the growth forecasts of the World Bank do employ an underlying model. However, the model is not publicly available, nor are there sufficient details to enable the replication of the forecasts. It is also unclear what the differences are between the methodology generating growth forecasts in the World Bank’s Global Economic Prospects (e.g. World Bank 2020b, used to estimate poverty impacts in Lakner, Yonzan, et al. 2020) and the growth forecast methodology used in the World Bank’s Macro Poverty Update estimates (e.g. World Bank 2020c, used to estimate poverty impacts in Yonzan et al. 2020). The former – Global Economic Prospects – provides just one page of information about its approach, with the following detail (p. 167) which seems to suggest the model generates forecasts that are then open to World Bank country teams to subjectively adjust:

The process starts with initial assumptions about advanced-economy growth and commodity price forecasts. These are used as conditioning assumptions for the first set of growth forecasts … which are produced using macro-econometric models …. This is followed by extensive discussions with World Bank country teams, who conduct continuous macroeconomic
monitoring and dialogue with country authorities and finalize growth forecasts …. Throughout the forecasting process, staff use macro-econometric models that allow the combination of judgement and consistency with model-based insights.

The *Macro Poverty Update* does not provide an overall explanation. Our working assumption is that the growth forecasts in the *Macro Poverty Update* are based on the same model used for *Global Economic Prospects* with the underlying assumptions (and/or human judgements) revised, leading to new growth forecasts (presumably the econometric models are the same).

In sum, although one can determine the broad approach (assumptions plus various econometric models plus human judgements), there is very little detail given with which to assess these assumptions, models and judgements, all of which changed in the space of a few months between June and October 2020. In other words, it would be useful to know which assumptions (e.g. commodity prices) and judgements changed and in what way. Furthermore, the different methodologies used by IMF and the World Bank cause inconsistencies between GDP growth forecasts for the same country produced at the same time if one compares IMF (2020) and World Bank (2020d).

Estimates of the pandemic’s poverty impact that are based on growth forecasts may be over optimistic given they are distribution-neutral – i.e. assuming that each household is equally hit by contractions in per capita income or consumption expenditure. However, as outlined above, lockdowns likely harm informal workers more than those in the formal sector and thus disproportionally affect the poor and near-poor in developing countries, who are frequently also not covered by social protection systems. To account for the potential effect of the pandemic on poverty, the World Bank also provides estimates of the impact that incorporate a potential universal increase in each country’s Gini index by 1, 2, 5 or 10% (Yonzan et al. 2020).

The exact poverty impact will be influenced by governments’ actions but also the duration of the pandemic as well as the particular income loss in each country and how hard it hits specific sectors, regions and segments of the population, notably the informal sector. The use of GDP growth forecasts is thus likely to lead to poverty estimates at the more optimistic end of the spectrum of possibility.

Estimating the extent of ‘precarity’ or the risk of falling below an income line due to an income shock (see Tables 4–6) demonstrates that the pandemic could, plausibly, have a more significant poverty impact than projected by the World Bank based on growth forecasts. In this paper, an individual is considered to be living in precarity if her daily income/consumption level is only marginally higher than a given poverty line, meaning she is at high risk of falling below that line. Our definition is thus different to Standing’s (2011) concept of a ‘precariat’ class. To illustrate the prevalence of precarity, we estimate post-pandemic poverty headcounts based on three scenarios reflecting possible effects of the lockdowns initiated to curb the virus. The scenarios are a 5, 10 and 20% contraction in per capita income/consumption, and are intentionally arbitrary since they are not supposed to predict the exact poverty impact of the pandemic but rather are selected to demonstrate the prevalence of precarity. Our approach also implicitly takes account of differential impacts across the distribution in the sense that it is focused on the poorest part of the population. By employing an augmented poverty line approach, we can determine the effect of each contraction scenario on the poverty rate and thus implicitly assess precarity. Using the World Bank’s
Table 4. Estimates of global precarity: potential relative and absolute poverty incidence at $1.90, $3.20 and $5.50 a day under a 5, 10 or 20% per capita income/consumption contraction (% of population).

|                      | People living below poverty line (%) | Additional people living below poverty line (percentage points) |
|----------------------|-------------------------------------|---------------------------------------------------------------|
|                      | $1.90  | $3.20  | $5.50  | $1.90  | $3.20  | $5.50  |
| Pre-pandemic (2019)  | 9.2    | 23.8   | 42.6   | –      | –      | –      |
| 5% hit               | 10.2   | 25.6   | 44.3   | 1.0    | 1.8    | 1.7    |
| 10% hit              | 11.4   | 27.5   | 46.0   | 2.2    | 3.7    | 3.4    |
| 20% hit              | 14.4   | 31.7   | 49.7   | 5.2    | 7.9    | 7.1    |

Source: Authors’ estimates based on World Bank data (March 2021 global poverty update).

Table 5. Estimates of global precarity: potential relative and absolute poverty incidence at $1.90, $3.20 and $5.50 a day under a 5, 10 or 20% per capita income/consumption contraction (millions).

|                      | People living below poverty line (millions) | Additional people living below poverty line (millions) |
|----------------------|---------------------------------------------|------------------------------------------------------|
|                      | $1.90  | $3.20  | $5.50  | $1.90  | $3.20  | $5.50  |
| Pre-pandemic (2019)  | 681.3  | 1,771.0| 3,170.0| –      | –      | –      |
| 5% hit               | 758.7  | 1,902.9| 3,292.4| 77.4   | 131.9  | 122.4  |
| 10% hit              | 847.2  | 2,046.4| 3,421.7| 165.9  | 275.4  | 251.7  |
| 20% hit              | 1,068.3| 2,359.9| 3,696.2| 387.0  | 588.9  | 526.2  |

Source: Authors’ estimates based on World Bank data (March 2021 global poverty update).

Table 6. Estimates of global precarity: potential intensity and severity of poverty at $1.90, $3.20 and $5.50 a day under a 5, 10 or 20% per capita income/consumption contraction (% of population).

|                      | Intensity (poverty gap) | Severity (squared poverty gap) |
|----------------------|-------------------------|--------------------------------|
|                      | $1.90  | $3.20  | $5.50  | $1.90  | $3.20  | $5.50  |
| Pre-pandemic (2019)  | 2.9    | 8.4    | 19.2   | 1.4    | 4.2    | 10.9   |
| 5% hit               | 3.2    | 9.2    | 20.4   | 1.6    | 4.6    | 11.8   |
| 10% hit              | 3.6    | 10.1   | 21.7   | 1.8    | 5.2    | 12.7   |
| 20% hit              | 4.7    | 12.3   | 24.6   | 2.3    | 6.4    | 14.9   |

Source: Authors’ estimates based on World Bank data (March 2021 global poverty update).

Notes: The intensity of poverty is measured by the per capita poverty gap, defined as the average shortfall in income/consumption (counting the non-poor as having zero shortfall) and expressed as a percentage of the poverty line. The severity of poverty is measured by the squared per capita poverty gap and can be interpreted as a measure of inequality among the poor, with a value of 100 indicating the maximum level of inequality. See Foster, Greer, and Thorbecke (1984) for further details on these measures.

PovcalNet database, one can calculate poverty rates at any chosen value of the poverty line, represented by $z$. Thus, we account for the contraction $x_a$ in per capita income/consumption (with $a = 5,10$ and 20% contractions) by augmenting that value, namely $z^a$, given that

$$z^a = \frac{z}{(1-x_a)}$$

For instance, to assess the rise in poverty caused by a 10% contraction in per capita income/consumption, the value of the $1.90 a day poverty line is increased to $2.11 a day. Subsequently, the poverty headcount at this line is deducted from that of the original $1.90 a day poverty line. Hence, the values of the World Bank poverty lines of $1.90, $3.20, and $5.50 a day are augmented according to each of the three contraction scenarios. In short,
we are adding the proportionate contraction (for instance: $1.9/1 − 0.1 = 2.11$). This approach records the same number of additional poor as would the calculation of new poverty rates by reducing each individual’s income/consumption by a rate $x_a$. For instance, the value of 2.11 will yield the same result as having the survey with all individuals and contracting their incomes by 10%.

This approach has limitations, which are partly caused by the use of the World Bank’s data set. For example, while the poverty impact is estimated for 167 countries, just 23 of these conducted a household survey in 2019, the pre-pandemic year. The estimates for the remaining 144 countries are inevitably based on the World Bank’s method for extrapolation. Moreover, the data used for India’s estimates were collected in 2011 and extrapolated to 2017, which is the most recent year included in the World Bank’s data set. To be clear, we are using the World Bank’s data and extrapolation method since the aim is simply to show the World Bank’s estimates of the pandemic’s impact are optimistic compared to an alternative method. The estimates of precarity presented in this paper are likely conservative because they assume that the economic contractions will hit everyone equally. Yet, as outlined above, initially, the poor and near-poor are possibly much more affected. They may also face a slower recovery and may not be able to access social protection linked to formal employment.

Our estimates suggest that a 5, 10 or 20% income contraction would increase the number of people living below the World Bank’s $1.90 line by between 77 million and 390 million people (Tables 4 and 5). In absolute terms, those living below the $3.20 line would rise by between 132 million and 589 million, and depending on the scenario, the pandemic could cause between 122 million and 526 million people to fall into poverty at $5.50 a day (Tables 4 and 5).

As well as increasing the incidence of poverty, the pandemic may also aggravate both poverty intensity and severity. The poverty gap – a measure of the intensity of poverty that indicates the average deficit per person in income/consumption as percentage of the poverty line value – could rise by 30–60% in the case of a 20% contraction, depending on the poverty line. For example, before the pandemic, the average deficit in income/consumption of people living below $1.90 a day was 2.9% of the poverty line, which corresponds to $0.06 a day (Table 6). Given a global population of 7.44 billion, a total of $409.8 billion a day or $149.6 billion a year (2011 PPP) would be necessary to lift the incomes of those living below $1.90 a day above that threshold. The squared poverty gap – quantifying inequality among the poor – could rise by as much as 64% for those living below $1.90 a day in the case of a 20% contraction, and by 37% and 52% for those living below $3.20 and $5.50 a day, respectively.

In sum, we have argued that the use of growth forecasts to estimate the poverty impact of the pandemic is likely to lead to more optimistic estimates relative to the estimates of precarity we have made here. We are not saying the World Bank is wrong, as no one can know. We are simply arguing that the approach chosen by the Bank generates a more optimistic view.

**Concluding discussion**

The contribution of this paper has been to question the official estimates of global poverty up to and during the COVID-19 pandemic. We have provided a critique of the existing
estimates and demonstrated how patterns of poverty would differ if small changes in methodology were implemented. We conclude with a theoretical discussion of why the World Bank makes methodological choices that entail a more optimistic take on global poverty levels and trends before and during the pandemic. We also outline an alternative approach to global poverty measurement.

Initially, we argued that prior to and during the pandemic, the World Bank’s actions provide evidence for the thesis that there is a political economy of overoptimism in estimating global poverty. Why? The over-emphasis on the extreme poverty line or low poverty lines maximises the positive image of significant poverty reduction since the Cold War and thus strengthens the perception that actions of international agencies are consistent with a ‘success’ narrative. Higher poverty lines would imply much less progress and even regression in some instances. Furthermore, lower poverty lines entail politically easier implications for the World Bank given that higher poverty lines imply that substantial national and international redistribution, or even a different economic development model, is needed to end poverty. Moreover, lower poverty lines imply poverty can be ended in the foreseeable future in many countries rather than that poverty is endemic. Finally, lower impacts of the pandemic on poverty would potentially imply that the World Bank’s actions to date to address the pandemic are appropriate given the extent of the poverty impact (Glassman and Larson 2021). The IMF, to contrast, has experienced a dramatic expansion of activity and resourcing (in the expansion of special drawing rights, over 100 new country lending agreements and proposing its global plan to finance vaccine coverage for all countries).

Outside of the World Bank, why do policymakers continue to focus on a few misleading indicators? First, not doing so would imply that the actions of governments and international agencies have been far less effective to date in reducing poverty. Second, communicating trends based on these indicators suggests that business-as-usual (economic growth through participation in the global economy) is sufficient to end poverty and that eliminating poverty does not require a new model of economic development or major national and global redistribution. Adopting a less optimistic approach and thus higher poverty lines would make it more obvious that poverty is not residual but in fact endemic and will not be ended in the foreseeable future without major national and global redistribution and/or a new model of economic development. In short, it is easier to accept optimistic statistics than to challenge those statistics, as the implications of doing so are enormous for policy and politics.

Subsequently, we have illustrated that alternative measures of poverty are needed that incorporate the risk of falling back into poverty. In the preceding discussions we referred to a $13 a day poverty line as the consumption line associated with a permanent escape from poverty. This is based on longitudinal studies (using the method of López-Calva and Ortiz-Juarez 2014; World Bank 2018; Bussolo et al. 2018). This ‘security from poverty’ line can – broadly speaking – be seen as the line at which people are very unlikely to fall back into absolute poverty. In other words, the risk of falling back into absolute poverty diminishes to a very low probability above $13 a day. This ‘risk of falling back’ line needs to be developed further. Additionally, a poverty measure or set of measures is needed that captures (1) those living in poverty and (2) those at risk of future poverty. The precise value of each line would ideally connect monetary-based poverty to valued outcomes (e.g. being well-nourished) and reflect how the necessary amounts differ across types of welfare regimes given that access to health, education or water, for instance, may be subsidised or free in some regimes
but not in others. Furthermore, this ‘unified’ poverty approach should be linked with a measurement of precarity above the poverty line. While there is research on transient and chronic poverty to build on, this is typically based on official national poverty lines that differ from country to country both in monetary value (irrespective whether the local currency is converted based on the exchange rate or whether PPP rates are used) and in the contents of the consumption basket, amongst numerous other differences (Jalan and Ravallion 1998; Rodgers and Rodgers 1993; Foster and Santos 2014; Bane and Ellwood 1986; Foster 2009; Stevens 1999). Thus, the key questions to be addressed are: What monetary poverty lines – both national thresholds and internationally comparable ones (i.e. adjusted by PPP) – are associated with the achievement of valued outcomes (e.g. being well nourished)? How do these monetary poverty lines differ by welfare regimes? At what monetary poverty lines is the expected probability of falling back into poverty very low depending on countries’ stage of development, income level or welfare regimes? It is in answering these questions (or at least seeking to) rather than just following the optimistic approach currently used that a better understanding of the extent of, and trends in, global poverty will be found.

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