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The Inequality Gap: The Bottom 40 May Be Further Away Than We Thought

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This paper explores new data on income inequality by the World Inequality Database, which corrects underreporting of income in the top deciles of the income distribution. We find that within all low and middle income countries, the bottom 40 income shares are much lower than we previously thought, while the top 10 income shares are much higher. Important for Sustainable Development Goal 10.1, the bottom 40 income shares have been growing at a much slower pace than estimated earlier and often at a lower rate than the top 10 shares. Demonstrating the value of improved datasets, this paper calls upon practitioners to have these enhanced data and metrics in their methodological toolbox.

1 Introduction

The COVID-19 pandemic and the economic fallout from it have caused setbacks in terms of human development and the achievement of the Sustainable Development Goals (SDGs). At the peak of the crisis, roughly 1.5 billion children were out of school (UNESCO, 2020), and across countries, female labour force participation fell (UN Women, 2021). Decades of poverty reduction have been reversed, and approximately 100 million people have been pushed into extreme poverty (Mahler, Yonzan, Lakner, Castaneda Aquilar and Wu, 2020; World Bank, 2021), while global multidimensional poverty reduction is estimated to see a setback of almost ten years (Alkire, Nogales, Quinn and Suppa, 2021). At the same time, the impacts of the COVID-19 pandemic have not been even, as the effect on human lives is mediated by existing inequalities in human capabilities. For example, due to differences in education, training, skills and internet access (Hatayama, Viollaz and Winkler, 2020), as well as varying labour market structures and social protection systems, only a privileged minority has been able to socially distance and conduct their work and lives digitally. Globally, only 20 percent of jobs can be done at home, according to Dingel and Neiman (2020), 37 percent in the United States, while in low-income countries, this holds for only one in every 26 jobs (Garrote Sanchez, Gomez Parra, Ozden, Rijkers, Viollaz and Winkler, 2021).

Threatening livelihoods and well-being, there is wide recognition that COVID-19 has exacerbated pre-existing and systemic inequalities. The latter includes both income inequality[2] as well as inequalities in education and digital literacy, healthcare and living

standards including internet access (see Stantcheva (2022) for a comprehensive overview for pandemic-related increases in inequalities). Partly as a response to this, there have been calls for better measures and metrics for inequality (United Nations, 2021). Understanding the extent of inequality and tracking the trends is a prerequisite for comprehending the impact of shocks such as the COVID-19 pandemic and in preventing further deepening of inequalities.

This paper takes a step towards improved measurement of income inequality using data from the World Inequality Database (WID) as applied in the recently launched and UNDP-supported World Inequality Report 2022 (Chancel, Piketty, Saez, Zucman et al., 2021), compiled by the World Inequality Lab and available at https://wid.world/. Traditionally, measures of income inequality are based on income and household consumption surveys. These surveys usually significantly underestimate incomes of the rich, those at the top of the income distribution. The rich are often not part of the sample of households that are interviewed. Moreover, the survey results are based on self-reports of income for rich households, who when interviewed, have incentives to under-report their income for various reasons[3]. The major novelty of WID data is that they account for underestimation of incomes in top deciles and make adjustments for it, including incorporating tax-based information for the top part of the income distribution where available.

This paper makes three main contributions. One, we provide a proof of concept using this new source of data on income distributions for a development application. We call upon development practitioners to have these datasets and innovative measures in their toolkit, to gain an in-depth country level understanding of income distribution and inequality trends.

Second, we present interesting insights that are gained by using these data over a more standard, traditional data source, PovcalNet from the World Bank[4]. Our main results pertain to the top decile and the bottom 40 of the income distribution (to shed some light on SDG 10.1)[5]. We find that the income share of the top decile is higher than what appears in traditional data. This is the case across regions. This result is probably explained by the WID methodology and the adjustments with regards to the top income distribution.

We also see that over 2000-2021, the share of the top decile has grown faster than what the traditional data indicate. Conversely, we see that the share of the bottom 40 is lower than seen in PovcalNet, and over 2000-2021, it has grown more slowly than what was previously thought. Some of this may be a natural result of the underlying WID methodology and needs to be taken into account by researchers and policy-makers alike when choosing a data source.

Third, we produce growth incidence curves over 2000-2021 for those select countries that made tax data available. WID data show how growth rates at the tails of the income distribution are quite different once we move away from relying on just household surveys. Based on traditional data, it was believed that the income of the bottom 40 were growing at a relatively fast pace since 2000, a sign that SDG 10.1 was progressing along well. Our results based on WID data show that this is not the case and that the inequality gap has not been narrowing.

Finally, we discuss policy implications arising from the particular insights based on the analyses in the paper. The paper calls for better data to expand the number of countries with data that accurately reflect the incomes and wealth across the entire distribution. Going beyond this, an action agenda is proposed to tackle inequality from multiple angles with a better understanding of the factors that drive it.

2 New insights from the WID

In this section, we present new findings on inequality measures as derived from the WID. We show the new data can be used to measure progress towards SDG 10.1 by focusing on the bottom 40 percent and, for example, its relation to the top 10 percent of each country's income distribution. Throughout, we highlight how levels (Section 2.2) and trends (Section 2.3) of bottom 40 and top 10 income shares, as estimated by WID, differ from earlier estimates on inequality that rely solely on household surveys (e.g. PovcalNet).

2.1 WID methodology

Traditionally, income inequality estimates can be sourced from the World Bank's PovcalNet, the Organization of Economic Cooperation's and Development's Income Distribution Database, the UNU-WIDER World Income Inequality Database (WIID) and the Luxembourg Income Study Database (LIS). All of these sources rely almost exclusively on one source of information – household surveys that interview people about their consumption, income, wealth and other aspects of their lives.

WID data, on the other hand, are based on a combination of national accounts data, survey data and tax data when available. WID's annual estimates of the distribution of income and wealth rely on a Distributional National Accounts (DINA) methodology[6]. This method allows for the alignment of macroeconomic national accounts with information from micro household surveys. For a typical country, the following information on the adjustment of PovcalNet data is provided, This is available when the WID country level data are downloaded, as for the purpose of this paper: "Figures are obtained by correcting survey tabulations provided by the World Bank (PovcalNet) to account for conceptual discrepancies and the underrepresentation of top incomes. Surveys are available for the following years [example]: 1994, 1998, 2003, 2009, 2014. Income shares are interpolated linearly when surveys are available at the beginning and at the end of a given period. Inequality series are extrapolated backwards to 1990 and forwards to 2021 by keeping income shares constant when no data is available for these years."

In our sample of 115 low and middle income countries in 2021, estimates for 15 countries rely solely on regional imputations due to the lack of household surveys and tax data[7]. WID has assigned data quality scores ranging from 0 (least quality) to 4 (high quality), with the regional imputation based estimates assigned a 0. For 83 countries, estimates rely on 'adjusted surveys', while one is based on 'rescaled fiscal income' (South Africa, data quality score of 3). For 16 countries, tax data have been used for the adjustment and 11 of these country level estimates receive a data quality score of 4.

Convenient for researchers and practitioners, WID data are made available annually – relying on distribution neutral growth imputations for years between surveys – whereas traditional survey estimates are available for the years of the survey, usually at intervals of three to five years. For many countries with gaps in data collection and/or availability, as for example in India, where the main consumption survey conducted by the National Sample Organization has not been made available since 2011 (Drèze and Somanchi, 2021), the WID estimates provide additional and annual information until 2021[8].

While WID's annual estimates thus appear to have advantages over traditional income sources, users should, however, treat those that are based on interpolations or extrapolation with caution, as WID stresses, "These estimates, especially at the level of individual countries, can be fragile."[9] Thus, WID data are most reliable for policy advocacy when PovcalNet data (household surveys) are adjusted with tax data, at least for estimates of the higher end of the income distribution. At the moment, this is the case for a limited number of developing countries, which include, for example: Ivory Coast, India, Brazil, Chile, Colombia, Ecuador, Peru, and Uruguay. For these countries, the new insights can provide helpful guidance. Yet, even for countries without available tax data, the estimates based on adjusted PovcalNet data seem reliable and robust, as we show in our analysis.

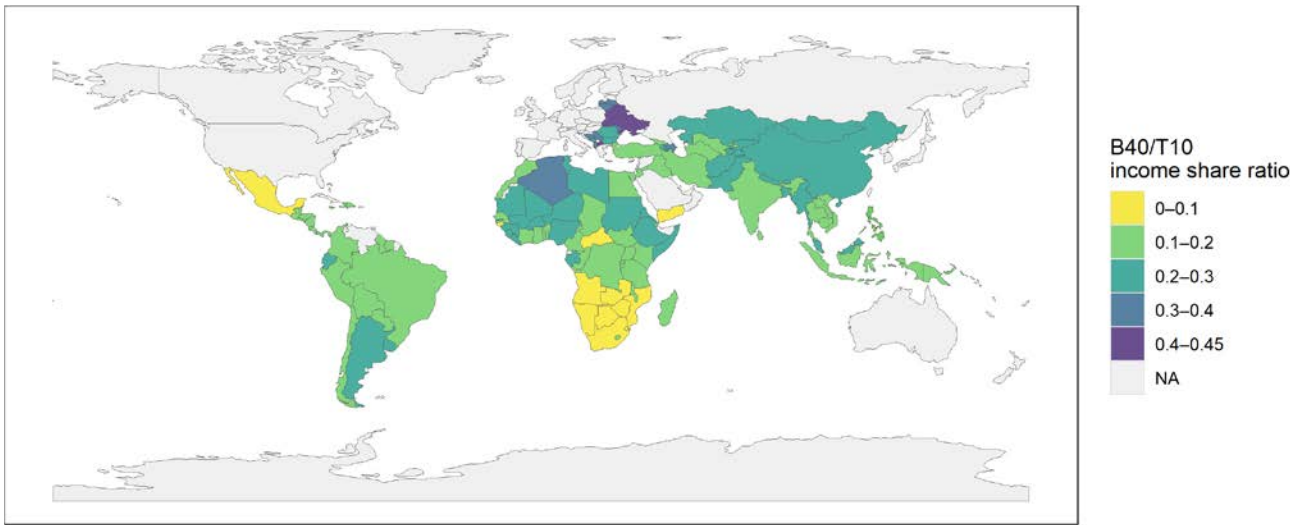
2.2 Levels and ratio of B40 and T10 income shares

The WID provide for annual snapshots of inequality allowing the end-user to define a measure of inequality. Keeping the SDG target of 10.1 in mind, we focus on the country-level income share of the bottom 40 percent (B40) and its relation to the top 10 percent (T10). We use the latest WID data available, pertaining to the year 2021, which in many instances is based on extrapolation of earlier data with the assumption of distribution-neutral growth. As shown in Figure 1, across all countries of interest, T10 shares are higher than B40 shares, since all B40/T10 ratios are far below one[10]. The lowest ratios of less than 0.1, implying that T10 shares are at least ten times higher than B40 shares, can be found across nearly all Southern African countries, and, for example, in the Central African Republic, Mexico, and Yemen. Higher ratios of between 0.2 and 0.25, which imply that T10 shares are 'only' four to five times larger, can be found in, for example, Argentina, across Western and Eastern Africa as well as in Central and Eastern Asia. Thus, overall and across all developing countries, T10 shares are at least three times larger than B40 shares.

Digging deeper and based on appendix Table A.1, we find that WID estimates for B40 income shares hover around only 12 percent in Europe and Central Asia, only half as much in Latin America and the Caribbean, around 9 percent in Middle East and North Africa, around 10 percent in South Asia, and even less in many of the Sub-Saharan African countries. On the other hand, across all world regions the T10 income share is largely between 35 and 60 percent and in some Sub-Saharan African nations it is even higher (e.g. Central African Republic, Mozambique, Namibia).

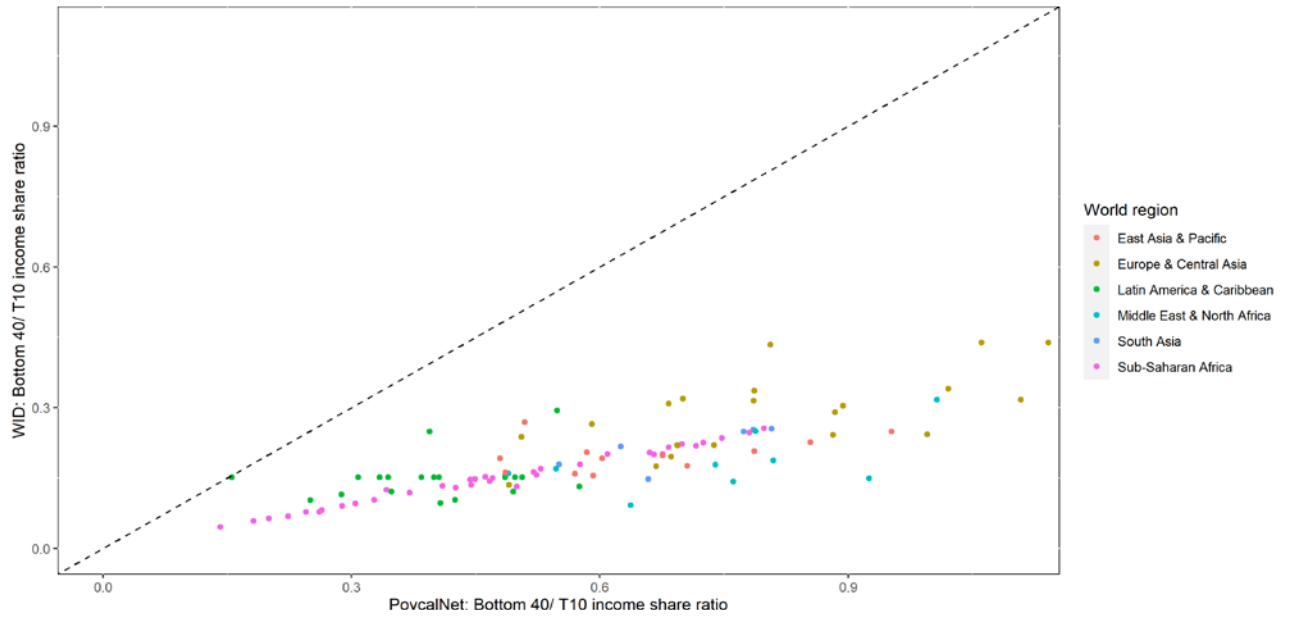
In the following, we examine how these insights differ from earlier estimates that rely solely on household surveys.

Figure 1: Ratio of B40 and T10 income shares in UNDP focus countries



Source: Authors' calculations based on latest WID data for 2021.

Figure 2: B40 and T10 income share ratio: WID and PovcalNet compared



Source: Authors' calculations with latest PovcalNet data and 2021 WID data.

Starting with Figure 2, we plot country-level B40/T10 ratios as derived with WID over B40/T10 ratios derived from PovcalNet, made publicly available by the World Bank and based on household surveys[11]. The dashed diagonal line indicates equal ratios, yet evidently, WID estimates are always lower than PovcalNet's (bar one exception). This implies that according to WID estimates inequality is higher than we thought. B40 income shares are lower than we had thought and T10 shares are much higher than presumed earlier.

Examining where the differences between PovcalNet and WID are largest (see Table 1), we notice that across world regions, T10 shares can be up to 80 percent larger (Middle East and North Africa) and at least 40 percent larger (Latin America and Caribbean). Average WID estimates of the T10 shares hover between 40 and 50 percent across world regions according to WID, whereas according to PovcalNet, the range is about 15 percentage points less (25 to 35 percent).

Table 1: Regional averages in B40 and T10

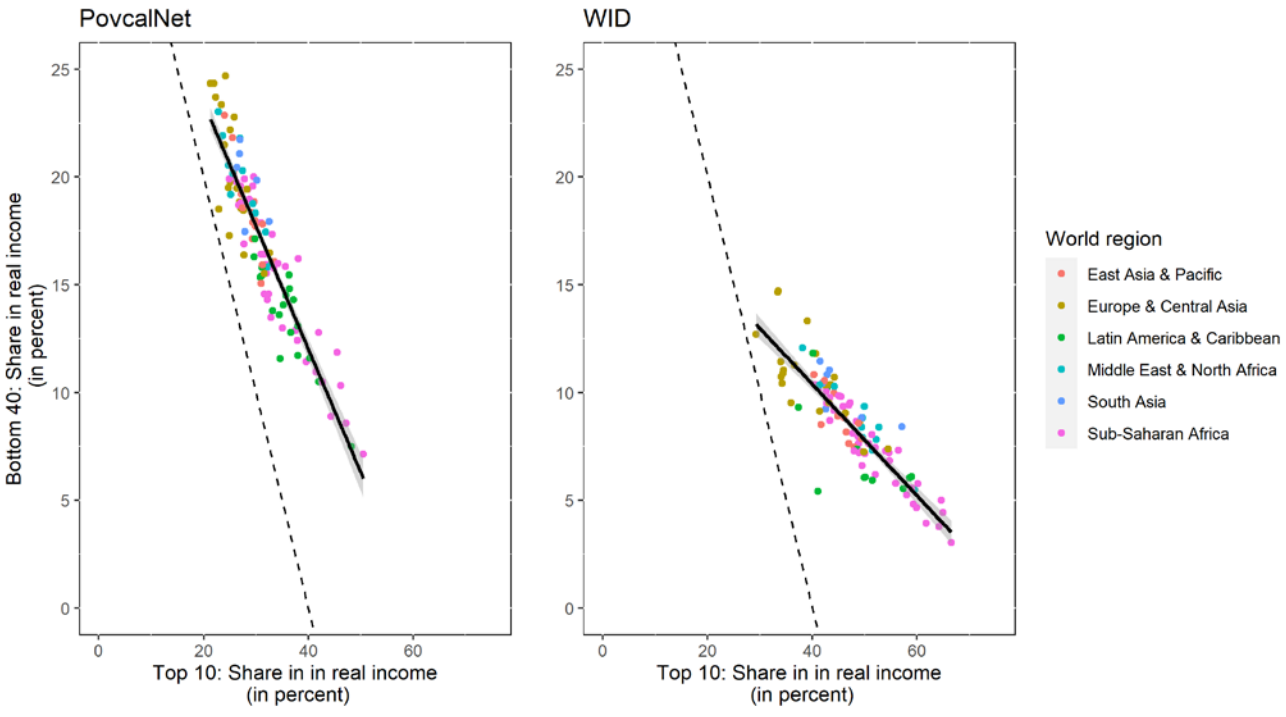
Region	B40			T10		
	WID	*PovcalNet*	*Rel. Diff.*	*WID*	*PovcalNet*	*Rel. Diff.*
East Asia & Pacific	8.9	18.4	-50.9	45.2	28.8	58.1
Europe & Central Asia	10.9	20.3	-46.1	39.2	25.7	52.5
Latin America & Caribbean	7.1	13.8	-46.7	49.1	35.6	39.1
Middle East & North Africa	8.3	19.4	-56.9	50.0	27.7	81.9
South Asia	9.8	19.8	-50.4	46.2	28.5	62.2
Sub-Saharan Africa	7.4	15.3	-52.2	51.5	34.2	52.0

Note: Authors' calculations with WID 2021 and latest PovcalNet.
Regional averages are simple averages of country estimates, and not population weighted.
Relative differences (Rel. Diff.) are in percentage of PovcalNet.

WID estimates of B40 income shares are always lower than PovcalNet's, by about 50 percent across all world regions (Table 1), implying that WID estimates are half as large as PovcalNet's. In most world regions, the average B40 share is close to 10 percent according to WID, whereas according to PovcalNet, this is around 20 percent. To check whether these results are caused by differences in data quality, we plot Figure 2 again, yet this time by the WID-level of data quality (see appendix Figure B.1). We find that neither the estimates of high quality nor those of lesser quality (reliant on regional imputations for lack of better data) seem to be outliers or potential drivers of any results.

WID data results in a higher T10 share, which is not surprising. As mentioned in Section 2.1, WID data adjusts for the underestimation of top incomes in underlying surveys. Higher T10 shares imply lower shares for some other part of the income distribution. This could be the middle or the bottom (or both). We do see lower B40 shares. It is important to keep in mind that this may be a result of the WID methodology and adjustment; however, we cannot be sure.

Figure 3: Income share of B40 and T10 percent for latest year available



Source: Authors' calculations with latest PovcalNet and 2021 WID data.

In Figure 3, the two key insights are emphasised visually. By plotting B40 income shares over T10 income shares separately with PovcalNet and WID, it is evident that WID-based T10 income shares are moved further to the right (and are thus higher) and B40 shares further down (thus lower)[12].

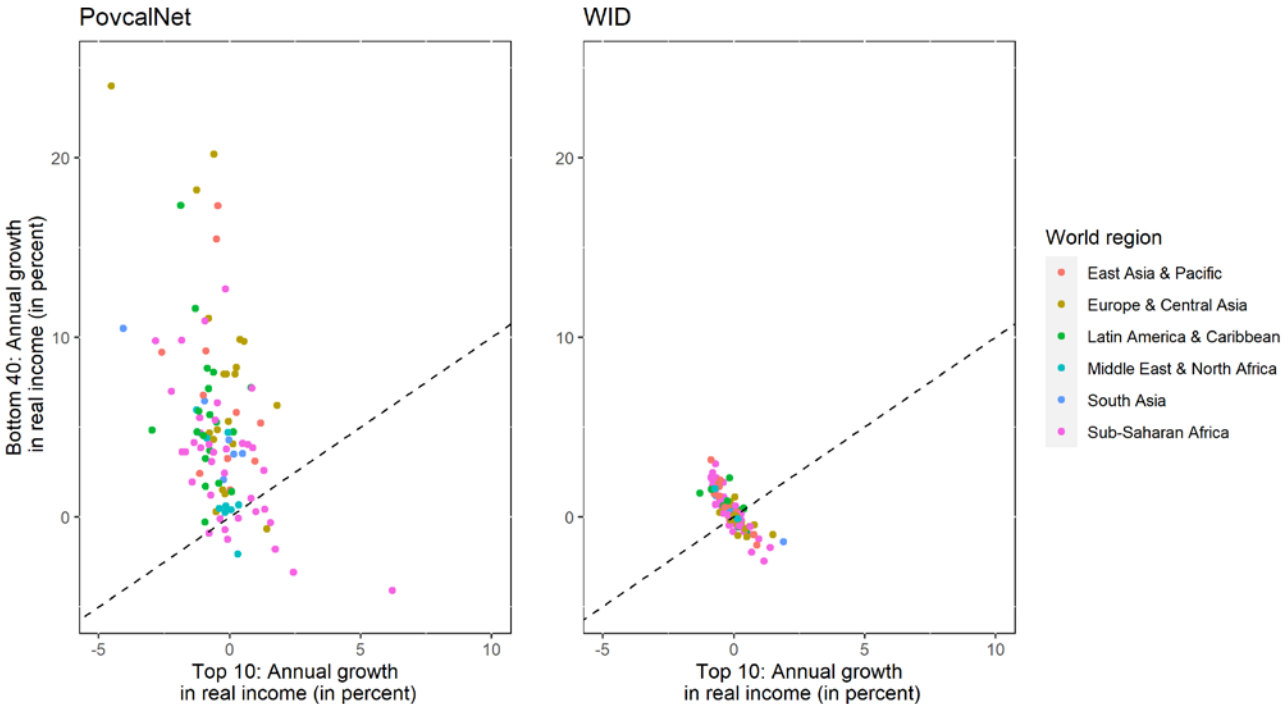
The changed nature of the B40 and T10 relationship carries additional implications. While the slope of the PovcalNet estimates is nearly parallel to the dashed line (-1), which indicates a one to one relationship, the slope as derived from WID is much flatter. With the relationship more tilted towards higher T10 shares and lower B40 shares, across-country differences are much larger than originally thought. Interpreting the slope across countries, a 10 percent reduction in the T10 income share would no longer translate into a 10 percent but just a 2.5 percent increase in the B40 share. Thus, increasing the B40 share via redistribution may be more challenging than we thought. Beyond the scope of this brief, it is an insight that deserves further research and attention.

2.3 SDG 10.1: Towards faster growth for B40?

Having examined the latest levels of inequality in terms of B40 income shares and T10 income shares, we now make use of the time series provided by WID to analyse trends in B40 as well as T10 income shares at the country level. While the B40/T10 ratio is widely applied (e.g. World Bank, 2018), growth rates of the two (B40 and T10) have rarely been studied together. With SDG 10.1 in mind, growth rates are of great interest, as faster growth for B40 shares is advocated for. As described by James Foster and Nora Lustig, the ratio of top 10 and bottom 40 makes for interesting comparisons, in particular from a communications point of view, despite not fulfilling certain axioms of inequality measurement (UNDP, 2019).

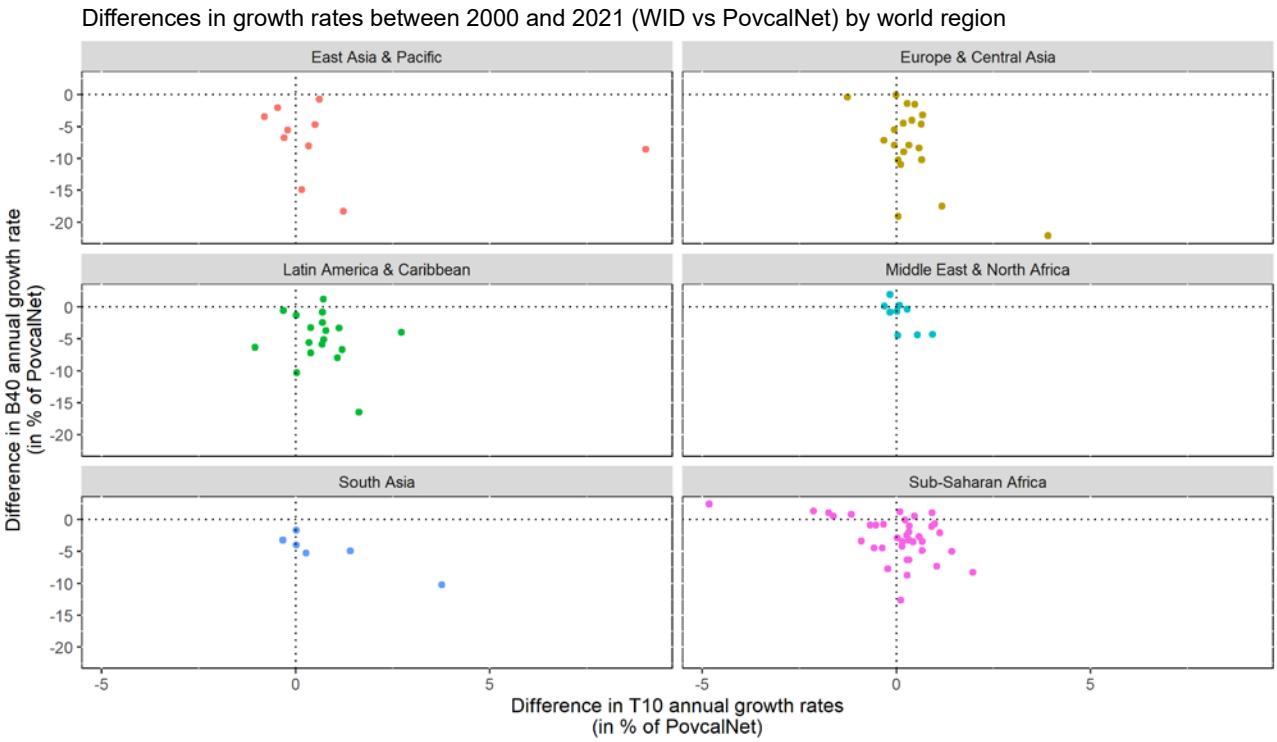
Plotting B40 annual growth rates over T10 annual growth rates yields the following insights. As shown in Figure 4, according to PovcalNet estimates (left panel), B40 growth rates are indeed much larger than T10 growth rates. Visually, these are shown above the dashed line, which indicates equal growth rates. On the basis of these data, it would appear that the world is making strong progress on SDG 10.1. WID estimates (right panel), on the other hand, suggest that B40 and T10 growth rates are much more similar, as country-level estimates tend to scatter more around the dashed line. Therefore, according to WID estimates, B40 income shares have been growing much more slowly than we thought. The outcome is, of course, the much lower B40 income share in 2021, as discussed in the previous section and the higher demands on achieving a higher income share for the B40 group. This shows that over 2000-2021, the bottom 40 have not made the kind of gains in terms of income share as PovcalNet data showed.

Figure 4: B40 growth rate and T10 growth rate between 2000 and 2021, PovcalNet and WID



Source: Authors' calculations with latest PovcalNet and 2021 WID data.

Figure 5: Difference in growth rates



Source: Authors' calculations with PovcalNet and 2021 WID data.

Examining from where the differences in growth rates stem, we plot the difference between WID and PovcalNet estimates as a percentage of the PovcalNet estimate for country-level B40 and T10 growth rates (Figure 5) by world region. Across world regions T10 growth rates are usually higher when WID data are applied, i.e. further to the right on the x-axis. In Latin America and the Caribbean, the majority of countries had higher T10 growth rates with WID, whereas nearly all B40 growth rates were lower according to WID. In Sub-Saharan Africa, almost all countries have lower or the same B40 growth rates, and about 60 percent have higher T10 growth rates. In South Asia, all countries have lower B40, and all but one have higher or the same T10 growth rates. In Europe and Central Asia, all countries have lower B40 growth rates, while for the majority of countries WID estimates of T10 growth rates are higher. Growth rates for countries in the Middle East and North Africa do not differ much between WID and PovcalNet.

Growth incidence curves at country-level

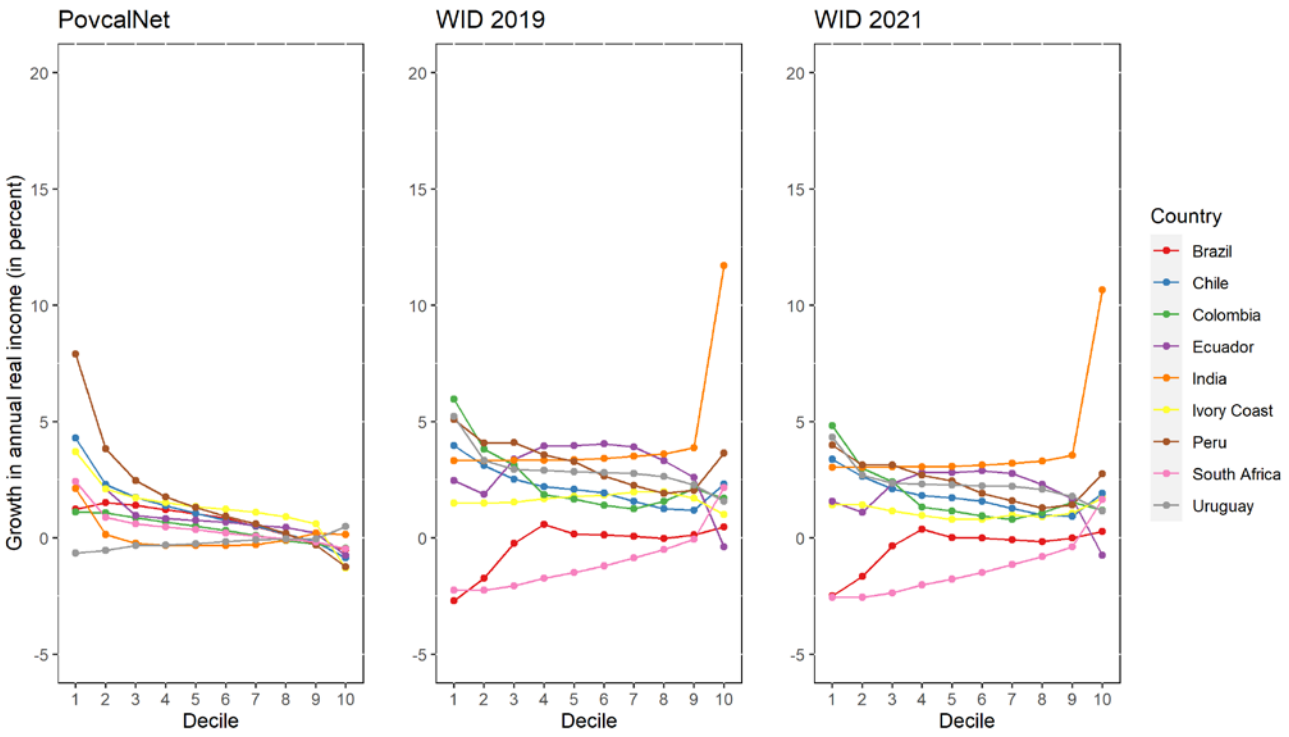
Another way to analyse inequality over time is to take into account growth rates for each part of the income distribution. One can do so via growth incidence curves (GICs) which plot growth rates over each percentile or decile, applied widely so to show income distributions over time – see for example the 'elephant curves' by Lakner and Milanovic (2016) for the entire world with data from PovcalNet as well as other sources. Due to imputations and extrapolations, WID allows for retrieval of income shares for every part of the income distribution for more countries than available at PovcalNet and at an annual basis up to 2021. In the following, we make use of the most complete time period, 2000 to 2021, and produce GICs for a limited number of countries. For the purpose of producing the most robust GICs, we use only estimates for countries with the two highest data quality scores (3 and 4).

In Figure 6, we plot GICs with PovcalNet (left panel) and WID (right panel) for several countries, for which both PovcalNet and WID data are available and WID rely on tax data, including several South American countries (Brazil, Chile, Colombia, Ecuador, Peru, and Uruguay), as well as India, Ivory Coast, and South Africa (rescaled fiscal income). Visibly, our earlier observations on just the B40 and T10 shares are also reflected in the GICs. For most estimates presented here, all of which rely on tax data, we see differences in the tails of the income distributions.

Whereas India accounts for a sharp upward tick in the last decile, a small downward slope is visible for Ivory Coast and Ecuador (WID). Interestingly, only for Brazil, the WID estimate of the GIC has the famous elephant shape with relatively high growth rates for the lower-middle and the top parts of the income distribution. It has to be noted here that PovcalNet and WID rely on slightly different years.

For example, WID's growth estimates for India rely on the time period 2000 to 2019/2021, whereas PovcalNet relies solely on the period 2004 to 2011, the years of the most recent household surveys. This may explain the major shift in levels for India. After all, India witnessed high growth rates in the period between 2011 and 2019.

Figure 6: Growth incidence curves for select countries for time period 2000 to 2019/2021



Source: Authors' calculations based on latest PovcalNet and WID data.

3 Discussion

With the forces of globalization and technological change, the concentration of income at the top of the distribution has been increasing since the 1980s and this trend has been intensifying (UNDP, 2019). This can be seen by looking at the income shares over time of the top 10 percent and even more so in the wealthiest 1 percent and 0.1 percent. In 2020, the share of global income that went to the top 10 percent was 55 percent, the share of the bottom 50 percent was 7 percent (Chancel et al., 2021). In the United States, since 1980, the share of the top 1 percent has doubled, from around 10 percent to 20 percent (Saez and Zucman, 2019). The COVID-19 pandemic, while hitting everyone else dramatically, especially the poor, has improved the fortunes of the wealthiest. The concentration of income and wealth at the top has only intensified (Chancel et al., 2021).

Once corrections are applied, this paper finds the incomes of the bottom 40 have been growing more slowly than was originally thought, while those at the top of the distribution (top 10 percent) have indeed grown faster than was known. The wide inequality between the top 10 and bottom 40 has not been narrowing. There are many factors underlying these trends as well as many related policy implications to address the growing inequality.

What are some factors that explain the rise of inequality, especially in regards to the very rich pulling away from the rest of the income distribution? It has been documented that the top marginal personal income tax rate has declined over the past few decades, in both developed and developing

countries. Corporate income taxes have also fallen, in both developed and developing countries since 1990. Statutory corporate income tax rates fell from 45 percent to 25 percent from 1990 to 2015 in advanced economies. In emerging economies, these fell from just under 40 percent to just over 20 percent. In low-income countries, they fell from about 35 percent to 20 percent (Monitor, 2017).

Large multinational corporations have the ability to determine where they pay taxes. In 2015, around 40 percent of the global profits of multinational firms were attributed to no or low tax jurisdictions (Tørsløv, Wier and Zucman, 2018). Not only have tax rates for the richest corporations and individuals been low and falling, the extent of tax evasion has also reached alarming proportions. As is routinely revealed by investigative journalism, the rich use the secretive offshore system to hide billions of dollars from tax authorities.

Progressive taxation is needed to reduce income inequality. Direct taxes and transfer systems reduce the Gini coefficient from 0.48 to 0.31, in advanced economies. In emerging and developing economies, they reduce the Gini from 0.49 to 0.45 (Coady and Dizioli, 2018). Progressive taxation is also key for raising resources and creating domestic fiscal space for social programs, including education, health and social protection. If tax evasion is eliminated, the volume of resources that would be freed up would be even greater.

3.1 Action Agenda

In the wake of the pandemic, countries have to redouble their efforts to fight poverty and inequality. Even as developing countries strive to protect their most vulnerable, many of the sources of financing have tightened, i.e. tax revenues, export earnings, remittances, foreign direct investments and ODA.

- Improved Data Sources - Country offices can benefit from using the newly provided and often updated data presented here. For this purpose, see the accompanying tool on the UNDP Data Futures platform. As shown in the analysis above, using the WID data sheds new insights, and we find that across regions the rich have higher shares of income than thought and the bottom 40 have lower shares. Across the regions, the top 10 shares grew faster than thought while the bottom 40 grew slower. WID is a new tool worth applying to construct measures of inequality, in particular the B40/T10 ratio, growth incidence curves and other measures of income inequality[13].

  Strong data on income distribution is a prerequisite for fighting inequality and for countering the trend of increasing inequality. We call upon countries and tax authorities to make better quality data available to the public, including tax data, and to strengthen the national income distribution databases for better analysis and policy-making.

  For those countries with tax data available (data quality 3 and 4), the WID data become an even stronger tool, and monitoring growth incidence curves is particularly useful.

- Progressive taxation – In a landscape of extreme and growing inequality, as countries face challenges in financing their development priorities, it is important to have optimal tax structures in place. Established in 2015, Tax Inspectors Without Borders (TIWB) is a joint initiative of UNDP and OECD that assists countries in examining all aspects, including the progressiveness of their existing tax structures. It also helps countries close tax loopholes that enable the rich and multinational corporations to avoid taxes (UNDP, OECD, 2021).

- Wealth taxation – Wealth taxation is inherently progressive due to the accumulation of wealth at the top of the distribution. This should be considered by governments as an avenue to create fiscal space. Wealth, especially real estate, is more difficult to hide.

- Global coordination on taxes – The world reached an agreement on a 15 percent global minimum tax rate. This move aims to reverse a decades-long race to the bottom of corporate tax rates that has allowed companies to shift profits to low tax jurisdictions. This is expected to raise US$150 billion in additional tax revenue. Yet, this is just a start since US$483 billion are still lost to tax havens each year[14].

- Taxation in a digital economy – The recent global tax agreement also creates new rules for taxation of Big Tech, the large global digital and social media companies. For one, they will be required to pay taxes in countries where their goods and services are sold, even if they have no physical presence there. Recently, some countries have implemented their own digital taxes on internet companies. These include Indonesia, which has one of the largest population of internet users in the world, and Malaysia. These taxes are important innovations from which we can learn a great deal.

- Progressive incidence of taxation – The incidence of taxes (on whom the burden of taxes falls) should be determined comprehensively across all taxes, including direct and indirect taxes. The incidence should also consider taxes and transfers jointly. In addition to taxes, the fiscal system of a country has to consider the subsidies in place, including fossil fuel and agricultural subsidies, as well as who they are benefiting, and how they are reducing or aggravating inequality[15].

- Innovative taxation – Beyond digital taxation, it is time to consider innovative taxes such as taxes on carbon. The burden of taxes on carbon must be worked out carefully and consideration must be given to transfers to offset the financial burden of the taxes on the bottom 40.

Income inequality is only one way of assessing systemic inequality within and across countries. As with poverty measurement, and following Amartya Sen's ideas, income only is a 'means to an end' (Sen, 1999). Many of these ends are reflected in the quality of life people are able to experience. A person's quality of life can be reflected in the access to good healthcare, a choice of schools in the neighbourhood and a safe and green environment in which children can grow up. Income inequality per se does not lend itself to measure the quality of life, yet it indicates that the highest quality of life is in many countries restricted to a select few – whereas the bottom 40 percent or more do not have the opportunity to choose from and enjoy the same.

To make progress towards SDG 10 and in particular SDG target 10.1, more emphasis on inequality is required so that policies promoting inclusive growth are advanced. Policy-makers within countries can make use of WID for tracking progress in SDG 10.1, learn from countries that have provided tax data and may find inspiration in pushing for the same in countries where this is not yet the case.

Endnotes

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2 Deaton (2021) finds that population weighted income inequality increased, while, if country weighted, international income inequality decreased.

3 Under-reporting and other sources of measurement error in income and consumption surveys is a long-standing issue that occurs along the full distribution, and also significantly at the bottom (see for example Deaton, 1992; Deaton and Kozel, 2005).

4 For a comparison with other inequality databases, see Jenkins (2015) and in particular Gradín et al. (2021) on recent inequality trends derived from the WIID.

5 SDG target 10.1 is - by 2030, progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average.

6 See: https://wid.world/document/dinaguidelines-v1/

7 For a more in-depth explanation of imputations, see: https://wid.world/document/ countries-with-regional-imputations-on-wid-world-world-inequality-lab-technicalnote-2020-13/

8 For some of the latest work on 'real time' inequality monitoring, see the presentation by Blanchet, Saez and Zucman (2021): https://congress-files.s3.amazonaws.com/2021-/RealTimeDINA_Slides%20%289%29.pdf

9 See remarks on: https://rdrr.io/github/WIDworld/wid-r-tool/man/download_wid.html

10 Naturally, the B40/T10 ratio decreases with increasing levels of T10, and increases with lower T10 shares and higher B40 shares.

11 For the PovcalNet R code that is used here, see: https://github.com/worldbank/ povcalnetR.

12 These country-level estimates are also presented in appendix Table A.1.

13 For general use, WID data can for example be downloaded into Excel or via Stata and R packages developed by WID to facilitate data analyses (as used for this paper).

14 See: https://taxjustice.net/reports/the-state-of-tax-justice-2021/

15 See recent report on agriculture subsidies and inequality by UNEP, UNDP, FAO (2021).

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Appendix

A Tables

Table A.1 Income share of bottom 40 and top 10 according to PovcalNet (latest year) and WID (2021)

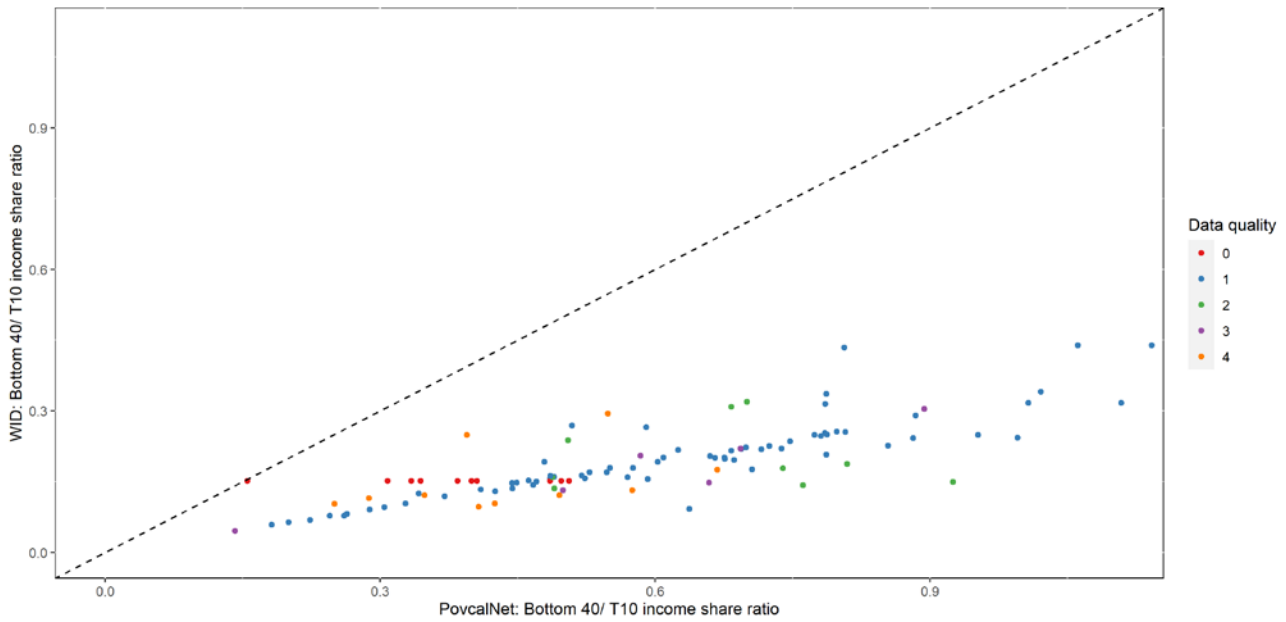
		PovcalNet			WID			Relative Difference	
Region	**Country**	**Year**	**B40**	**T10**	**Year**	**B40**	**T10**	**B40**	**T10**
East Asia & Pacific									
	China	2016	17.1	29.4	2021	8.5	41.7	-50.3	41.9
	Fiji	2013	18.9	29.7					
	Indonesia	2019	17.7	29.9	2021	7.5	48.0	-57.9	60.4
	Lao	2018	17.8	31.3	2021	7.9	49.4	-55.9	58.2
	Malaysia	2015	15.9	31.3	2021	10.8	40.3	-31.9	28.8
	Mongolia	2018	20.2	25.7	2021	9.2	44.2	-54.6	72.1
	Myanmar	2017	21.8	25.5	2021	10.0	44.1	-54.3	72.7
	Papua New Guinea	2009	15.1	31.0	2021	7.6	47.0	-49.3	51.6
	Philippines	2018	18.0	29.8	2021	8.9	46.1	-50.8	54.6
	Solomon Islands	2012	18.3	29.3					
	Thailand	2019	19.2	27.2	2021	8.6	48.8	-55.4	79.2
	Timor-Leste	2014	22.9	24.0	2021	10.6	42.3	-53.8	76.4
	Vanuatu	2010	17.9	29.4					
	Vietnam	2018	18.6	27.5	2021	8.9	44.9	-52.0	63.4
Europe & Central Asia									
	Albania	2017	19.5	24.8	2021	11.4	34.0	-41.3	37.3
	Armenia	2019	22.2	25.1	2021	11.8	40.6	-46.8	61.9
	Azerbaijan	2005	24.7	24.2	2021	13.3	39.1	-46.1	61.6
	Belarus	2019	24.3	21.3	2021	14.7	33.4	-39.8	56.6
	Bosnia and Herzegovina	2011	19.8	25.1	2021	10.7	34.1	-45.7	35.5
	Bulgaria	2018	16.5	32.6	2021	10.4	43.5	-37.2	33.4
	Georgia	2019	18.5	27.6	2021	8.6	49.0	-53.5	77.5
	Kazakhstan	2018	23.3	23.5	2021	10.3	42.5	-55.8	81.4
	Kyrgyz Republic	2019	22.8	25.8	2021	10.7	44.2	-53.0	70.9
	Latvia	2018	18.8	26.9	2021	11.0	34.5	-41.5	28.3
	Lithuania	2018	18.5	27.2	2021	11.3	36.6	-39.2	34.7
	North Macedonia	2018	18.5	23.0	2021	12.7	29.2	-31.4	27.4
	Moldova	2018	24.3	22.0	2021	10.9	34.4	-55.2	56.7
	Montenegro	2016	16.4	27.8	2021	9.5	35.9	-42.0	29.4
	Romania	2018	17.3	24.9	2021	9.1	41.4	-47.2	66.2
	Serbia	2018	21.5	24.0	2021	10.4	34.3	-51.5	42.5
	Tajikistan	2015	19.5	26.4	2021	9.5	43.2	-51.2	63.7
	Turkey	2019	15.5	31.6	2021	7.4	54.5	-52.3	72.3
	Ukraine	2019	23.7	22.3	2021	14.7	33.5	-38.0	49.9
	Uzbekistan	2003	19.4	28.3	2021	9.0	46.3	-53.5	63.3

		PovcalNet			WID			Relative Difference	
Region	**Country**	**Year**	**B40**	**T10**	**Year**	**B40**	**T10**	**B40**	**T10**
Latin America & Caribbean									
	Bolivia	2019	15.4	30.9	2021	7.4	48.6	-52.0	57.6
	Brazil	2019	10.5	42.0	2021	6.0	58.6	-42.6	39.6
	Chile	2017	15.4	36.3	2021	6.1	58.9	-60.6	62.1
	Colombia	2019	11.6	40.3	2021	5.9	51.5	-48.9	27.7
	Costa Rica	2019	12.8	36.7	2021	6.1	50.1	-52.4	36.7
	Dominican Republic	2019	16.1	33.1	2021	7.4	48.6	-54.1	46.8
	Ecuador	2019	13.6	34.5	2021	9.3	37.3	-31.6	8.2
	El Salvador	2019	17.1	29.8	2021	5.4	41.1	-68.4	37.8
	Guatemala	2014	13.1	38.1	2021	7.4	48.6	-43.7	27.8
	Haiti	2012	15.8	31.2	2021	7.4	48.6	-53.3	55.8
	Honduras	2019	11.6	34.7	2021	7.4	48.6	-36.3	40.3
	Jamaica	2004	14.5	35.8	2021	7.4	48.6	-49.2	35.9
	Mexico	2018	14.8	36.4	2021	5.5	57.4	-62.6	57.7
	Nicaragua	2014	14.3	37.2	2021	7.4	48.6	-48.5	30.6
	Panama	2019	11.7	38.0	2021	7.4	48.6	-37.1	27.8
	Paraguay	2019	14.1	35.2	2021	7.4	48.6	-47.6	38.1
	Peru	2019	15.4	31.1	2021	6.1	49.9	-60.7	60.6
	Uruguay	2019	16.3	29.7	2021	11.8	40.1	-27.5	35.2
	Venezuela	2006	13.8	33.2	2000	6.2	51.2	-54.8	54.3
Middle East & North Africa									
	Algeria	2011	23.0	22.9	2021	12.1	38.1	-47.6	66.6
	Djibouti	2017	15.8	32.3	2021	7.9	49.6	-49.9	53.4
	Egypt	2017	21.8	26.9	2021	9.4	49.9	-57.1	85.5
	Iran	2018	15.8	32.5	2021	8.4	52.7	-47.0	62.2
	Iraq	2012	21.9	23.7	2021	7.8	52.2	-64.4	120.4
	Jordan	2010	20.3	27.5	2021	8.8	49.6	-56.6	80.6
	Lebanon	2011	20.5	24.8	2000	7.2	51.0	-65.1	105.9
	Morocco	2013	17.5	31.9	2021	8.4	49.4	-51.9	55.0
	Syrian Arab Republic	2003	18.3	30.0	2000	6.9	55.4	-62.1	85.0
	Tunisia	2015	20.1	25.6	2021	10.3	41.4	-48.7	61.8
	West Bank and Gaza	2016	19.2	25.2	2021	7.3	51.4	-61.8	104.1
	Yemen, Republic of	2014	18.8	29.4	2021	5.5	59.5	-70.8	102.1
South Asia									
	Bangladesh	2016	21.1	26.8	2021	10.8	42.9	-48.6	59.6
	Bhutan	2017	17.5	27.9	2021	9.2	42.6	-47.1	52.5
	India	2011	19.9	30.1	2021	8.4	57.1	-57.6	89.5
	Nepal	2010	20.4	26.4	2021	10.4	41.9	-49.0	58.7
	Pakistan	2018	21.7	26.9	2021	11.0	43.3	-49.2	60.7
	Sri Lanka	2016	17.9	32.6	2021	8.8	49.4	-50.8	51.8
Sub-Saharan Africa									
	Angola	2018	11.4	39.6	2021	5.2	58.0	-54.2	46.4
	Benin	2015	12.9	37.6	2021	6.8	54.8	-47.0	45.5
	Botswana	2015	10.9	41.5	2021	4.8	59.3	-56.0	42.9

		PovcalNet			WID			Relative Difference	
Region	**Country**	**Year**	**B40**	**T10**	**Year**	**B40**	**T10**	**B40**	**T10**
	Burkina Faso	2014	20.0	29.6	2021	9.5	47.3	-52.4	59.7
	Burundi	2013	17.9	31.0	2021	8.7	48.4	-51.5	56.0
	Cameroon	2014	13.0	35.0	2021	6.2	52.1	-52.2	48.5
	Central African Republic	2008	10.3	46.2	2021	4.4	64.9	-57.1	40.4
	Chad	2011	14.6	32.4	2021	7.3	49.3	-50.1	52.0
	DRC	2012	15.5	32.0	2021	7.6	48.8	-50.8	52.7
	Congo, Republic of	2011	12.4	37.9	2021	5.8	55.9	-53.5	47.5
	Cote d'Ivoire	2015	15.9	31.9	2021	7.2	54.7	-54.9	71.2
	Eswatini	2016	10.5	42.7	2021	4.7	59.9	-55.6	40.1
	Ethiopia	2015	19.4	28.5	2021	9.8	45.5	-49.6	59.8
	Gabon	2017	16.9	27.7	2021	8.7	43.3	-48.5	56.2
	Gambia, The	2015	19.0	28.7	2021	9.4	45.9	-50.7	59.7
	Ghana	2016	14.3	32.2	2021	7.2	48.9	-49.6	51.8
	Guinea	2012	19.7	26.4	2021	10.1	42.7	-49.0	61.6
	Guinea-Bissau	2010	12.8	42.0	2021	5.8	60.1	-54.9	43.2
	Kenya	2015	16.4	31.6	2021	8.0	48.7	-51.5	54.4
	Lesotho	2017	13.5	32.9	2021	6.6	49.5	-51.0	50.5
	Liberia	2016	18.8	27.1	2021	9.5	43.2	-49.6	59.6
	Madagascar	2012	15.8	33.5	2021	7.6	50.8	-51.6	51.6
	Malawi	2016	16.2	38.1	2021	7.3	56.5	-54.9	48.2
	Mali	2009	20.1	25.7	2021	10.2	41.3	-49.2	60.7
	Mauritania	2014	19.9	24.9	2021	10.4	40.5	-48.0	62.4
	Mozambique	2014	11.9	45.5	2021	5.0	64.6	-57.9	42.1
	Namibia	2015	8.6	47.3	2021	3.8	64.2	-56.0	35.9
	Niger	2014	19.6	27.0	2021	9.8	43.3	-50.1	60.3
	Nigeria	2018	18.7	26.7	2021	9.5	42.7	-49.2	59.8
	Rwanda	2016	15.8	35.6	2021	7.3	53.9	-54.0	51.4
	Senegal	2011	16.4	31.1	2021	8.1	47.7	-50.6	53.7
	Sierra Leone	2018	19.6	29.4	2021	9.4	47.0	-51.9	59.9
	South Africa	2014	7.1	50.5	2021	3.0	66.5	-57.5	31.8
	South Sudan	2016			2021	7.2	50.0		
	Sudan	2014	19.9	27.8	2021	9.8	45.0	-50.5	62.1
	Tanzania	2017	17.3	33.1	2021	8.1	51.4	-53.6	55.1
	Togo	2015	14.6	31.6	2021	7.3	48.0	-50.0	52.0
	Uganda	2016	16.0	34.2	2021	7.4	52.1	-53.4	52.2
	Zambia	2015	8.9	44.4	2021	3.9	61.7	-55.7	39.1
	Zimbabwe	2019			2021	5.6	59.0		

B Figures

Figure B.1: B40/T10 income share ratio according to WID and PovcalNet, by WID data quality level



Source: Authors' calculations based on latest PovcalNet and WID data 2021.