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Global Distributions of Capital and Labor Incomes Capitalization of the Global Middle Class

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ABSTRACT

This article studies the global distributions of capital and labor incomes among individuals in 2000 and 2016. By constructing a novel database covering approximately 80% of the global output and 60% of the world population, two major findings stand out. First, the world underwent an important process of capitalization. The share of world individuals with positive capital income rose from 20% to 32%. Second, the global middle class benefited the most, in relative terms, from such a capitalization process, with China being the main driver of this global trend. The findings of this paper are robust to changes in the income definition, top-income and functional income distribution adjustments. The global composition of capital and labor incomes is more equal today than it was twenty years ago.

1. Introduction

A set of novel stylized facts have been recently documented on the dynamics of income and wealth among individuals.[1] I wish to focus on two of them in particular. The first fact is about the dynamics of global income inequality. Income inequality between all individuals around the world has been decreasing in the past three decades (Alvaredo et al., 2018; Chancel & Piketty, 2021; Lakner & Milanovic, 2015; Milanovic, 2021, 2024).[2] The second fact regards the evolution of the wealth-to-income ratio, which is a measure of an economy's capital intensity. This ratio has been increasing in several developed and developing countries over the past decades (Novokmet et al., 2018; Piketty, 2014; Piketty et al., 2019; Piketty & Zucman, 2014).

Are these two empirical evidences – the fall in global income inequality and the rise in the wealth-to-income ratio in many developed and emerging economies – related? To answer this question, we need to explore how the macro-level capitalization process is intertwined with its micro-level counterpart, at the global scale. This paper attempts to address this issue by measuring and analyzing, for the first time, the changes in the global distributions of capital and labor incomes between 2000 and 2016. While we acknowledge the complexity of reconciling with precision these two major findings, we believe that several results present in this paper can shed new light on the matter. We, therefore, see this paper as a very first step towards a more comprehensive account of the issue at stake. By constructing a novel database covering almost 80% of the global output and 60% of the world population, two major results stand out from this work.

First, the world underwent an important process of capitalization. The share of world citizens with positive capital income substantially increased, moving from 20% in 2000 to 32% in 2016. Second, the global middle class benefited the most, in relative terms, from such a capitalization process. This result is driven by China, whose average capital income growth was about 20 times higher than that of western economies.

The capitalization of the global middle class implied a reduction in global capital income inequality. The Gini coefficient of capital income decreased by 3 points between 2000 and 2016, moving from 85 to 82 Gini points. At the same time, labor income inequality also decreased on a global scale, with a Gini coefficient falling from 73 to 67 points.[3] This is largely explained by stagnant wages in mature economies over

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[1] See Stiglitz (2016) for a discussion of some of the major facts.

[2] In a recent paper, Milanovic (2024) brings global inequality calculations using survey data up to 2018.

[3] To note that the difference between the Gini coefficients of capital and labor at the global scale is much smaller than their differences at the national scales.

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Table 1
Main findings.

	2000	2016
Share of world citizens with positive capital income (%)	20	32
Gini of capital income (%)	85	82
Gini of labor income (%)	73	67

the period analyzed, and by positive labor income growth in emerging countries such as China and Russia. These results suggest that the composition of individuals' incomes in terms of capital and labor is more equal today than it was in the past, indicating that individuals' incomes have tended to become more mixed. Moreover, this paper shows that decreasing between-country inequality and increasing within-country inequality in the first two decades of the 21st century holds not only for total disposable income, but also for each of capital and labor income (see Table 1).

This work has three main limitations. First, our analysis covers approximately 80% of the world output and 60% of the global population. These percentages are considerably lower than those covered by other global inequality studies. This is because, while surveys on individuals' income and consumption are in fact available for most countries of the world, harmonized surveys on individuals' income sources are more difficult to find, especially in the developing world. The only harmonized household surveys available for a large set of countries are those of the Luxembourg Income Study (LIS, 2020), which this paper is based on. Second, we only focus on two benchmark years: 2000 and 2016. This is done with the purpose of having a relatively balanced panel of countries in both years.[4] Third, our database suffers from underestimations of both capital and labor incomes at the top of the distribution. Some methods do exist to correct the upper tail of the total income distribution (see, for instance, Blanchet et al. (2019, 2017)). To our knowledge, however, there is no method available to adjust the composition of income in terms of capital and labor across the income spectrum for a large number of countries. To overcome this issue, we adapt a top-income adjustment method proposed by Lakner and Milanovic (2015) to our multiple sources of income framework. While different specifications of this method differently affect the top deciles of the global capital and labor growth incidence curves, our main finding of the capitalization of the global middle class is left unaffected by these adjustments. The article will discuss all these issues in detail and present several additional robustness checks in the appendix.

This work contributes to the rich body of literature on global inequality studies, which has so far focused on individuals' differences in terms of income (Alvaredo et al., 2018; Anand & Segal, 2015; Bourguignon, 2015; Bourguignon & Morrison, 2002; Chancel & Piketty, 2021; Kanbur et al., 2022; Lakner & Milanovic, 2015; Milanovic, 2002, 2005, 2021, 2024; Tornarolli et al., 2018).[5] wealth (Davies et al., 2017, 2008, 2011), earnings (Hammar & Waldenstrom, 2020), and land (Bauluz et al., 2020). It complements this literature by presenting the first estimates of the global distributions of capital and labor incomes. To this end, this paper constructs a new database based on average labor and capital incomes for each percentile of a given country's factor income distribution in 2000 and 2016. A detailed description of the database and its main variables can be found in the Description File. This paper also aims to contribute to the more recent stream of research on *compositional inequality* (Iacono & Palagi, 2022; Iacono & Ranaldi, 2023; Petrova & Ranaldi, 2024; Ranaldi, 2019, 2022; Ranaldi & Milanovic, 2022), by presenting the first global estimates of this novel inequality concept.

According to Milanovic (2017, 2019), two ideal-typical economic systems can be used to describe contemporary societies: classical and liberal capitalism. While classical capitalism describes a society composed by rich capital earners and poor laborers, liberal capitalism is characterized by individuals earning from multiple sources of income.[6] In a recent paper, Ranaldi and Milanovic (2022) show that the distributions of capital and labor income tell us which type of capitalism each country can be identified with. This paper shows that the world is moving from classical to liberal capitalism - or, in other words, that the composition of income in capital and labor is increasingly more equally distributed across world citizens.

The income-factor concentration (IFC) index is a measure of compositional inequality recently developed by Ranaldi (2022). It takes the maximal value under classical capitalism and the minimal value under liberal capitalism. Between 2000 and 2016, the global IFC fell from 32 to 4 points. Such a change is equivalent to moving from the compositional inequality level of Latin America to that of Canada and the UK (Ranaldi & Milanovic, 2022). This fall can be fully attributed to China: when China is removed from the sample, the IFC increases from 19 to 26 points. The decrease in global compositional inequality has major implications for the relationship between the functional and personal distributions of income on a global scale. Under low levels of world compositional inequality, an increase in the global capital income share, all else being equal, has limited effects on global inequality dynamics (Ranaldi, 2022). At the same time, a more equitable distribution of the income composition implies that a larger share of world individuals is more vulnerable to global financial shocks.

The article is structured as follows. Section 2 discusses the data and methodology used to estimate the global distributions of capital and labor incomes. Section 3 illustrates the main results of our analysis. Section 4 focuses on several individual countries. Section 5 concludes the article.

2. Data construction

We construct average per capita labor and capital incomes for a given percentile of the distribution in country i and year t. The averages are calculated under different orderings of individuals with respect to their total, labor, and capital income.[7]

We obtain average per capita incomes expressed in national currency from the Luxembourg Income Study Database (LIS, 2020).[8] These incomes are then converted into Purchasing Power Parities (PPPs) consumption-based dollars produced in 2011.[9] Table 2 reports the main information of our database.

Overall, our database includes 96 surveys, with 47 from 2000 and 49 from 2016. It covers 73% of the global GDP in 2000 and 78% in 2016, including 63% of the world's population in both years.

[4] Data for China are, for instance, only available in 2002 and 2013, while data for India are available in 2004 and 2011. If we wanted to add an intermediate data point to the analysis (say in 2008), we would need to use the same household surveys for India and China twice (purchasing power-adjusted).

[5] See Anand and Segal (2008) for a comprehensive review until 2008.

[6] Liberal capitalism tends, at the extreme, to Homoploutic capitalism (Berman & Milanovic, 2023; Milanovic, 2019), where every individual earns the same proportions of capital and labor income in her total income.

[7] Specifically, we first rank individuals according to their level of total income and then calculate the average per capita total, labor, and capital income of each percentile of the distribution. Then, we compute the average per capita labor and capital incomes of each percentile, with individuals ranked according to their labor and capital incomes, respectively. A thorough description of all variables included in the database is available in the Description File.

[8] The Luxembourg Income Study Database collects and harmonizes microdata from more than 50 countries across the world, providing information on individual's labor income, capital income, pensions, public social benefits (excluding pensions) and private transfers, as well as taxes and contributions, demography, employment, and expenditures. We rely on this source to ensure full comparability between countries and across time.

[9] Given that our analysis covers the period from 2000 to 2016, we chose to express all incomes in 2011 USD dollars, using the 2011 PPP.

Table 2
Countries included in the database.

	2000	2016	Change
N. of countries	47	49	4%
Regional GDP (2011 PPP) represented in the database (%)			
World	73	78	6%
Mature economies	85	94	10%
LAC	77	77	0%
China	100	100	0%
India	100	100	0%
Other	1.8	2.6	33%
Regional population represented in the database (%)			
World	63	63	0%
Mature economies	84	94	14%
LAC	74	72	−2%
China	100	100	0%
India	100	100	0%
Other	2	3.2	30%

The database does not cover world regions in the same proportions. It includes a large share of the GDP of mature economies (85% in 2000 and 94% in 2016)[10] and of Latin American countries (77% in both years). However, it misses almost all African countries, with the sole exceptions of Egypt, Sudan, South Africa, and Ivory Coast. Jordan, Russia, Iraq, and Vietnam are also included in the database, as well as China and India.[11]

The unit of analysis is the individual, and no economies of scale are applied.[12] Individuals with at least one negative value of either their capital or labor income are removed from the sample. To convert all individuals' income levels into $2011 PPP, we use the consumer price index (CPI), which adjusts the income values for inflation dynamics, and the 2011 purchasing power parity (PPP) conversion factor that converts the inflated values into 2011 USD dollars (see the Description File for further details).

The construction of percentile averages leads us to ignore within-percentile inequalities. A country's overall level of inequality (within a Gini-type framework) can, in fact, be further decomposed into a between (between percentiles) and a within (within percentile) component when we assume the groups (i.e., the percentiles) are non-overlapping.[13] When percentile averages are calculated, the within component of our inequality decomposition equals zero. This aspect inevitably leads to underestimating overall inequality (see also Anand and Segal (2008)).

We construct two principal benchmark years: 2000 and 2016. A survey in country i is considered a benchmark survey if (i) it is the closest available survey to the related benchmark year and (ii) it was conducted before 2008 for the first benchmark year and after 2008 for the second.[14] Some surveys from the period 1995–2000 are also considered (see Table 4 for further information about each country's bin years). Differently from Lakner and Milanovic (2015), who construct five benchmark years, we can only create two of them due to data availability. The surveys of China and India, for instance, are only available in 2002 and 2013, and in 2004 and 2011, respectively. All the results that follow in the next sections are based on the unbalanced panel of country-percentiles.

The income concept we adopt is market income, defined as the sum of capital and labor incomes. While capital income is composed of rent, dividends, and interests, labor income is the sum of wages and self-employment income.[15] In Appendix B, an additional income concept is considered, namely market income plus transfers, to assess the role governments play in shaping the global distributions of income.[16] The overall message of the paper is, however, unaffected by the income definition adopted. The decision to allocate all self-employment income to labor, and therefore not to decompose it into capital and labor income components, follows the approach taken by Ranaldi and Milanovic (2022). Given the heterogeneous nature of self-employed work in both developed and developing countries, a partial allocation of this source of income to capital might alter our interpretation and understanding of the documented capitalization process. In addition to this consideration, the cross-country comparison of self-employment income raises several issues. As reported by the International Labour Organization (ILO), mixed income can be relatively difficult to measure in low- and middle-income countries, and measurement practices differ slightly across countries as well (Gomis, 2019). Additionally, the prevalence of the informal sector in developing countries may lead to underestimation of self-employment income due to under-reporting.

It is well known that household surveys have a tendency to "miss the rich" (Lustig, 2020). This is mainly due to several factors: under-coverage, sparseness, unit and item nonresponse, underreporting, and top coding (Lustig, 2020). Several new methods have been developed to correct the upper tail of the total income distribution (see, for instance, Blanchet et al. (2019, 2017)). However, little is known about how to correct the composition of income across the income spectrum for a large set of countries. Capital and labor income information from national accounts, or tax data, are difficult to find for all the countries/years covered by the database. Aggregate totals of capital and labor incomes at the household sector, which are provided by the System of National Accounts (SNA), are only available for half of our sample.

In a recent article, Yonzan et al. (2020) compared survey and tax data under a standardized definition of fiscal income for the US, Germany, and France. They showed that these two data sources display very similar results for the top decile of the income distribution. Specifically, they found that the composition of income sources is relatively the same above the 90th percentile and up to the top 1 percent of the distribution. They conclude that the major source of discrepancy between survey and tax data is at the top 1% of the income distribution. This result, although it cannot be generalized for all countries,[17] reinforces the reliability of survey data to study the composition of income across countries and years. To address this issue, we adapt a top-income adjustment method proposed by Lakner and Milanovic (2015) to our multiple sources of income framework. Specifically, we first allocate the income gap between the income captured by the household surveys and that provided by the national accounts at the top 5% of the total

[10] Following the classification of Lakner and Milanovic (2015), the group of mature economies includes EU-27, Australia, Bermuda, Canada, Hong Kong, Iceland, Israel, Japan, Korea, New Zealand, Norway, Singapore, Switzerland, Taiwan, United States, and UK.

[11] To see the complete list of countries, see Table 3.

[12] This choice is made to ensure consistency with world population data, as commonly done in the global inequality literature.

[13] To account for the fact that groups overlap in practice, also a residual, or overlapping term should be considered.

[14] This is done to limit the effect of the global financial crisis on the choice of the benchmark surveys.

[15] One limitation of LIS data is that the labor income variable adopted is not homogeneous across countries. For some countries, it refers to net labor income (after social contributions), while for others, it refers to gross labor income. Given that tax information is provided on total income only (and not on its components), we cannot easily calculate the pre- and post-tax distributions of capital and labor incomes. For more information on the limitations of the labor income variable in LIS data, see Guillaud et al. (2020).

[16] This allows us to evaluate the impact of government interventions on capital and labor income growth differentials.

[17] In a recent article, De Rosa et al. (2021) showed that survey data capture approximately half of the national income in many Latin American countries and illustrated that the major source of discrepancy is attributable to the missing capital income at the top.

national income distribution.[18] Then, we make different assumptions concerning the way we distribute the missing income between capital and labor incomes (see Appendix B.3 for details). As will be discussed later in the article, while different specifications of this method have varying effects on the upper tails of the global distributions of capital and labor incomes, our main findings remain unchanged by these adjustments.

3. Main results

3.1. Summary statistics

Table 5 presents the standard relative measures of distributional analysis. This paper exclusively focuses on the distributions of capital and labor incomes, leaving aside the distribution of total income.[19] Furthermore, this section not only provides results for the entire world but also for two representative countries: China and the US. This allows us to relate our global findings to those of two important world players. Section 4 is dedicated to other countries.

Global capital income inequality, as measured by the Gini coefficient, is higher than labor income inequality, which is expected. However, unlike country-level evidence, the gap between the Gini coefficient of capital and labor income at the global scale is less pronounced. In other words, labor income inequality is closer to capital income inequality on a global scale when compared to country-level standards (see Milanovic (2017)).[20] This phenomenon can be largely attributed to structural labor market differences among countries worldwide. Both dimensions of inequality decreased between 2000 and 2016. While the Gini coefficient for capital income decreased from 85 to 82 Gini points (−3%),[21] the Gini coefficient for labor income experienced a greater reduction, declining from 73 to 67 points (−7%). Our estimates of the Gini coefficient for labor income are close to estimates of the Gini for total income from the literature on global inequality, reporting an overall income Gini of 71.5 in 1998 (Lakner & Milanovic, 2015) and 61.2 in 2013 (Milanovic, 2021).[22] The same decreasing patterns can be observed by examining the dynamics of the top 10% capital and labor income shares, which fell from 98% to 91% and from 63% to 55%, respectively.

Let us now turn our attention to the two countries accounting for the largest shares of global incomes. China experienced a significant reduction in capital income inequality and a mild increase in labor income inequality between 2000 and 2016. The Gini coefficient of capital income in China decreased from 74 points in 2000 to 68 points in 2016. In contrast, the US witnessed a rise in capital income inequality, with the Gini coefficient increasing from 83 to 86 points, while labor income inequality remained stable at 47 Gini points.

Interestingly, the decrease in global capital income inequality is accompanied by the rise of capital income inequality in the US, as well as in Latin American countries and mature economies (see Table 5). This can be attributed to the fact that the within-component of global capital income inequality increased while the between-component decreased during the analyzed period. When we consider the absolute amounts (see Table 6), we observe that the world's average capital income increased by 45%, rising from 243$ to 355$ per person, while the average labor income increased by 35%, moving from 4685$ to 6349$ per person.[23] The very low reported value of the average capital income reflects the fact that a large portion of the world's population has no capital income at all. The world median capital income is, in fact, zero in both years. The share of individuals without capital income considerably decreased, moving from 80% in 2000 to 68% in 2016 (a 15% reduction) (see Table 7). Fig. 1 shows the global density functions for (log) capital and (log) labor incomes in 2000 and 2016. The area under the density function of capital income for incomes lower than 150$ per year is considerably higher in 2016 than in 2000. This striking result highlights the significant increase in the share of individuals with positive capital income over the past two decades. China's average capital income grew 16-fold, increasing from 19$ per person in 2000 to 348$ in 2016, unlike other world regions. In contrast, the average capital income in the US decreased by 8% (from 1747$ to 1607$).[24] Regarding labor income growth, China saw a 134% increase (from 1484$ to 3484$), whereas the US experienced only a 4% growth. Fig. 2 presents, instead, the shares of individuals with positive capital income in each country in our sample for 2000 and 2016, respectively.

While both capital and labor income inequality decreased during the period under consideration, little is known about the dynamics of compositional inequality. Compositional inequality refers to the extent to which the composition of income in capital and labor is unequally distributed across the total income spectrum. High compositional inequality implies a strong relationship between the functional and personal income distributions: if income-rich individuals earn from capital income and income-poor individuals earn from labor income, then an increase in the capital share of income, all else being equal, will disproportionately benefit the rich, thus increasing income inequality in society. Moreover, high levels of compositional inequality are associated with classical capitalism, where the rich and poor earn from different income sources, while low levels are characteristic of liberal or multiple-sources-of-income societies (Ranaldi & Milanovic, 2022).

To measure the dynamics of world compositional inequality, we employ the Income-Factor Concentration (IFC) index, a synthetic measure recently introduced by Ranaldi (2022). By compositional inequality we mean the extent to which the income composition in terms of capital and labor incomes is distributed unevenly across the total income distribution. Inequality in income composition is *maximal* when individuals at the top and at the bottom of the income distribution separately earn two different types of income, and *minimal* when each individual has the same composition of capital and labor income. The IFC index is constructed by means of three concentration curves: *(i)* the *zero-concentration curve*, which describes a distribution whereby all individuals have the same composition of capital and labor income; *(ii)* the *actual-concentration curve*, describing the actual way capital income is distributed across the income distribution: and *(iii)* the *maximum-concentration curve*, which describes a distribution whereby the poorest earn labor income, and the richest earn capital income.[25] If we denote

[18] To ensure that these two income concepts – the one coming from the survey and the one coming from the national accounts – are as close as possible, we consider the second definition of income from the survey (market income plus government transfers) instead of the first.

[19] As discussed in the introduction, the global distribution of total disposable income has been the subject of extensive studies, which achieved a broader coverage in terms of world GDP and population size compared to our own (Lakner & Milanovic, 2015; Milanovic, 2021).

[20] As a matter of comparison, country-level Gini coefficients for labor income range between 0.3 and 0.4 in developed countries, as shown by ILO statistics. Our own estimates of the Gini of labor, currently slightly below 0.5 (see Table 5), are explained by the absence of transfer income and pensions in our definition of labor income.

[21] This is explained by the large proportion of the global population that holds no capital income.

[22] Given the high level of the estimated labor share (95%, see Table 8 for details), the Gini coefficient for labor income serves as a reliable proxy for the overall income Gini (Lerman & Yitzhaki, 1985).

[23] All absolute amounts are expressed in 2011 PPP dollars.

[24] This is in line with the dynamics of mature economies, which registered only a 1% increase in their average capital income (see Table 6).

[25] Concentration curves, unlike Lorenz curves, rank individuals according to their level of total income and cumulate the relative shares of the income source across the distribution of total income. When the concentration curve for capital income, for instance, mimics the Lorenz curve, this implies that the composition of capital and labor income across the total income distribution is the same. This would describe a scenario of equal composition of income sources across the total income distribution.

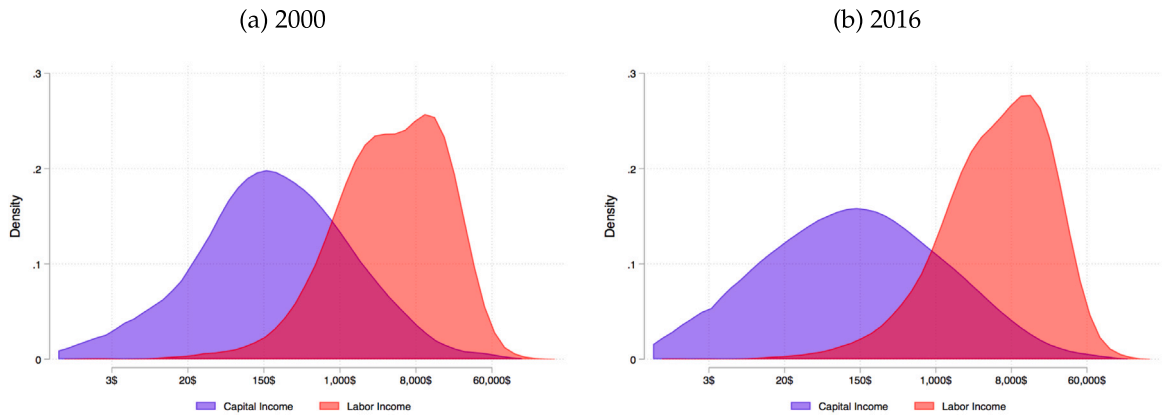

Fig. 1. Global density functions of capital and labor income. *Note*: Capital and labor incomes have been expressed in logarithmic terms. Consequently, both distributions exhibit a log-normal shape, once zero values of capital income are excluded from the analysis.

by A the area between the zero- and the actual-concentration curve, and by B the area between the zero- and the maximum-concentration curve, the IFC index is defined as the ratio between A and B. The IFC therefore varies between −1 and 1: it reaches 1 when capital income is concentrated at the top and labor income at the bottom of the total income distribution, 0 when all individuals worldwide earn capital and labor income in the same proportions, and −1 when capital income is concentrated at the bottom and labor income at the top of the total income distribution.[26]

As shown in Table 7, the IFC decreased from 32 percentage points in 2000 to 4 in 2016. For comparison, a reduction of 28 IFC points is equivalent to transitioning from Latin American "class-based" societies to Western liberal capitalism, according to the estimates provided by Ranaldi and Milanovic (2022). It is important to note that the income concept used in this study slightly differs from that used by the authors, as it excludes pensions from our analysis. The significant reduction in compositional inequality is primarily attributed to the capitalization process that occurred in China over the period. When China is removed from the sample, the IFC increases from 19 to 26 points, showing an increase in global compositional inequality.

While global compositional inequality is lower in 2016 than in 2000, global "homoploutia" (Milanovic, 2019), which refers to the share of individuals simultaneously in the top 10% of both capital and labor income distributions, decreased from 15% to 9%. These two results – the declining degree of compositional inequality and homoploutia – indicate that both the global middle class and the top income class are benefiting from the reported increase in capital income.

To conclude this section, it is worth noting that the estimated world capital and labor income shares were 5% and 95% in 2000, and 4% and 96% in 2016. This low level of the capital share (and, consequently, the high labor share) is not surprising. It is well known that surveys tend to underestimate the household sector's capital share by more than two-thirds, particularly in the developed world (Flores, 2021).[27] Appendix B.3 further elaborates on the relationship between macro-level and household-sector functional income distribution data and their impact on our global analysis.

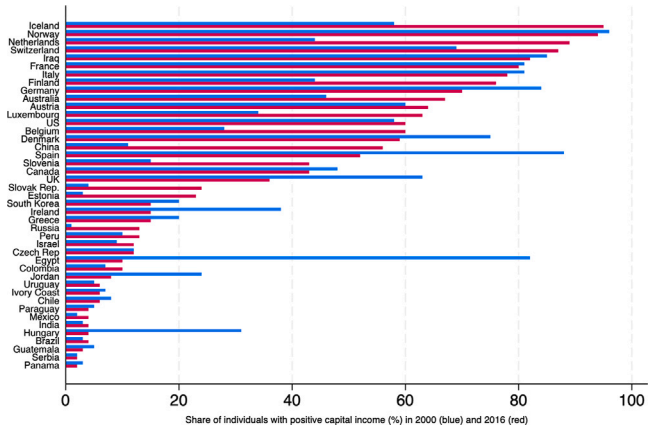

Fig. 2. Country-level capitalization processes. *Note*: The graph shows the shares of individuals with positive capital income in each country in 2000 and 2016, respectively.

3.2. Pseudo-growth incidence curve

To determine the winners and losers of the documented capital and labor income growth, we must compare the growth rates of capital and labor income across the income distribution, in other words, between the rich and the poor. To facilitate this analysis, we introduce the concept of an anonymous "pseudo-growth incidence curve" (PGIC).[28] In contrast to the standard anonymous growth incidence curve (GIC), which illustrates growth in average incomes by income fractiles, the anonymous PGIC illustrates growth in average *capital* and *labor* incomes by income fractile. The PGICs allow us to establish a relationship between the total income rankings of individuals across the world (X-axis) and their capital and labor income growth rates (Y-axis). Appendix A complements the analysis by discussing, both theoretically and empirically, how changes in capital and labor income inequality affect income growth rates along the distribution.

Fig. 3 displays the PGICs for labor (blue) and capital (red) incomes. It is essential to remember that the growth rate of total income is equal

[26] Further technical information regarding the construction of the IFC index can be found in Ranaldi (2022).

[27] It is essential to point out that, unlike the macroeconomic literature on the dynamics of the labor share (Karabarbounis & Neiman, 2014), our estimate of the labor share focuses exclusively on the household sector. For a broader discussion on this aspect consult Appendix B.3.

[28] The term "pseudo" is a reference to the pseudo-Gini coefficient. Unlike the standard Gini coefficient, which measures the level of inequality in a specific income source, such as capital income, when individuals are ranked by their total income, the pseudo-Gini summarizes income-factor concentration across different rankings of total and capital income. If the rankings of total and capital income are identical, the pseudo-Gini equals the standard Gini of capital income. However, when the rankings differ, so do the two indices. The pseudo-Gini serves as a rough measure of income-factor concentration across total income rankings (for further details, see Ranaldi (2022)).

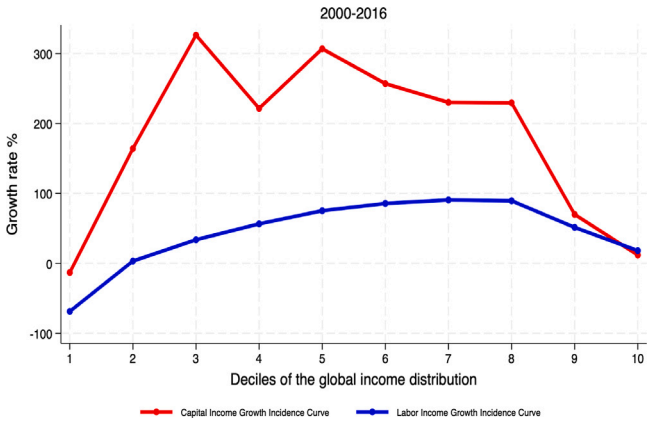

Fig. 3. Pseudo-growth incidence curves for capital and labor. *Note*: Y-axis displays the growth rate of the decile average income source, weighted by population. A value of 100 signifies a doubling, or 100% increase, of the income in the relevant decile. Growth incidence is evaluated at decile groups of total income. Capital income is the sum of interests, dividends and rental income. Labor income includes wage income and self-employment income. Total income is, hence, the sum of labor and capital income.

to the arithmetic mean of the capital and labor income growth rates, weighted by the capital and labor income shares, respectively. This decomposition applies to every decile (or fractile) of the total, or per capita market income distribution.[29]

Fig. 3 conveys three essential messages. Firstly, nearly the entire global population experienced positive growth in both capital and labor incomes from 2000 to 2016, except for the bottom income decile, where labor income decreased during this period. This finding is particularly significant when considering that this period encompasses the 2008 global financial crisis. Secondly, capital income growth exceeded labor income growth for all income deciles across the world distribution. This finding partially reflects the slow growth of labor incomes in advanced economies.[30] Moreover, the difference between capital and labor income growth was especially pronounced in the middle of the distribution, where capital income growth was three times higher than labor income growth. In essence, the global middle class saw remarkable growth in capital income rates when compared to the bottom and top of the world income distribution. This observation is supported by the fact that several Western economies reported high capital income growth rates at the top of their total income distribution. Thirdly, the labor income PGIC consistently rises with income deciles up to the eighth decile, after which it decreases over the last two deciles. The shape of the labor income PGIC corresponds with the previously noted decrease in the labor income Gini coefficient. This finding aligns with recent research by Hammar and Waldenstrom (2020), which shows a global reduction in earnings inequality, particularly during the 2000s and 2010s. However, while Hammar and Waldenstrom (2020) report a 15-point decrease in the Gini of earnings, we document a 6-point reduction. The variation in these estimates can be attributed to differences in the units of observation employed (occupations vs. individuals), the data sources considered, and the countries covered.[31] However, the growth rates of capital and labor incomes consistently varied between China and the US, as illustrated in Fig. 4.

China experienced remarkable capital income growth between 2000 and 2016, and this growth was distributed broadly across the Chinese

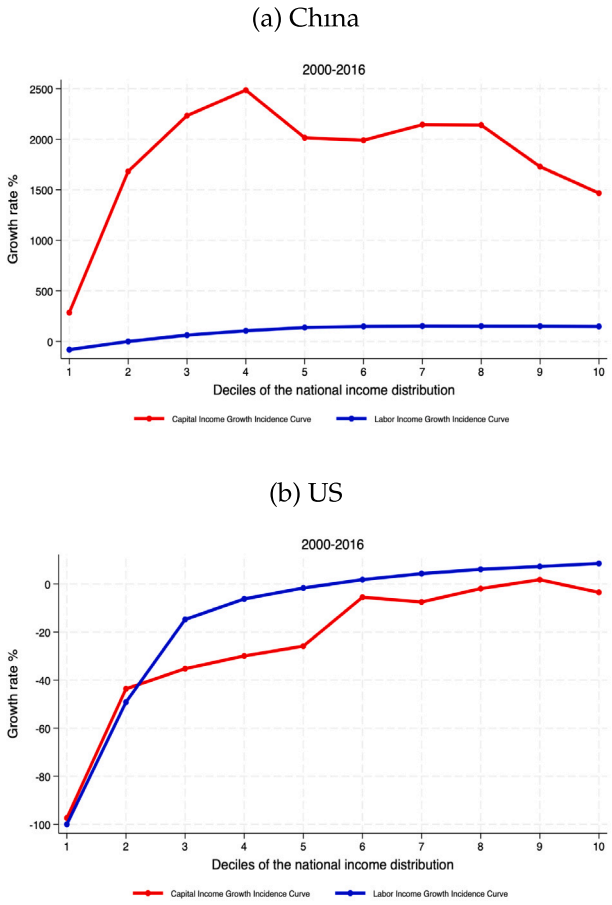

Fig. 4. Regional pseudo-growth incidence curves for capital. *Note*: Y-axis displays the growth rate of the decile average income source, weighted by population. A value of 100 signifies a doubling, or 100% increase, of the income in the relevant decile. Growth incidence is evaluated at decile groups of total income. Capital income is the sum of interests, dividends and rental income. Labor income includes wage income and self-employment income.

population, with the exception of the bottom income decile. This outcome aligns with recent research highlighting the wealth accumulation process that occurred in China during its transition from communism to a mixed economy (Li & Wan, 2015; Piketty et al., 2019). As discussed in Appendix B.4, this accumulation process can be attributed to the role of housing and financial assets. Furthermore, as also shown in the appendix, while this process began before 2000, the early 21st century marked a period when the entire Chinese population could be considered part of the global middle class.[32] The dominant influence of China in shaping the dynamics of the global PGIC for capital income is demonstrated in Appendix B.5, which presents the curves without weighting countries by their population sizes. Under this specification, the hump of the PGIC for capital income disappears. When adjusting the household-sector functional income distribution using ILO estimates derived from national accounts and labor statistics (Appendix B.3), we observe that while the shape of the GIC for capital income remains consistent, its magnitude diminishes. This implies that, under this alternative specification, the capital income growth trajectory of the global middle class aligns more closely with that of labor income. However, it is crucial to note that this adjustment exercise is inherently problematic due to significant discrepancies in the definitions of capital and labor incomes between surveys and ILO estimates. Furthermore,

[29] Appendix A provides a formal exploration of this aspect.

[30] This trend is clearly evident in Fig. 19, which focuses exclusively on mature economies.

[31] It is worth noting that Hammar and Waldenstrom (2020) constructed their database using earnings survey data from the Union Bank of Switzerland's *Prices and Earnings* report, as well as statistics from the ILO (which are not from LIS data). Furthermore, the UBS data were only collected in major cities, omitting rural areas.

[32] For instance, in 1995, the bottom 20% of the Chinese population occupied the bottom decile of the distribution.

the capital and labor share estimates for China should be interpreted with particular caution.[33]

Both curves for the US exhibit a monotonous increase with income. Furthermore, labor income growth was negative for the bottom half of the income distribution, while capital income growth was negative for the entire distribution. The US PGICs show similar shapes to those of mature economies (see Fig. 19). As shown in Appendix B.1, when transfer incomes are included in the definition of labor income, the overall shape of the global PGICs remains largely the same. On the other hand, Appendix B.2 emphasizes that top-income adjustments alter the shape of the PGICs mainly at the very top. The dominant role of China in determining these global trends is discussed in Appendices B.4 and B.5, which display the PGICs for capital and labor incomes using a different household survey for China and by excluding population weights, respectively.

4. National *vs.* global distributions

As shown by Lakner and Milanovic (2015), one way to assess a country's success is by comparing the positions of its deciles in the global distributions of capital and labor incomes. In this section, we will focus on four countries, including China, India, the US, and Russia. Fig. 5 exclusively analyzes their capital income distributions. When we focus on the labor income distribution, the positions of a country's deciles in the global labor income distribution remain similar in the two benchmark years (see Fig. 20).

In 2000, only 12% of Chinese individuals earned income from capital, and they were part of the top 20% of the global capital income distribution. In 2016, however, individuals occupying the same section of the distribution belonged to the global top 10% of capital earners. This highlights the empowerment of the Chinese elite, a phenomenon recently studied empirically by Yang et al. (2019). The share of the Chinese population earning capital income also increased drastically, reaching 55%, with all these individuals included in the top 30% of the global distribution. This reflects the profound capitalization of the Chinese middle class compared to other countries.

The Russian capitalization process exhibits similarities to the Chinese experience. In 2000, only 2% of the population earned capital income, while in 2016, 13% of Russians had positive capital income. In other words, the share of people with positive capital income increased by more than five times between 2000 and 2016.

However, the results for the US and India are quite different. Both countries lost positions in the global capital income ranking over the period analyzed. But while this decline affected 60% of the population in the US, it involved only 4% of the population in India.[34] Furthermore, in both countries, the poorest capital income earners were the most affected.

Another relationship that deserves attention is the one between the positions of a country's deciles in the global capital and total income distributions. Fig. 6 combines these two distributions for eight countries in 2016. The bisector indicates a benchmark distribution whereby the two rankings are perfectly correlated. In other words, if we denote by $r_c^g(y)$ and $r_c^g(\pi)$ the rankings of country c in the global (g) distributions of total, y, and capital, π, income, respectively, the bisector is characterized by a correlation coefficient between $r_c^g(y)$ and $r_c^g(\pi)$, denoted by $\mathcal{R}(r_c^g(y), r_c^g(\pi))$, which is equal to 1.

When a country's deciles lie above the bisector, all of its global income rankings are greater than the capital ones ($r_c^g(y) > r_c^g(\pi) \ \ \forall\pi$). This implies that an individual, or a fractile that occupies a given position $r_c^g(\pi_i)$ in the capital distribution is higher up in the income distribution (i.e., $r_c^g(y_i) > r_c^g(\pi_i)$), thanks to her labor incomes. On the contrary, when a country's deciles lie below the bisector, all of its global income rankings are lower than the capital ones ($r_c^g(y) < r_c^g(\pi) \ \ \forall\pi$). In other words, under the latter scenario, an individual's labor income is not high enough, as compared to that of other world countries, to allow her achieving a global income position that is, at least, equivalent to her capital income position.

Russia and the US are located above the bisector. Their global income rankings is, therefore, higher up than their capital income ranking. Furthermore, if an individual of these countries increases her position along the capital income distribution, this has only a mild impact on her total income ranking. In other words, capital income mobility does not lead to total income mobility at the global scale in these countries. This evidence speaks of the important role played by labor income in making the individuals of these countries globally rich, and characterizes the majority of western economies.

Notice that the curves for Russia and the US almost coincide. This implies that, if you selected a Russian or an American with the same capital income, they would also share the same level of total income (PPP-adjusted). Bear in mind, however, that the size of these two groups are completely different, as suggested by Fig. 5. In fact, while the probability to select an American in 2016 with positive capital income is the 60%, that of selecting a Russian with positive capital income, in the same year, is the 13%. A different situation holds, however, true for China, which is located below the bisector. This means that all individuals in this countries occupy a global capital income position that is higher up than their global income position. In other words, if you compared the total income of an Chinese and an American that share the same level of capital income (in PPP), the former would be much poorer than the latter. This result shows how the Chinese capitalization process has not been accompanied by a proportional increase in labor compensations. Moreover, it highlights the extent to which positive capital income mobility in these countries implies total income mobility.

Finally, India approximately distributes along the bisector. Indians share, therefore, similar global positions in both the capital and total income distributions with respect to the other countries. Tu put it differently, those who earn positive capital income in India occupy, on average, the 90th decile of the global total income distribution. The probability to belong to this group was, however, only the 4% in 2016.

5. Conclusion

This paper presents the first estimation and analysis of the global distributions of capital and labor incomes. Using a novel database covering approximately 80% of the world's output and 60% of the global population, this article estimates these two distributions for the years 2000 and 2016. Two major results emerge from our analysis.

First, the world witnessed a significant process of capitalization. The share of individuals worldwide with positive capital income increased from 20% to 32%. Second, the reported capital income growth primarily benefited the global middle class, particularly in the case of China, where the average growth rate was approximately 20 times higher than that of Western economies. While we rigorously document the limitations of our analysis, these findings remain robust even when considering changes in the income definition and top-income adjustments.

Global inequality in both capital and labor income decreased. Specifically, the Gini coefficient of capital income fell from 85 to 83 points, and that of labor income dropped from 73 to 67 points. While the decline in relative labor income inequality aligns with the documented decrease in global income inequality (Lakner & Milanovic, 2015; Milanovic, 2021) and earnings inequality (Hammar & Waldenstrom, 2020), the dynamics of capital inequality have not been previously examined. The finding that relative capital income inequality is greater than labor income inequality is consistent with country-level evidence (Milanovic, 2019). However, the gap between

[33] See Appendix B.4 for further details.

[34] Note that, as reported by Bharti et al. (2024), the quality of economic data in India is notably poor and has seen a decline recently.

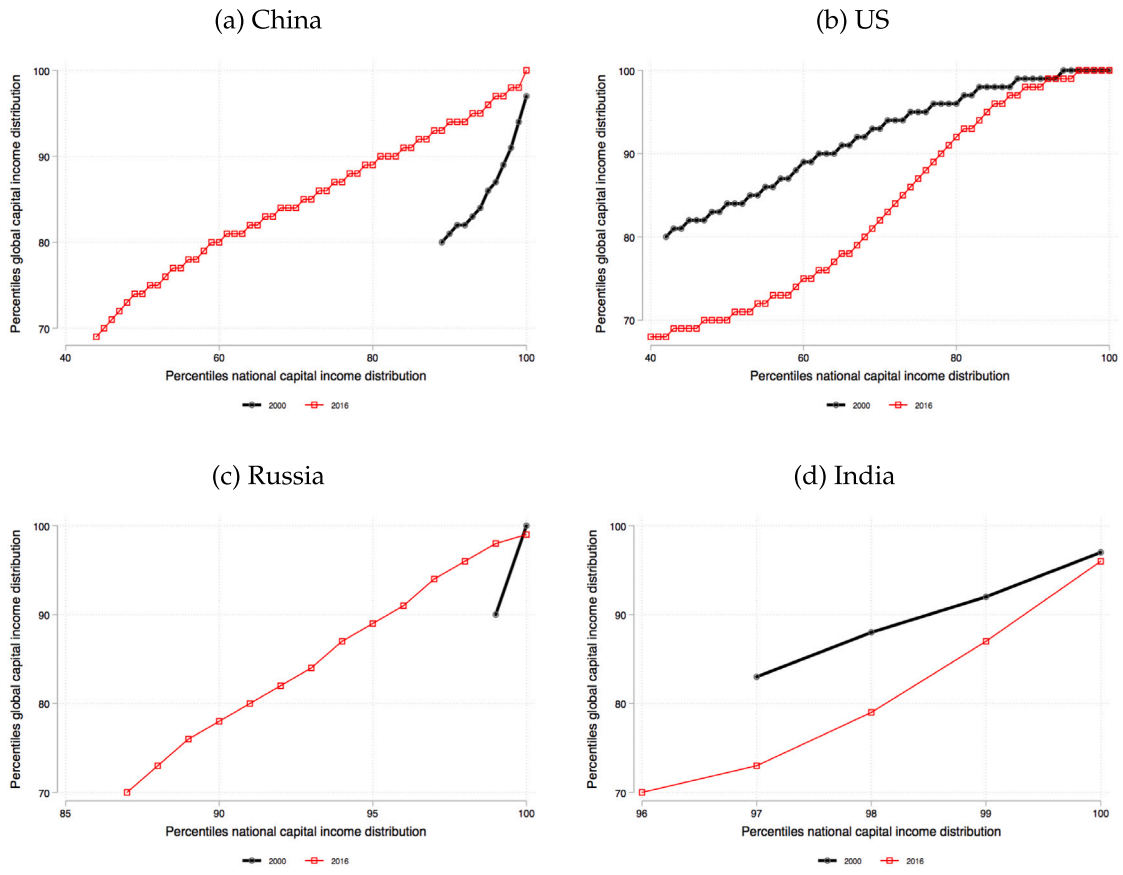

Fig. 5. Global against national rankings — Capital income. *Note*: Only percentiles with non-zero capital incomes are considered.

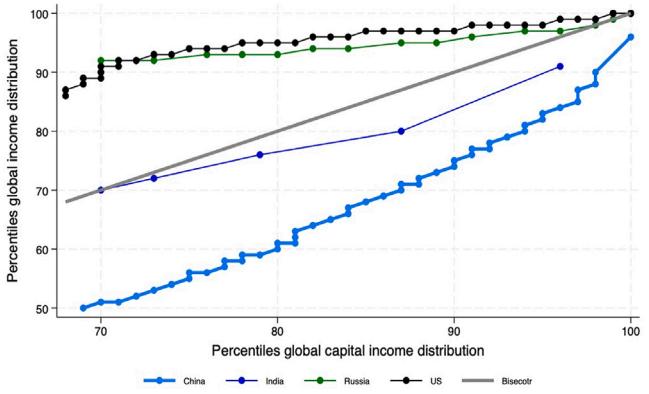

Fig. 6. Global capital and total income positions — 2016. *Note*: Only percentiles with non-zero capital incomes are considered.

the Gini coefficients of capital and labor income at the global scale is less pronounced than at the country level. Furthermore, this paper documented that the widely recognized pattern of diminishing inequality between countries and growing inequality within countries for disposable income during the first two decades of the 21st century is also applicable to capital and labor income.

Many Western countries experienced a decline in their positions in the global capital income distribution. On average, the rankings of German and Spanish citizens in the global capital income distribution fell by 10 percentiles. In other words, when we compare the global position of a German at the 50th percentile of the national capital income distribution in 2000 and 2016, we observe that they dropped from the 90th to the 80th percentile. This decline in global capital income positions primarily affected the lower and middle classes, rather than the top 5% capital income earners.

We report that the global total income ranking is higher than the capital income ranking for many Western economies, such as the United States. In other words, these countries tend to be globally affluent in terms of total income rather than capital income. This emphasizes the crucial role played by labor income in positioning individuals from these countries higher in the global income distribution. In contrast, citizens in China occupy global capital income positions that are higher than their global total income positions, indicating that their labor compensations are extremely low compared to the rest of the world.

We showed that global compositional inequality in terms of capital and labor income substantially decreased over the period under consideration. The IFC index, a synthetic measure of compositional inequality, decreased from 32 to 4 points. We show that this decline is largely attributed to the Chinese capitalization process. This change is equivalent to moving from levels of compositional inequality found in Latin American countries to levels resembling Western countries such as Canada and the UK (Ranaldi & Milanovic, 2022). This weakening of the relationship between the functional and personal distributions of income on a global scale has twofold implications: an increase in the global capital share, all else being equal, will have a limited impact on global inequality. However, a larger fraction of the world's population is more vulnerable in the face of a global financial crisis.

Given the data limitations inherent in the empirical measurement of global capital and labor income distributions, we advocate for the collection and harmonization of more survey data on individuals' income sources. We also encourage the development of novel methodological techniques to improve not only the estimation of the total income distribution but also its composition in terms of capital and labor incomes.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Inequality changes and income growth

A.1. General framework and empirical findings

In the paper we showed that global inequality in terms of capital and labor incomes decreased between 2000 and 2016. Furthermore, we highlighted that these decreasing trends were primarily driven by the capital and labor income growth of the global middle class. Notably, China exhibited a capital income growth rate that was 20 times larger than that of the United States. In this section, we delve into the analytical perspective to examine how the growth rates of capital and labor income relate to variations in capital and labor income inequality. As shown by Lakner et al. (2020),[35] it is indeed possible to establish a formal relationship between changes in income inequality on one hand and total income growth differentials on the other. In the subsequent analysis, we expand upon their findings to investigate how changes in capital and labor income inequality impact income growth differentials across the distribution.

Let us consider an individual i's income at time t composed of the sum of her capital and labor incomes (in absolute terms), as follows:

$$y_i^t = \Pi_i^t + W_i^t. \tag{1}$$

As a consequence, individual i's income growth, denoted as g_i, can be decomposed into the growth rates of capital and labor income to obtain:

$$g_i^y = \pi_i g_i^\pi + w_i g_i^w. \tag{2}$$

Here, π_i and w_i represent individual i's capital and labor shares at time t, while $g_i^\pi = \frac{\Pi_i^{t+1} - \Pi_i^t}{\Pi_i^t}$ and $g_i^w = \frac{W_i^{t+1} - W_i^t}{W_i^t}$ denote individual i's capital and labor growth rates, respectively. Building upon the approach presented by Lakner et al. (2020) (see Appendix A.2 for details), we can express individual i's final capital income, Π_i^*, as follows:

$$\Pi_i^* = \left(1 + \lambda_\pi\right)\left[(1 - \tau_\pi)\Pi_i + \tau_\pi \mu_\pi\right]. \tag{3}$$

[35] Refer to Appendix A.2 for detailed information on Lakner et al. (2020)'s method.

Additionally, individual i's final labor income, W_i^*, can be represented as:

$$W_i^* = (1 + \lambda_w)\left[(1 - \tau_w)W_i + \tau_w \mu_w\right]. \tag{4}$$

In these equations, τ_π and τ_w represent the proportional capital and labor income tax rates, while λ_π and λ_w denote the capital and labor mean income growth of the population. μ_π and μ_w are the population mean capital and labor income. Combining Eq. (2) with Eqs. (3) and (4) and rearranging terms, we obtain (see Appendix A.3 for details):

$$g_i = \lambda + \dot{\tilde{G}}_\pi(1 + \lambda_\pi)\left(\frac{\Pi_i - \mu_\pi}{y_i}\right) + \dot{\tilde{G}}_w(1 + \lambda_w)\left(\frac{W_i - \mu_w}{y_i}\right). \tag{5}$$

Here, $\dot{\tilde{G}}_\pi = -\tau_\pi$ and $\dot{\tilde{G}}_w = -\tau_w$ are the pseudo-Gini coefficients of capital and labor income changes. If we assume that the overall growth rates of total, capital, and labor income are equal to zero, Eq. (5) can be written as:

$$g_i = \dot{\tilde{G}}_\pi\left(\frac{\Pi_i - \mu_\pi}{y_i}\right) + \dot{\tilde{G}}_w\left(\frac{W_i - \mu_w}{y_i}\right). \tag{6}$$

According to Eq. (6), the two terms $\left(\frac{\Pi_i - \mu_\pi}{y_i}\right)$ and $\left(\frac{W_i - \mu_w}{y_i}\right)$ determine the differential growth rates g_i across the income distribution under two specific tax and transfer schemes for capital and labor income. Therefore, when an individual's capital (labor) income is below the average capital (labor) income, a Gini reduction will positively affect their total income growth rate. The opposite happens when their income is above the mean. Fig. 7 shows how these two coefficients distribute along the world income spectrum. Given that income levels at the bottom deciles are particularly low, we restrict our analysis to the third decile onward.

The left graph in Fig. 7 illustrates the impacts of a 1% reduction in the pseudo-Gini coefficients of capital (red curve) and labor (blue curve) income on growth differentials in the year 2000. The right graph, on the other hand, evaluates these differentials in 2016. As expected, both curves decrease monotonically with income: lower deciles would benefit, in terms of income growth, from reductions in inequality, while the upper deciles would experience negative income growth. While these are mechanical results, other aspects of these curves deserve attention. Individuals benefiting from a 1% reduction in global labor income inequality in 2000 belonged to the bottom seven ventiles of the world income distribution. However, in 2016, these individuals would have belonged to the bottom twelve ventiles. When we focus on the third ventile of the world income distribution, we observe that a 1% reduction in labor income inequality in 2016 would have increased their overall income growth three times more than it would have in 2000. This is explained by the fact that, under a lower absolute level of labor income inequality, the gain from a reduction in labor income inequality would be beneficial for a larger share of the world's poorest population.

Capital income redistribution is, however, much less growth-enhancing than labor income redistribution. There is a much lower volume of capital income that, if redistributed, would foster overall income growth. With that said, the capitalization process observed in the last two decades played a major role in making capital income redistribution increasingly more growth-enhancing. This can be observed by noticing that a 1% reduction in capital income inequality in 2000 would have raised the income of the third ventile of the world income distribution only one-fifth of how it would have done in 2016.

If we now focus on China and the US (Fig. 8), we observe similar results. In both countries, a 1% reduction in both capital and labor income inequality would have enhanced capital and labor income growth more in 2016 than in 2000. This applies to all income ventiles above the fourth. In other words, inequality reduction today would boost the income growth of the bottom and middle classes more than it would have done in the past.

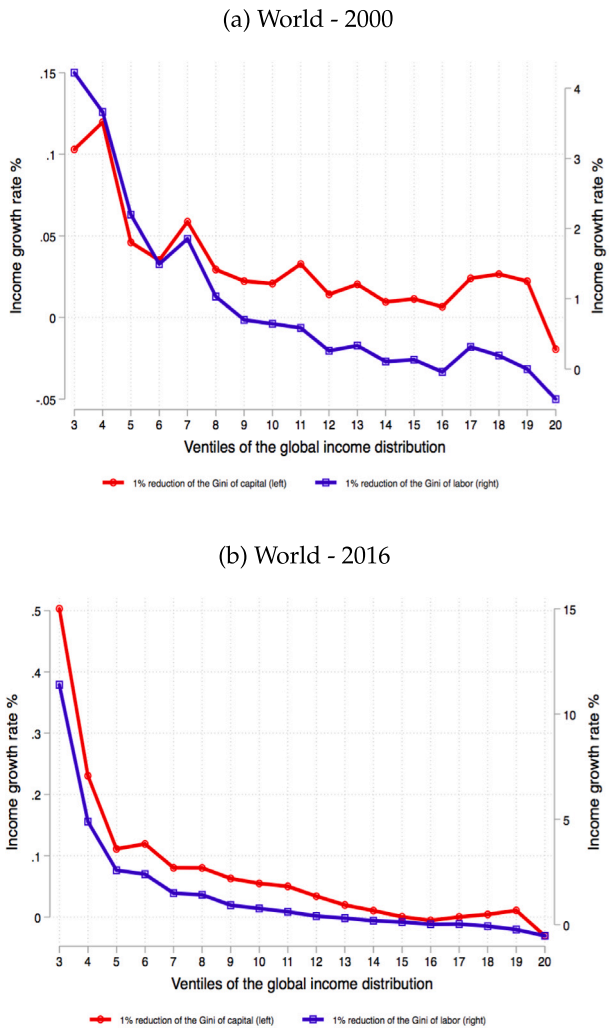


Fig. 7. Global effect of 1% capital and labor income pseudo-Gini reduction on income growth. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

A.2. Methodological extension

In a recent work, Lakner et al. (2020) develop an analytical framework to model the relationship between inequality and poverty in the long run. Such framework can also be useful for the purpose of studying the relationship between income growth, on the one hand, and different sources of inequality (i.e., capital and labor), on the other. The objective of this section is to express the average growth rate of a given income percentile, g_i, as a function of capital, I_k, and of labor, I_l, income inequality. To this end, let us first introduce the framework by Lakner et al. (2020).

If we denote by y_i the initial mean income of percentile group i, and by y_i^* the final mean income of the same percentile group, we can express y_i^* as follows:

$$y_i^* = y_i(1 + g_i). \tag{7}$$

In order to establish a relationship between growth and inequality for each percentile of the income distribution, Lakner et al. (2020) rely on the tax and transfer scheme firstly introduced by Kakwani (1993), and then further extended by Ferreira and Leite (2003). This tax and transfer scheme involves an increase of everyone's income at a rate λ (mean income growth rate of the population), together with a tax and transfer scheme that taxes everyone at a rate τ and gives everyone an equal absolute transfer, $\tau\mu_y$, where μ_y is the population mean income. It can be shown that the Gini coefficient obtained after the tax and transfer scheme, G_y^*, is equal to $(1-\tau)G_y$. In other words, the tax rate imposed, τ, is equivalent to the observed percentage change in the Gini coefficient. Individual i's income after the tax and transfer scheme can, hence, be written as follows:

$$y_i^* = (1 + \lambda)[(1 - \tau)y_i + \mu_y\tau]. \tag{8}$$

By combining Eqs. (7) and (8), we obtain:

$$g_i = (1 - \tau)(1 + \lambda) - 1 + [\tau(1 + \lambda)\mu_y]\frac{1}{y_i}. \tag{9}$$

Eq. (9) expresses percentile i's mean income growth as a function of percentile i's mean initial income y_i, population mean income μ_y, and changes in the inequality level τ. If no tax and transfer scheme was adopted, everyone's income growth would have simply been a function of λ. On the contrary, if a proportional tax rate τ was applied and an equal absolute transfer given to everyone, income growth would have been negatively related with initial income: the income of the richest would have grown less than that of the poorest.

A.3. Proof of result (5)

Let us rewrite the growth rates of capital and labor income as follows:

$$g_\pi = (1 - \tau_\pi)(1 + \lambda_\pi) - 1 + \left[\tau_\pi(1 + \lambda_\pi\mu_\pi),\right]\frac{1}{\Pi_i} \tag{10}$$

and:

$$g_w = (1 - \tau_w)(1 + \lambda_w) - 1 + \left[\tau_w(1 + \lambda_w\mu_w)\right]\frac{1}{W_i}. \tag{11}$$

Given that individual i's growth rate can always be decomposed in the following way: $g_i^y = \pi_i g_i^\pi + w_i g_i^w$, Eqs. (10) and (11) can be combined as:

$$\begin{aligned} g_i^y =& \pi(1 - \tau_\pi)(1 + \lambda_\pi) + w(1 - \tau_w)(1 + \lambda_w) - w - \pi \\ &+ \pi\left[\tau_\pi(1 + \lambda_\pi)\mu_\pi\right]\frac{1}{\Pi_i} + w\left[\tau_w(1 + \lambda_w)\mu_w\right]\frac{1}{W_i}, \end{aligned} \tag{12}$$

and by noticing that $\lambda_y = \pi\lambda_\pi + w\lambda_w$, it yields:

$$\begin{aligned} g_i^y =& \lambda_y - \tau_\pi\pi(1 + \lambda_\pi) - \tau_w w(1 + \lambda_w) \\ &+ \pi\left[\tau_\pi(1 + \lambda_\pi)\mu_\pi\right]\frac{1}{\Pi_i} + w\left[\tau_w(1 + \lambda_w)\mu_w\right]\frac{1}{W_i}. \end{aligned} \tag{13}$$

When we further rearrange terms, we obtain:

$$\begin{aligned} g_i^y =& \lambda_y + \pi\left[\tau_\pi(1 + \lambda_\pi)\left(\frac{\mu_\pi - \Pi_i}{\Pi_i}\right)\right] \\ &+ w\left[\tau_w(1 + \lambda_w)\left(\frac{\mu_w - W_i}{W_i}\right)\right], \end{aligned} \tag{14}$$

and by multiplying the two squared brackets by $\frac{Y_i}{Y_i}$, it finally gives:

$$\begin{aligned} g_i^y =& \lambda_y + \left[\tau_\pi(1 + \lambda_\pi)\left(\frac{\mu_\pi - \Pi_i}{Y_i}\right)\right] \\ &+ \left[\tau_w(1 + \lambda_w)\left(\frac{\mu_w - W_i}{Y_i}\right)\right]. \end{aligned} \tag{15}$$

Following Kakwani (1993), it is straightforward to show that τ_π and τ_w equal the relative change of the pseudo-Gini coefficients of capital and labor income, and not of the Ginis of capital and labor income. This is explained by the fact that individuals need be ranked according to i, and hence with respect to total, rather than capital or labor, income.

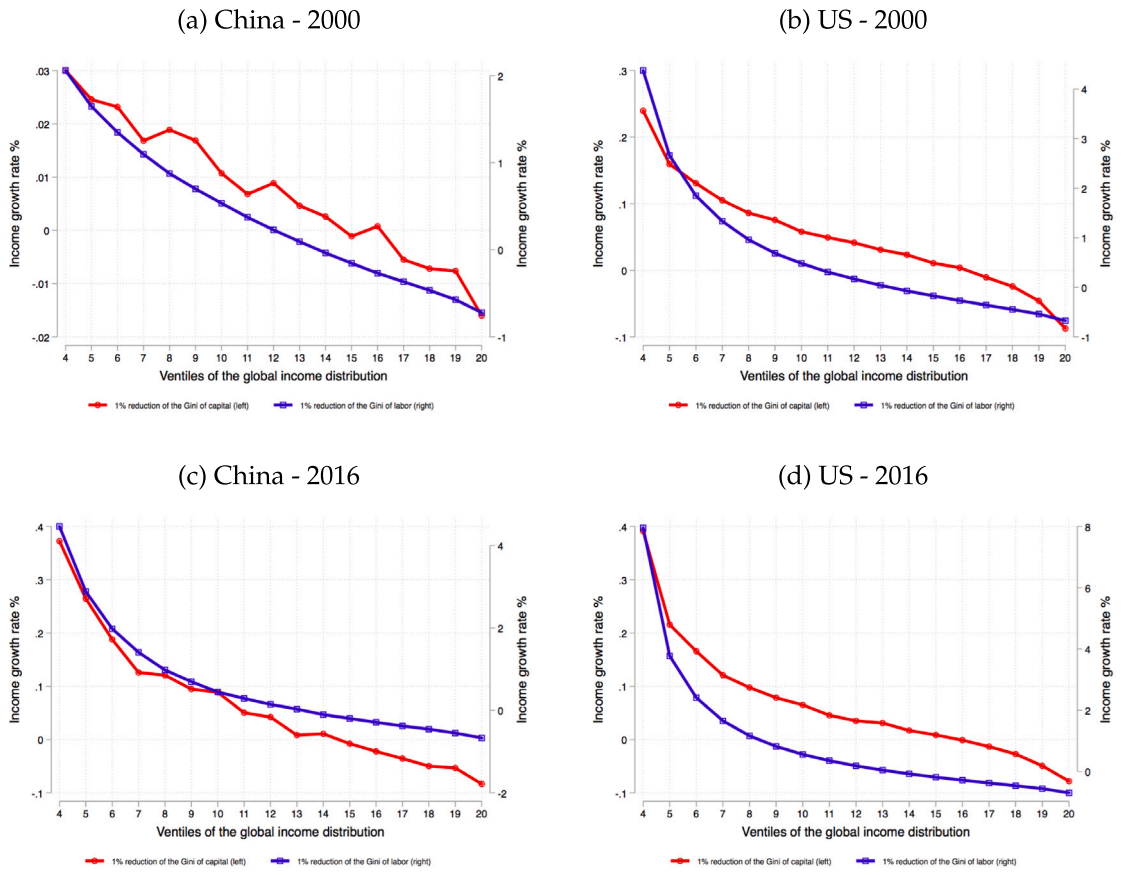


Fig. 8. Effect of 1% capital and labor income pseudo-Gini reduction on income growth in China and the US.

Appendix B. Robustness

In this section, we present the global capital and labor pseudo-growth incidence curves (PGICs) under five different scenarios:

1. We adopt a second definition of income, which includes government transfers in the form of labor income.
2. We conduct three different top income adjustments at the national level.
3. We replace the household-sector capital and labor shares with the ILO estimates.
4. We replace the household survey for China in 1995, which was originally conducted by the Chinese Household Income Project (CHIP), with the survey conducted by CHIP in 2002.
5. We consider an unweighted panel of countries.

B.1. Different income definition

The second income concept includes transfer income in the definition of labor income, while the capital income definition remains unchanged. Transfer income encompasses pensions, public social benefits, and private transfers. Pensions consist of public non-contributory and contributor pensions, as well as private pensions. Public social benefits include family and unemployment benefits, along with sickness and work injury pay, disability benefits, general assistance, and housing benefits. Private transfers refer to cash transfers from private institutions (such as scholarships), inter-household cash transfers (e.g., alimony and child support), and remittances.

The rationale for considering market income plus transfers is to explore the impact of state-sponsored policies on individuals' income growth dynamics. Fig. 9 displays the pseudo-growth incidence curves (PGICs) for capital income (in red) and labor income (in blue) under this novel income concept. These two curves closely resemble the benchmark curves, with the main distinction being the magnitude of capital income growth rates. While the global middle class experienced an average growth rate of 3% under the baseline income definition, this growth rate reached 4% under the second income concept.

As mentioned earlier, although the definition of capital income remains unchanged, there are differences in the countries' total income rankings in the two graphs. In other words, the composition of the global middle class varies across income concepts. This variation explains the emergence of two peaks in the PGICs, one at the third decile and another at the seventh decile. To gain a better understanding of what underlies these two peaks, let us focus on the regional PGICs for China and the US.

Fig. 10 presents the regional pseudo-growth incidence curves (PGICs) for capital and labor income in both countries. In the capital income PGIC for China, there is a notable spike corresponding to the first two deciles, with the growth rate of capital income at the bottom of the Chinese distribution increasing by 100-fold.

This phenomenon can be explained by the fact that when transfer income is included in our income concept, the poorest individuals in China primarily earn from capital income alone. Consequently, even a small increase in the absolute level of their income may result in an extremely high growth rate.

A similar situation, although less pronounced, can be observed in the United States, where there is also an increase in capital income growth at the bottom of the income distribution. It is worth noting that under the baseline income definition, the bottom five deciles of the US income distribution experienced capital income growth rates as low as

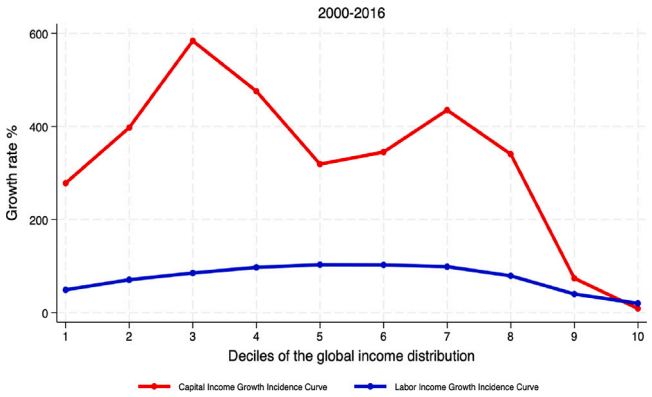
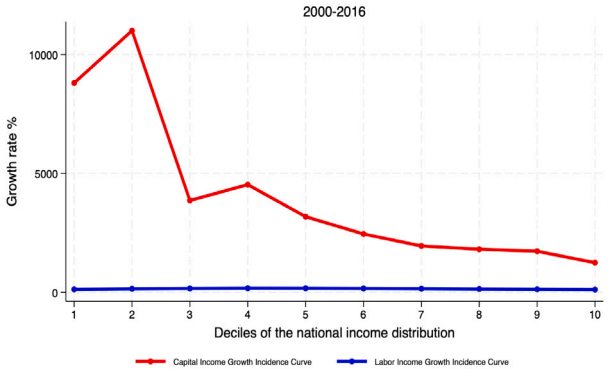


Fig. 9. Pseudo-growth incidence curves for capital and labor. *Note*: Y-axis displays the growth rate of the decile average income source, weighted by population. A value of 100 signifies a doubling, or 100% increase, of the income in the relevant decile. Growth incidence is evaluated at decile groups of total income. Capital income is the sum of interests, dividends and rental income. Labor income includes wage income, self-employment income and transfers. Total income is, hence, the sum of labor and capital income.

(a) China



(b) US

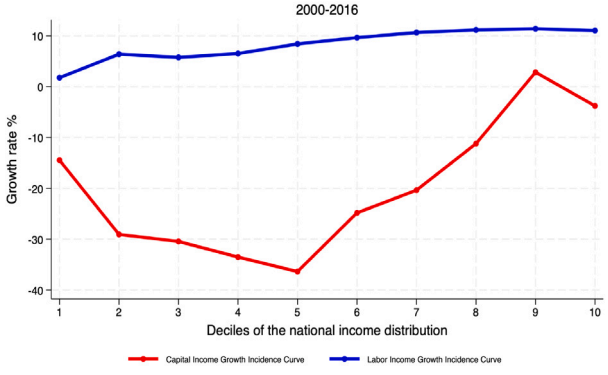


Fig. 10. Regional pseudo-growth incidence curves for capital. *Note*: Y-axis displays the growth rate of the decile average income source, weighted by population. A value of 100 signifies a doubling, or 100% increase, of the income in the relevant decile. Growth incidence is evaluated at decile groups of total income. Capital income is the sum of interests, dividends and rental income. Labor income includes wage income and self-employment income.

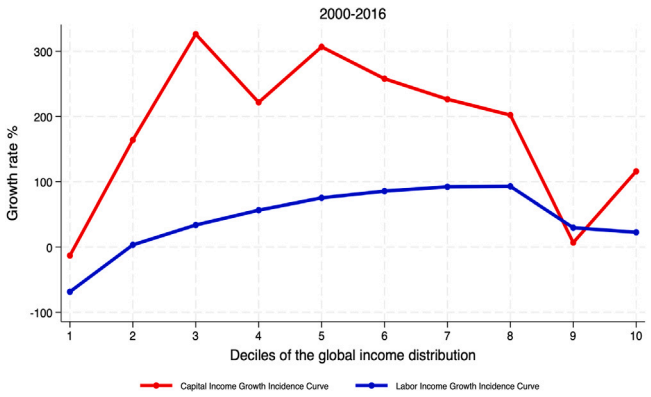


Fig. 11. Pseudo-growth incidence curves for capital and labor. *Note*: Y-axis displays the growth rate of the decile average income source, weighted by population. A value of 100 signifies a doubling, or 100% increase, of the income in the relevant decile. Growth incidence is evaluated at decile groups of total income. Capital income is the sum of interests, dividends and rental income. Labor income includes wage income, self-employment income and transfers. Total income is, hence, the sum of labor and capital income. The missing income gap between the household surveys and the estimate from the World Bank is allocated at the top 5% of the total income distribution in the form of capital income.

−100%, but with the inclusion of transfer income, their average capital income growth improves to around −30%. On the other hand, the labor income PGIC for the US reveals a consistent increase in labor income at the bottom of the distribution when compared to the PGIC without transfer income.

The favorable impact of transfers on income growth at the bottom of the distribution is not surprising. In a recent study, Parolin and Gornick (2020) demonstrated that policy-driven transfers contribute to income growth primarily at the lower end of the disposable income distribution in many high-income countries.

B.2. Top income adjustments

We make three types of top income adjustments. Following Lakner and Milanovic (2015), we allocate the income gap between (i) the income captured by the household surveys and (ii) the income estimates from the national accounts at the top 5% of the total national income distribution in three different ways. The first way assumes that all missing income takes the form of capital income. The second way assumes that the missing income is distributed between capital and labor incomes depending on the functional income distribution reported by the survey.[36] The third way assumes that all the missing income takes the form of labor income. While the first two assumptions are the most plausible of the three given recent empirical evidence (Yonzan et al., 2020), the third assumption is made with the sole purpose of comparing its results with those of the first two, by introducing a benchmark adjustment where capital income is not involved.

Fig. 11 shows the global capital and labor PGICs under the first top income adjustment, which assumes that all the missing income takes the form of capital income. Unlike our benchmark PGICs (Fig. 3), the top income decile displays a 100% capital income growth rate between 2000 and 2016. The growth rate for the benchmark PGIC for capital income was, instead, close to 0%. The rest of the distribution is, however, unaffected by the top income adjustment.[37]

[36] We use our estimate of the household sector's capital and labor shares from the household surveys for this purpose.

[37] We recall that, should the top of a given national distribution occupy the middle of the global distribution, a sudden top income adjustment would influence the middle, instead of the top, of the global distribution.

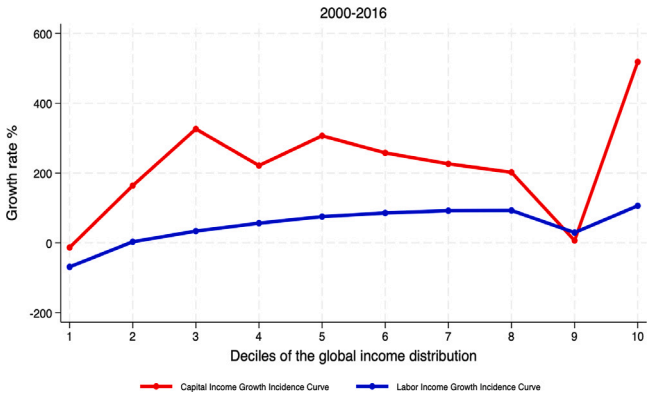


Fig. 12. Pseudo-growth incidence curves for capital and labor. *Note*: Y-axis displays the growth rate of the decile average income source, weighted by population. A value of 100 signifies a doubling, or 100% increase, of the income in the relevant decile. Growth incidence is evaluated at decile groups of total income. Capital income is the sum of interests, dividends and rental income. Labor income includes wage income, self-employment income and transfers. Total income is, hence, the sum of labor and capital income. The missing income gap between the household surveys and the estimate from the World Bank is allocated at the top 5% of the total income distribution in the form of capital and labor incomes depending on the household sector's functional income distribution provided by the survey.

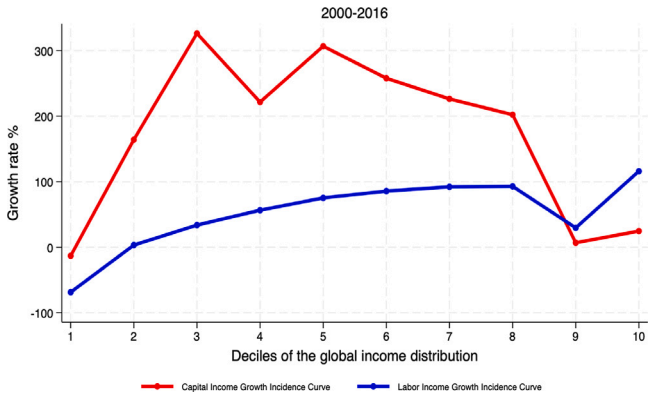


Fig. 13. Pseudo-growth incidence curves for capital and labor. *Note*: Y-axis displays the growth rate of the decile average income source, weighted by population. A value of 100 signifies a doubling, or 100% increase, of the income in the relevant decile. Growth incidence is evaluated at decile groups of total income. Capital income is the sum of interests, dividends and rental income. Labor income includes wage income, self-employment income and transfers. Total income is, hence, the sum of labor and capital income. The missing income gap between the household surveys and the estimate from the World Bank is allocated at the top 5% of the total income distribution in the form of labor income.

The second top income adjustment, which distributes the missing income gap at the top between capital and labor depending on the country's functional income distribution, gives us more pronounced results, as shown by Fig. 12. Under this adjustment, the top decile of the global distribution displays a capital income growth rate of approximately 500%, while its labor income growth rate reaches 100%. Similarly to what was shown for the first top income adjustment (Fig. 11), the remaining part of the global distribution is unaffected by the modification.

What explains the different growth rates of capital income at the top between the two adjustments can be explained by the following reasoning. The growth rate of capital income at the top can be expressed as a function of (i) the growth rate of the missing total income and (ii) the growth rate of the functional income distribution (i.e., the capital income share) at the top. When we assume that the missing income at the top takes exclusively the form of capital income (assumption 1), we attribute more weight to the growth rate of the functional income distribution relative to when we consider assumption 2. Our results, therefore, suggest that the growth rate of the missing income is greater than the growth rate of the capital income share at the top.

Finally, when we assume the missing income gap can be ascribed to labor income only, we observe an increase in the growth rate for labor income at the top, which reaches a value greater than 100%, as shown by Fig. 13. Neither the rest of the labor income distribution is affected by this adjustment, nor the capital income distribution.

To sum up, the three top income adjustments displayed in this section confirm the overall finding of the paper that describes a process of capitalization of the global middle class in the 21st Century. However, these adjustments further highlight that, depending on the type of assumption we make (i.e., how we distribute the missing income at the top between capital and labor incomes), this capitalization process may or may not be accompanied by another capitalization process, this time occurring at the top of the global distribution. When we assume that the missing income at the top is distributed between capital and labor incomes depending on the national household sector's functional income distribution, then we record a capitalization process at the top of the global distribution that outpaces that of the global middle class. On the contrary, when we differently distribute the missing income at the top between capital and labor incomes, the capitalization process of the global middle class outpaces that of the very top.

B.3. Functional income distribution adjustment

In this section, we adjust the household-sector capital and labor shares with ILO estimates derived from national account statistics and labor survey data. This exercise is done to assess the role played by household-sector capital and labor shares in shaping the global pseudo-growth incidence curves for capital and labor income. Before describing the main findings, it is of utmost importance to highlight the main limitations of such analysis.

First of all, as already mentioned in the main body of the text, the definitions of capital and labor shares differ between the two data sources – household-sector survey data and ILO statistics – in many respects. I now focus on two major differences between the two. *First*, while the household survey focuses solely on the household sector, the ILO estimates cover the entire economy. This includes also the corporate sector. The income retained by corporations in the form of undistributed profits, in fact, does not appear in any individual-level capital income variable. Moreover, as documented by Flores (2021), the gap between the survey household sector capital share and the one from national accounts is widening in many countries. As stated by Flores (2021), "[The] household share of capital income [...] experienced a generalized and strong decrease during the last decades. This implies that an increasing part of national income is retained in corporations and thus is ignored by most distributive data". This finding seems to be a generalized stylized fact for several countries for which sufficient statistics on this matter are available. *Second*, the ILO estimate for the labor share includes a share of mixed, or self-employed, income in the definition of capital income. This is done through the use of microdata on labor statistics, through which they assess the share of self-employed people in the population (Gomis, 2019). This creates an inconsistency with our own definition of labor (and, hence, capital) income, which includes the totality of self-employed income.

A second concern that arises from this exercise is that when we allocate the missing capital income across individuals, we assume that this income is proportionally distributed based on their existing capital incomes. We apply the same assumption when adjusting labor income across the distribution. This approach is problematic, however, as different capital income sources have varying correlations with one another. For instance, while the distribution of dividends may be reasonably similar to that of undistributed profits, the same

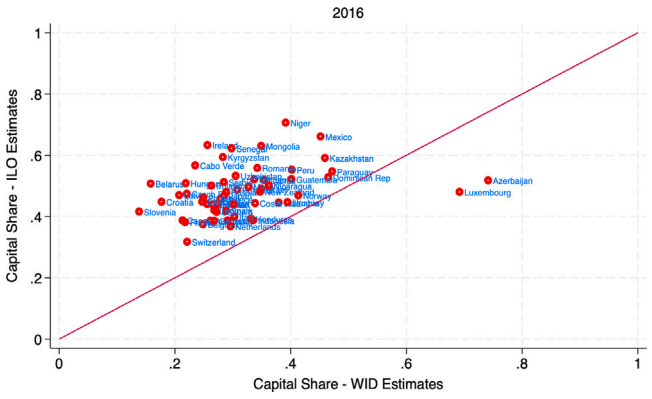


Fig. 14. ILO and WID capital share estimates. *Note*: Y-axis displays ILO estimates of the capital share while X-axis reports WIL estimates for the same variable in 2016. All countries for which an estimate is available are included in the graph.

cannot be assumed for rental income. This distinction is particularly significant given that rental income is one of the primary drivers of individual-level capital income dynamics.

Lastly, although ILO estimates of labor and, consequently, capital shares are available for numerous countries over several years since 2000, there is no consensus regarding the levels and trends of these estimates across different data sources. When comparing, for instance, the capital share estimates from ILO with those produced by the World Inequality Lab for a group of countries with available data in 2016, we observe significant discrepancies (Fig. 14). Taking Slovenia as an example, we find that the ILO estimate for the capital share is more than double the estimate produced by the World Inequality Lab.

Let us analyze the main results of this adjustment. Fig. 15 shows the pseudo-growth incidence curves for capital and labor income when the household-sector capital and labor shares are substituted by the ILO estimates. Note that while we were able to adopt the ILO shares for 2016 to replace our 2016 estimates, we used the ILO estimates of 2004 to replace our shares for 2000 due to data limitations. Despite this caveat, all countries in our database are included in this adjustment.

The main finding from this analysis is that while the shapes of the two curves remain relatively unchanged, the magnitude of the pseudo-GIC for capital income significantly decreases. In other words, according to this adjusted curve, although the global middle class still benefited the most, in relative terms, from the growth of capital income between 2000 and 2016, its growth is not three times as much as that of labor income, as shown in our baseline results.

Given the prominent role played by China in our analysis, we then constructed the same curves by leaving the shares of capital and labor income for China unchanged. The main results of this exercise are reported in Fig. 16. As we can observe, the survey household-sector estimates of the capital and labor income shares in China report a higher capital income growth than the ILO estimates.

The estimates for the Chinese capital and labor income shares therefore play an important role in determining the magnitude of the pseudo-GIC for capital income, although not the shape of the curve itself. With that said, it is important to highlight that the ILO estimates for the capital and labor shares in China should be treated with caution. As discussed by Piketty et al. (2019) in their recent study on the evolution of income and wealth inequality in China, using a comprehensive set of statistical sources, there is "uncertainty about the exact level of the net-of-depreciation capital share". The authors, in fact, do not provide any estimate for this macroeconomic variable in their study.

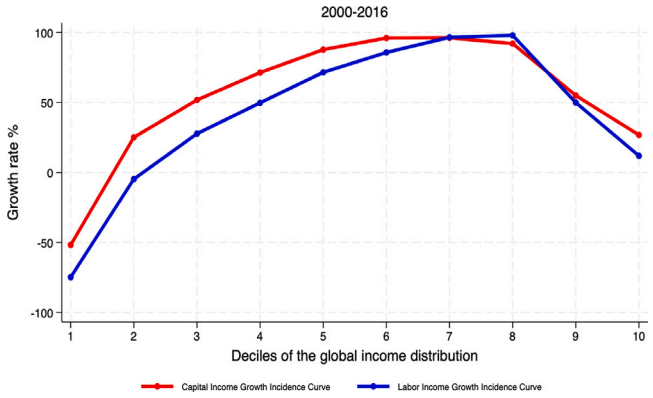


Fig. 15. Pseudo-growth incidence curves for capital and labor. *Note*: Y-axis displays the growth rate of the decile average income source, weighted by population. A value of 100 signifies a doubling, or 100% increase, of the income in the relevant decile. Growth incidence is evaluated at decile groups of total income. Household-sector capital and labor income shares from survey data are here replaced by ILO estimates of the labor and, hence, capital shares. For the benchmark year 2000, we use ILO estimates of 2004, whilst for the benchmark year 2016, we use ILO estimates of 2016.

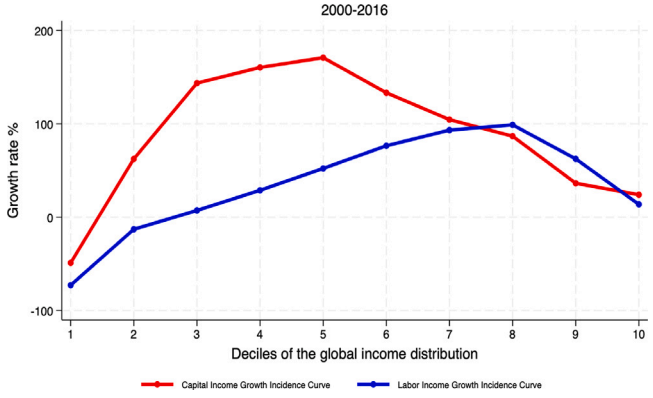


Fig. 16. Pseudo-growth incidence curves for capital and labor. *Note*: Y-axis displays the growth rate of the decile average income source, weighted by population. A value of 100 signifies a doubling, or 100% increase, of the income in the relevant decile. Growth incidence is evaluated at decile groups of total income. For all countries with the exception of China, household-sector capital and labor income shares from survey data are replaced by ILO estimates of the labor and, hence, capital shares. For the benchmark year 2000, we use ILO estimates of 2004, whilst for the benchmark year 2016, we use ILO estimates of 2016.

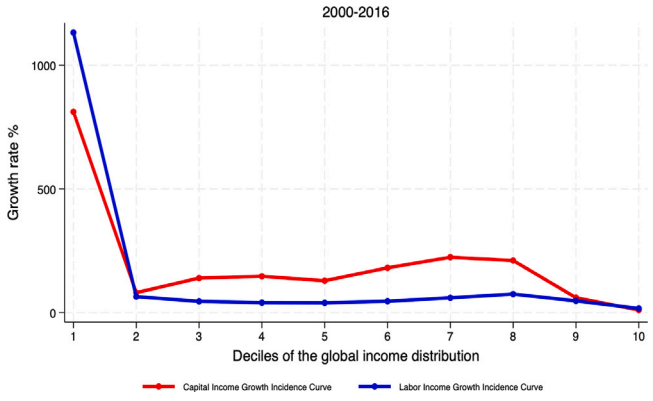


Fig. 17. Pseudo-growth incidence curves for capital and labor. *Note*: Y-axis displays the growth rate of the decile average income source, weighted by population. A value of 100 signifies a doubling, or 100% increase, of the income in the relevant decile. Growth incidence is evaluated at decile groups of total income. Capital income is the sum of interests, dividends and rental income. Labor income includes wage income and self-employment income. Total income is, hence, the sum of labor and capital income. The 1995 survey from CHIP is used for the benchmark year 2000.

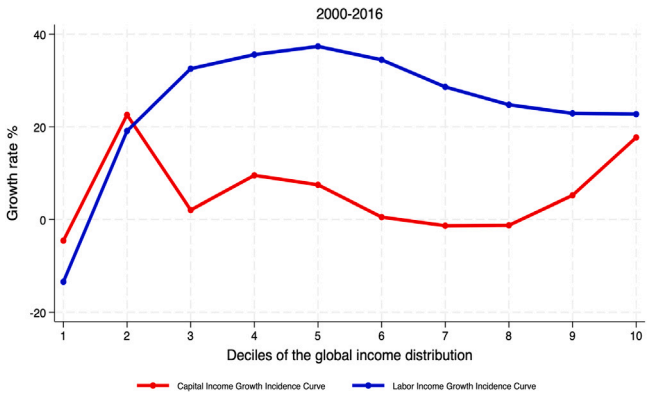


Fig. 18. Pseudo-growth incidence curves for capital and labor. *Note*: Y-axis displays the growth rate of the decile average income source, weighted by population. A value of 100 signifies a doubling, or 100% increase, of the income in the relevant decile. Growth incidence is evaluated at decile groups of total income. Capital income is the sum of interests, dividends and rental income. Labor income includes wage income, self-employment income and transfers. Total income is, hence, the sum of labor and capital income. Countries are *not* weighted by population size.

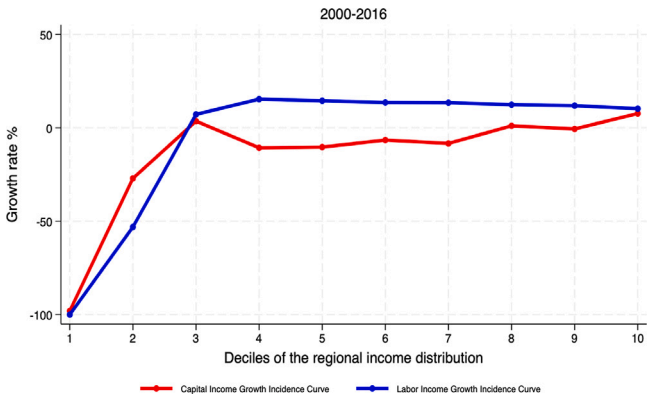


Fig. 19. Pseudo-growth incidence curves for capital and labor in mature economies. *Note*: Y-axis displays the growth rate of the decile average income source, weighted by population. A value of 100 signifies a doubling, or 100% increase, of the income in the relevant decile. Growth incidence is evaluated at decile groups of total income. Capital income is the sum of interests, dividends and rental income. Labor income includes wage income, self-employment income and transfers. Total income is, hence, the sum of labor and capital income. Following the classification of Lakner and Milanovic (2015), mature economies include EU-27, Australia, Bermuda, Canada, Hong Kong, Iceland, Israel, Japan, Korea, New Zealand, Norway, Singapore, Switzerland, Taiwan, United States and UK.

B.4. Robustness check for China

The aim of this section is to further explore the role China plays in our analysis by challenging the income sources at our disposal. The survey for China, later harmonized by LIS, has been produced by the Chinese Household Income Project (CHIP) and has four waves: 1988, 1995, 2002, and 2013. Despite the different ways income values have been imputed in the first three waves relative to the fourth,[38] the main source of capital income in both surveys comes from property income. Therefore, the main factor behind the rapid growth in capital income of the Chinese population is the increase in property ownership. This is, however, not a new result. Li and Wan (2015) show, for instance, several aspects regarding the evolution of wealth in China, using the CHIP and CFPS data sources in 2002 and 2013, respectively. While several results emerge from their analysis, I wish to emphasize two in particular. First, the level of wealth has grown rapidly during the period considered. The annual growth rate of household net wealth per capita was, in fact, 20.6% during 2002–2010 (Li & Wan, 2015). Second, different wealth components have grown at different rates. Specifically, net housing and financial assets reached 24.6% and 17.8%, respectively. In a separate study, Novokmet et al. (2018) analyzes the evolution of private wealth in China and shows that this is due both to an increase in housing prices following the privatization and liberalization of the housing market and to the increase in the value of private housing stock from 60% of national income in 1991 to 182% in 2008. Our findings, therefore, allow us to complement these studies by taking a global perspective on the Chinese capitalization process. To test the stability of our baseline PGICs with respect to the Chinese surveys, we substitute the wave of 2002 with that of 1995, both are close enough to the benchmark year 2000. Fig. 17 displays the main results. As we can see, while the shapes of the capital and labor growth incidence curves for the deciles 2–10 are similar to our benchmark curves, we observe an important spike in correspondence to the first decile of the global income distribution.

This result can be explained by the fact that in 1995, approximately the bottom 20% of the Chinese population reported near-zero income, according to our market income definition (*def* 1). The bottom 20% of the Chinese population in 1995 occupied, therefore, the bottom decile of the global income distribution. This implied that any positive *absolute* change in the capital and labor incomes of the bottom decile would result in a high *relative* change.

This result draws our attention to an important aspect of the Chinese capitalization process. As documented by several other studies (Piketty et al., 2019; Zhou & Song, 2016), this process started before 2002. However, only starting from the beginning of the XXIst century, almost the entire Chinese population can be seen as being part of the global middle class. A way to appreciate this finding is by noticing that the capital income growth incidence curve in Fig. 17 reaches lower growth rates in correspondence to the middle of the distribution, as compared to our benchmark curves.

B.5. Unweighted panel

The final robustness check we present in this section aims to analyze the role population sizes play in shaping our global dynamics. To this end, we plot the capital and labor PGICs *without* weighting countries by their population sizes. In other words, each country is treated equally in terms of its impact on these global curves. Fig. 18 plots the PGICs without applying any type of top-income adjustments. Figs. 24 and 25 show the capital and labor income PGICs under the first and second top-income adjustments (i.e., we first allocate the missing income in the form of capital income at the top 5% of the distribution, and second, we distribute the missing income at the top 5% in proportion to the survey's functional income distribution, respectively).

For almost all specifications adopted (with and without top-income adjustments), the results tend to go in the same direction: while the labor income PGIC is almost unaffected by the current modification, the capital income PGIC no longer displays the significant growth rates in correspondence to the middle of the distribution. This finding reinforces the message that China plays a striking role in shaping our global capital and labor trends, considering its significant population coverage. Figs. 26, 27, and 28 show similar results when the second definition of income, which includes government transfers, is considered.

[38] First of all, the sampling frame for the 2002 survey was done independently for rural, urban, and migrating populations. On the contrary, the sampling frame for the 2013 survey was based on a census and integrated urban and rural areas. Second of all, the recent round of the CHIP surveys have imputed values of the main components of total income in four categories (wage, business, property, and transfer income), while past waves contained also information on different types of transfers.

Appendix C. Supplementary tables

See Tables 3–9.

Table 3
Descriptive statistics (mean).

Country	Income		Capital income		Labor income		GDP pc	
	2000	2016	2000	2016	2000	2016	2000	2016
Australia	14 406	21 412	853	2299	13 552	19 112	35 592	43 651
Austria	11 921	19 947	426	642	11 532	19 313	38 844	44 632
Belgium	11 998	17 328	831	661	11 128	16 667	36 580	42 465
Brazil	3731	4717	78	117	3654	4599	12 701	14 200
Canada	17 693	20 195	856	1471	16 836	18 723	33 742	43 110
Chile	4190	6471	154	173	4036	6298	14 241	22 257
China	1504	3831	19	347	1484	3483	4302	11 919
Colombia	2241	3867	89	223	2136	3644	9040	13 207
Czech Rep	7033	10 230	59	161	6974	10 069	22 297	31 295
Denmark	19 380	21 426	748	951	18 632	20 474	42 337	46 906
Dominican Rep	3192		92		3099		10 453	
Egypt	2802	2922	367	130	2435	2791	7192	10 242
Estonia	3523	8722	36	110	3487	8855	15 641	26 081
Finland	14 404	16 968	1009	1166	13 395	15 802	34 860	40 310
France	10 697	11 967	690	642	10 006	11 325	34 705	36 814
Germany	19 103	19 742	1019	1166	18 084	18 576	36 698	44 467
Greece	7420	7604	462	397	6958	7207	24 839	24 188
Guatemala	3362	2735	85	29	3277	2705	6457	7147
Hungary	3409	5709	106	34	3301	5674	17 082	25 212
Iceland	20 301	18 626	1366	1324	18 914	17 282	38 893	40 136
India	1064	1505	13	19	1050	1487	3210	4624
Iraq	2018	1936	519	305	1499	1630	11 774	15 032
Ireland	11 606	13 786	326	280	11 267	13 504	40 644	44 897
Israel	10 325	13 067	399	463	9926	12 603	26 239	32 617
Italy	8934	11 514	813	241	8120	11 272	36 735	34 840
Ivory Coast	1277	1692	45	52	1232	1640	2810	3225
Japan		13 807		699		13 107		37 148
Jordan	2915	3422	393	197	2522	3224	7840	8768
Lithuania		9018		202		8813		28 063
Luxembourg	17 446	24 403	1059	1204	16 384	23 205	81 689	90 656
Mexico	2958	3486	50	56	2908	3429	16 129	17 789
Netherlands	16 645	19 137	416	844	16 226	18 293	40 613	45 753
Norway	18 516	24 373	1555	1453	16 960	22 920	57 986	62 809
Panama	4368	5482	85	79	4282	5401	14 006	19 393
Paraguay	3777	4653	156	140	3621	4509	7983	11 381
Peru	2286	3923	72	129	2194	3792	7142	12 414
Poland	3859	6203	13	33	3846	6170	13 943	26 093
Romania	2491		14		2476		10 367	
Russia	2399	10 189	54	126	2344	10 063	14 050	24 416
Serbia	2676	3142	36	34	2639	3108	11 934	14 902
Slovak Rep.	3942	7366	12	16	3929	7349	14 083	26 647
Slovenia	6148	8567	33	298	6115	8269	21 909	29 131
South Africa		6123		110		6013		12 214
South Korea	12 407	13 734	102	122	12 305	13 627	26 697	31 776
Spain	9631	11 865	313	539	9315	11 326	30 030	33 244
Sudan		1011		22		989		4280
Sweden	14 750		729		14 021		36 820	
Switzerland	24 062	28 321	1649	1440	22 413	26 880	50 776	56 535
UK	13 259	16 059	612	575	12 646	15 483	32 372	39 760
US	25 611	26 514	1745	1606	23 865	24 907	45 661	53 631
Uruguay	3374	6187	150	217	3224	5966	12 089	20 210
Vietnam		3214		106		3112		5065

Table 4
Bin years.

Country	Bin year			
	2000	*Change*	2016	*Change*
Australia	2001	1	2014	−2
Austria	2000	0	2016	0
Belgium	2000	0	2016	0
Brazil	2006	6	2016	0
Canada	2000	0	2016	0
Chile	2000	0	2015	−1
China	2002	2	2013	−3
Colombia	2004	4	2016	0
Czech Rep	2002	2	2016	0
Denmark	2000	0	2016	0
Dominican Rep	2007	7		
Egypt	1999	−1	2015	−1
Estonia	2000	0	2013	−3
Finland	2000	0	2016	0
France	2000	0	2010	−6
Germany	2000	0	2016	0
Greece	2000	0	2016	0
Guatemala	2006	6	2014	−2
Hungary	1999	−1	2015	−1
Iceland	2004	4	2010	−6
India	2004	4	2011	−5
Iraq	2007	7	2012	−4
Ireland	2000	0	2010	−6
Israel	2001	1	2016	0
Italy	2000	0	2016	0
Ivory Coast	2002	2	2015	−1
Japan			2013	−3
Jordan	2002	2	2013	−3
Lithuania			2016	0
Luxembourg	2000	0	2013	−3
Mexico	2000	0	2016	0
Netherlands	1999	−1	2013	−3
Norway	2000	0	2013	−3
Panama	2007	7	2013	−3
Paraguay	2000	0	2016	0
Peru	2004	4	2016	0
Poland	1999	−1	2016	0
Romania	1997	−3		
Russia	2000	0	2016	0
Serbia	2006	6	2016	0
Slovak Rep.	2004	4	2013	−3
Slovenia	1999	−1	2015	−1
South Africa			2015	−1
South Korea	2006	6	2012	−4
Spain	2000	0	2016	0
Sudan			2009	−7
Sweden	2000	0		
Switzerland	2000	0	2013	−3
UK	1999	−1	2016	0
US	2000	0	2016	0
Uruguay	2004	4	2016	0
Vietnam			2013	−3

Table 5
Descriptive statistics on unbalanced panel.

	2000	2016	Change (%)
Gini of capital income (%)			
World	85	82	−3
China	74	68	−8
India	58	69	17
LAC	62	66	5
Mature economies	84	87	2
US	83	86	3
Gini of labor income (%)			
World	73	67	−7
China	44	47	6
India	50	53	4
LAC	57	54	−5
Mature economies	49	48	−3
US	47	47	2
Top 10% capital income share (%)			
World	98	91	−6
China	99	68	−31
India	100	100	0
LAC	100	100	0
Mature economies	87	92	5
US	84	88	4
Top 10% labor income share (%)			
World	63	55	−13
China	32	35	7
India	39	41	5
LAC	46	44	−3
Mature economies	39	38	−2
US	37	38	3

Table 6
Descriptive statistics on unbalanced panel.

	2000	2016	Change (%)
Mean capital income ($)			
World	243	355	45
China	19	348	1670
India	13	19	40
LAC	79	102	27
Mature economies	961	973	1
US	1747	1607	−8
Mean labor income ($)			
World	4685	6349	35
China	1484	3484	134
India	1051	1489	41
LAC	3343	4212	25
Mature economies	15 521	17 325	11
US	23 960	25 012	4
Median capital income ($)			
World	0	0	
China	0	31	
India	0	0	
LAC	0	0	
Mature economies	15	1	−93
US	21	7	−65
Median labor income ($)			
World	1168	2109	80
China	1020	2471.5	142
India	641	876	36
LAC	1779	2426	36
Mature economies	10 042	11 554	15
US	16 812	16 945.5	0

Table 7
Descriptive statistics on unbalanced panel.

	2000	2016	Change (%)
Individuals without capital (%)			
World	80	68	−15
China	89	44	−50
India	97	96	−1
LAC	96	95	−1
Mature economies	44	50	13
US	42	40	−4
Income-Factor Concentration (IFC) Index (%)[a]			
World	32	4	−86
World *without* China	19	26	36
China	22	5	−74
India	42	44	4
LAC	42	34	−17
Mature economies	1	12	860
US	10	17	69
Homoploutia (%)[b]			
World	15	9	−37

[a] The IFC index is an indicator of compositional inequality in terms of capital and labor income (Ranaldi, 2022). The IFC is constructed by means of concentration curves for income sources and takes values of 1 when capital incomes are concentrated at the top of the total income distribution and labor income at the bottom, −1 when the opposite situation occurs, and 0 when both factor shares are equally distributed across the total income distribution.
[b] Homoploutia, as defined by Berman and Milanovic (2023), represents the proportion of individuals who simultaneously belong to the top 10% in both labor and capital income distributions.

Table 8
Descriptive statistics on unbalanced panel.

	2000	2016	Change (%)
Capital share (%)			
World	4	5	7
China	1	9	608
India	1	1	1
LAC	2	2	4
Mature economies	5	5	−8
US	6	6	−11
Labor share (%)			
World	95	94	0
China	98	90	−7
India	98	98	0
LAC	97	97	0
Mature economies	94	94	0
US	93	93	0

Table 9
Descriptive statistics on unbalanced panel.

	2000	2016	Change (%)
Share of individuals with positive capital income (%)			
Australia	46	67	45.65
Austria	60	64	6.67
Belgium	28	60	114.29
Brazil	3	4	33.33
Canada	48	43	−10.42
Chile	8	6	−25
China	11	56	409.09
Colombia	7	10	42.86
Czech Rep	12	12	0
Denmark	75	59	−21.33
Egypt	82	10	−87.8
Estonia	3	23	666.67
Finland	44	76	72.73
France	81	80	−1.23
Germany	84	70	−16.67
Greece	20	15	−25
Guatemala	5	3	−40
Hungary	31	4	−87.1
Iceland	58	95	63.79
India	3	4	33.33
Iraq	85	82	−3.53
Ireland	38	15	−60.53
Israel	9	12	33.33
Italy	81	78	−3.7
Ivory Coast	7	6	−14.29
Jordan	24	8	−66.67
Luxembourg	34	63	85.29
Mexico	2	4	100
Netherlands	44	89	102.27
Norway	96	94	−2.08
Panama	3	2	−33.33
Paraguay	5	4	−20
Peru	10	13	30
Russia	1	13	1200
Serbia	2	2	0
Slovak Rep.	6	24	300
Slovenia	15	43	186.67
South Korea	20	15	−25
Spain	88	52	−40.91
Switzerland	69	87	26.09
UK	63	36	−42.86
US	58	60	3.45
Uruguay	5	6	20

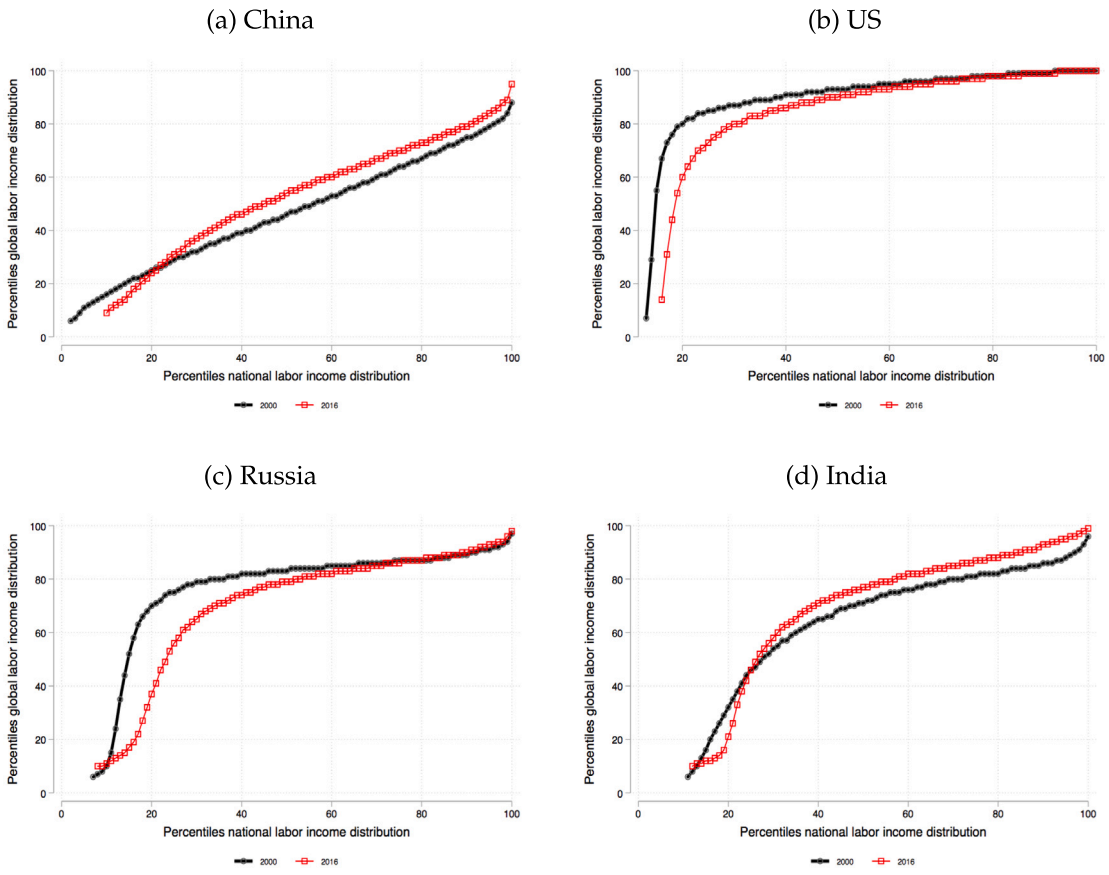


Fig. 20. Global against national rankings — Labor income (Selected countries). *Note*: Only percentiles with non-zero labor incomes are considered.

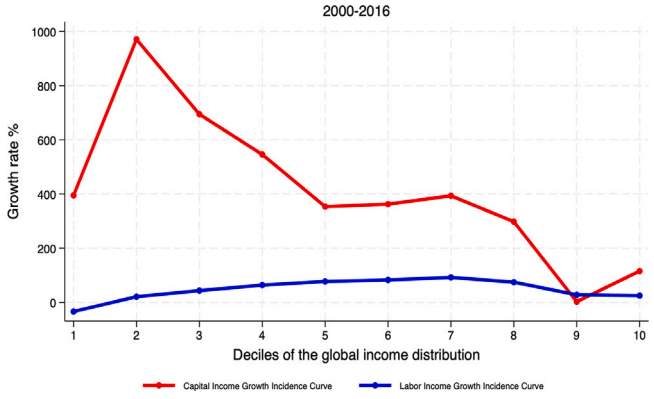


Fig. 21. Pseudo-growth incidence curves for capital and labor. *Note*: Y-axis displays the growth rate of the decile average income source, weighted by population. Growth rates are quantified as the multiple by which the corresponding income increases. For example, a value of 1 signifies a doubling, or 100% increase, of the income in the relevant decile. Growth incidence is evaluated at decile groups of total income. Capital income is the sum of interests, dividends and rental income. Labor income includes wage income, self-employment income and transfers. Total income is, hence, the sum of labor and capital income. The missing income gap between the household surveys and the estimate from the World Bank is allocated at the top 5% of the total income distribution in the form of capital income.

Appendix D. Supplementary figures

D.1. Pseudo-growth incidence curves

Fig. 19.

D.2. Global against national rankings

Fig. 20.

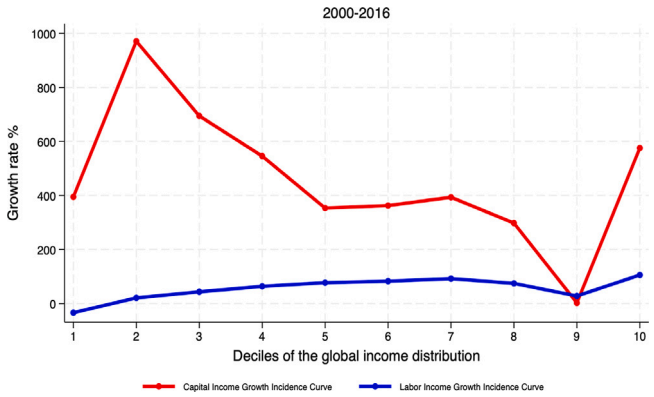


Fig. 22. Pseudo-growth incidence curves for capital and labor. *Note*: Y-axis displays the growth rate of the decile average income source, weighted by population. A value of 100 signifies a doubling, or 100% increase, of the income in the relevant decile. Growth incidence is evaluated at decile groups of total income. Capital income is the sum of interests, dividends and rental income. Labor income includes wage income, self-employment income and transfers. Total income is, hence, the sum of labor and capital income. The missing income gap between the household surveys and the estimate from the World Bank is allocated at the top 5% of the total income distribution in the form of capital and labor incomes depending on the household sector's functional income distribution provided by the survey.

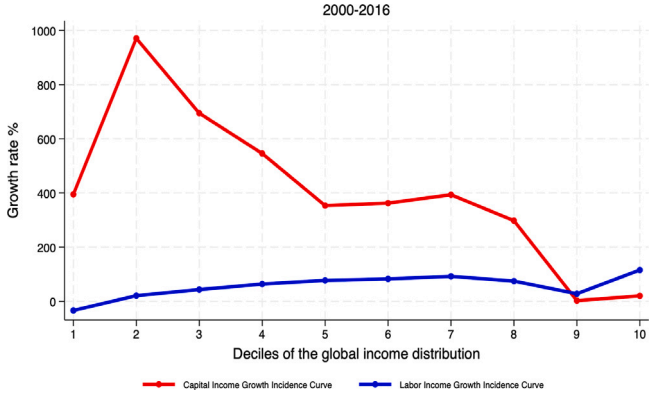


Fig. 23. Pseudo-growth incidence curves for capital and labor. *Note*: Y-axis displays the growth rate of the decile average income source, weighted by population. A value of 100 signifies a doubling, or 100% increase, of the income in the relevant decile. Growth incidence is evaluated at decile groups of total income. Capital income is the sum of interests, dividends and rental income. Labor income includes wage income, self-employment income and transfers. Total income is, hence, the sum of labor and capital income. The missing income gap between the household surveys and the estimate from the World Bank is allocated at the top 5% of the total income distribution in the form of labor income.

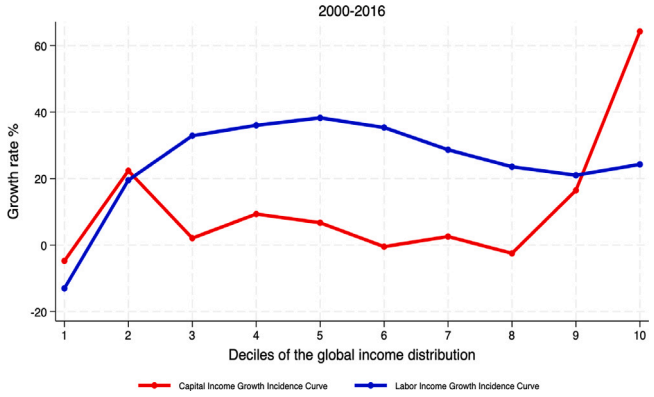


Fig. 24. Pseudo-growth incidence curves for capital and labor. *Note*: Y-axis displays the growth rate of the decile average income source, weighted by population. A value of 100 signifies a doubling, or 100% increase, of the income in the relevant decile. Growth incidence is evaluated at decile groups of total income. Capital income is the sum of interests, dividends and rental income. Labor income includes wage income, self-employment income and transfers. Total income is, hence, the sum of labor and capital income. Countries are *not* weighted by population size. The missing income gap between the household surveys and the estimate from the World Bank is allocated at the top 5% of the total income distribution in the form of capital income.

D.3. Pseudo-growth incidence curves — Top adjustments

Figs. 21–23.

D.4. Pseudo-growth incidence curves — Unweighted panel

Figs. 24–28.

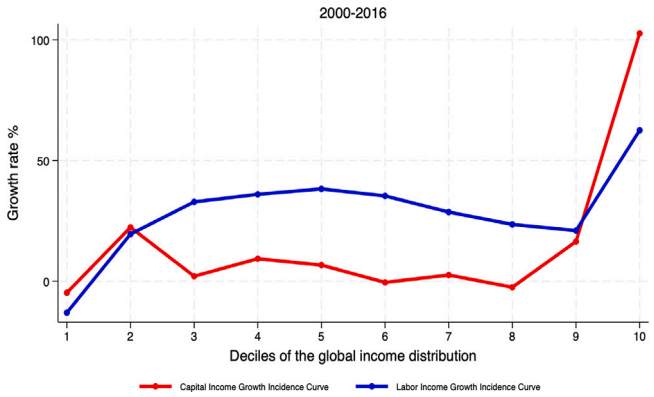


Fig. 25. Pseudo-growth incidence curves for capital and labor. *Note*: Y-axis displays the growth rate of the decile average income source, weighted by population. A value of 100 signifies a doubling, or 100% increase, of the income in the relevant decile. Growth incidence is evaluated at decile groups of total income. Capital income is the sum of interests, dividends and rental income. Labor income includes wage income, self-employment income and transfers. Total income is, hence, the sum of labor and capital income. Countries are *not* weighted by population size. The missing income gap between the household surveys and the estimate from the World Bank is allocated at the top 5% of the total income distribution in the form of capital and labor incomes depending on the household sector's functional income distribution provided by the survey.

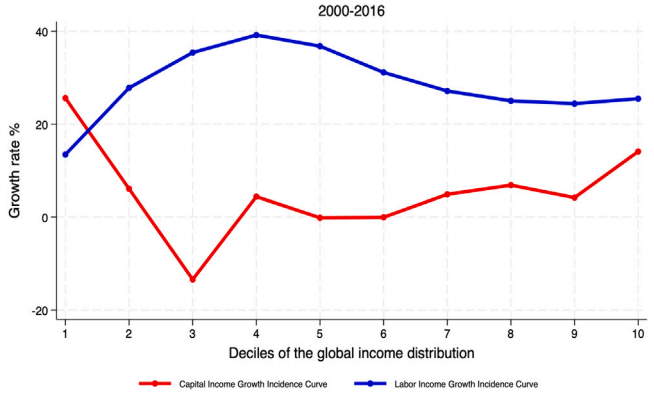


Fig. 26. Pseudo-growth incidence curves for capital and labor. *Note*: Y-axis displays the growth rate of the decile average income source, weighted by population. A value of 100 signifies a doubling, or 100% increase, of the income in the relevant decile. Growth incidence is evaluated at decile groups of total income. Capital income is the sum of interests, dividends and rental income. Labor income includes wage income, self-employment income and transfers. Total income is, hence, the sum of labor and capital income. Countries are *not* weighted by population size.

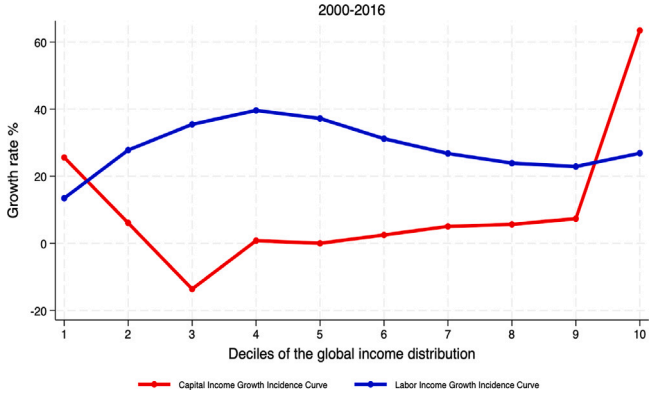


Fig. 27. Pseudo-growth incidence curves for capital and labor. *Note*: Y-axis displays the growth rate of the decile average income source, weighted by population. A value of 100 signifies a doubling, or 100% increase, of the income in the relevant decile. Growth incidence is evaluated at decile groups of total income. Capital income is the sum of interests, dividends and rental income. Labor income includes wage income, self-employment income and transfers. Total income is, hence, the sum of labor and capital income. Countries are *not* weighted by population size. The missing income gap between the household surveys and the estimate from the World Bank is allocated at the top 5% of the total income distribution in the form of capital income.

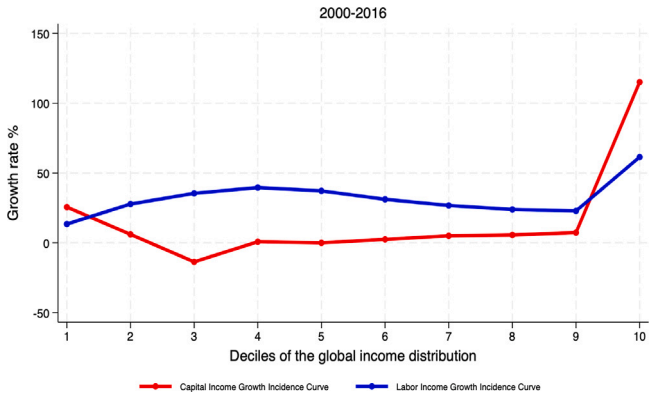


Fig. 28. Pseudo-growth incidence curves for capital and labor. *Note*: Y-axis displays the growth rate of the decile average income source, weighted by population. A value of 100 signifies a doubling, or 100% increase, of the income in the relevant decile. Growth incidence is evaluated at decile groups of total income. Capital income is the sum of interests, dividends and rental income. Labor income includes wage income, self-employment income and transfers. Total income is, hence, the sum of labor and capital income. Countries are *not* weighted by population size. The missing income gap between the household surveys and the estimate from the World Bank is allocated at the top 5% of the total income distribution in the form of capital and labor incomes depending on the household sector's functional income distribution provided by the survey.

Appendix E. Supplementary data

Supplementary material related to this article can be found online at https://doi.org/10.1016/j.worlddev.2024.106849.

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