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# Comparing global inequality of income and wealth

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**Abstract:** This paper is the first to compare global trends in income and wealth inequality this century. It is based on large income and wealth microdata samples designed to be representative of all countries in the world. Measured by the Gini coefficient, inequality between countries accounts for about two-thirds of global income inequality, but noticeably less— around one half— of wealth inequality. Broadly similar results are found for different years and different inequality indices, bar the share of the top 1 per cent. Over time, changes in countries' mean income and wealth, and population sizes, have reduced world inequality. Income inequality has changed little within countries, so the downward trend remains intact. However, within-country wealth inequality has risen, halting the downward shift in global wealth inequality and raising the share of the top 1 per cent after 2007.

**Keywords:** global, world, inequality, income, wealth, distribution
**JEL classification:** C80, D31, I31

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# 1    Introduction

The past half century has seen a huge expansion in the quantity and quality of available information on income distribution throughout the world. Sample surveys are conducted more frequently, and in more countries, using methods for data collection and analysis that have improved beyond recognition. This has led growing numbers of researchers to study inequality trends over time within countries and to undertake comparisons between countries. More adventurous researchers have gone further and attempted to provide estimates of the distribution of income for the world as a whole.

This line of work prompted us a decade ago to initiate similar research on the distribution of global wealth, reported first in Davies et al. (2008, 2011) and continued more recently in the Credit Suisse Global Wealth Report and Databook (see Davies et al. 2018a, 2018b). The global wealth estimates are obtained from a synthetic wealth sample representative of all adults in the world and totalling more than a million observations in each year. For the present study, we have constructed a similar global income sample using the World Income Inequality Dataset. Together, these two microdata sets provide a unique opportunity to apply the same research methodology to both the income and wealth samples, enabling us to compare and analyse—for the first time—the level and trend of global income and wealth inequality this century.

To set the scene, the next section reviews past work on global income and wealth inequality. In Section 3 we discuss the choices faced in constructing our income and wealth samples, and the degree to which the income and wealth concepts are comparable. The trends in global income and wealth inequality this century are examined in Section 4. The following section explores the different ways in which between-country and within-country factors contribute to global inequality. Finally, in Section 6, we decompose the inequality trend since the year 2000 to show the separate influence of changes in inequality within countries and changes in mean income or wealth combined with population size. All of our decomposition exercises apply the Shorrocks-Shapley approach, which allows any inequality measure to be decomposed in an attractive manner.

# 2    Previous studies of global inequality

Bourguignon and Morrisson (2002) provided the first estimates of global income inequality by combining data on the average level of income across countries with information on the distribution of income within countries, as captured by the quintile income shares. They concluded that global income inequality rose from the early 19th century up to World War II and was then fairly steady until about 1980. These findings have been broadly confirmed in subsequent studies: see Anand and Segal (2008), Niño-Zarazúa et al. (2014), and Van Zanden et al. (2014).

Improved coverage and quality of data after 1980 has expanded the opportunities for research, but also led to more variation regarding both the methodological approaches and the results. Bhalla (2002), Dowrick and Akmal (2005), and Sala-i-Martin (2006) are in broad agreement, reporting Gini values for global income inequality averaging 67.5 per cent around 1980. They also agree that global inequality rose slightly, or showed no change, from 1980 to the early 1990s, after which it declined (see Niño-Zarazúa et al. 2014 for details). Milanovic (2002, 2005) comes to a different

conclusion for the period 1980–90 when he finds a noticeable rise in the Gini coefficient.[1] Dowrick and Akmal (2005) compared results derived using purchasing power parity (PPP) exchange rates, finding a downward trend using PPP values but an upward trend using market, or 'official', exchange rates. While, in principle, PPP rates may be preferred, Dowrick and Akmal (2005) concluded that both methods were subject to biases, and that if these are corrected there appears to be no trend.

Anand and Segal (2008) surveyed the literature, identifying limitations of the data and the methodology employed which led them to conclude that there was no firm evidence of either an upward or a downward trend in recent decades. Subsequent studies have tried to correct the problems identified by Anand and Segal. Examples are provided by Niño-Zarazúa et al. (2014) and Lakner and Milanovic (2016), which both find a downward trend since 1990, but starting from a higher level than reported in previous studies—a Gini value above 70 per cent for 1985–88, for example.

In recent years much attention has been paid to data deficiencies in the top tail, which some authors have tried to correct by adjusting the tail to conform to a Pareto distribution. Atkinson (2007) revised the Bourguignon and Morrisson (2002) estimates in this way. Lakner and Milanovic (2016) found that such an adjustment increased the Gini by around 5 percentage points, but found also that the downward trend from 1988 to 2008 disappears. Similar conclusions were reached by Anand and Segal (2015), who adjusted the top tail by replacing the survey income share of the top 1 per cent by the share of the top 1 per cent in the World Top Income Database (Alvaredo et al. 2013). This adjustment raises the world Gini to 70.5 per cent in 1988 and to an even higher level (71.0 per cent) in 2005, resulting in a flat overall trend. Alvaredo et al. (2018) use the World Wealth and Income Database (successor to the World Top Income Database) to estimate the world distribution of income up to 2016, using top-tail-adjusted national income distributions. The results show that the shares of the top 1 per cent and 10 per cent trended upward from 1982 to 2006, and declined after 2007. The decline after 2007 was gradual for the share of the top 10 per cent but abrupt for the share of the top 1 per cent, being concentrated in the years 2008 and 2009.

Another recent development has been the evolution of world income databases, including attempts to produce consistent standardized series, and to fill in gaps in the temporal record (Lahoti et al. 2016; Solt 2009). The most advanced example is the Global Consumption and Income Project (GCIP), which generates distributions of both income and consumption for each year from 1960 to 2015. Lahoti et al. (2016) reports that the Gini value for global consumption inequality fell from a high of 71 per cent in the 1970s and 1980s to a low of 64 per cent in 2013.

A common theme in studies of world income inequality is the divergence between inequality within countries, which has often moved upwards, and inequality between countries, which has generally trended down. Dowrick and Akmal (2005), Milanovic (2005), Anand and Segal (2008), and Lakner and Milanovic (2016) discuss the global inequality trend in terms of the net outcome of these two underlying factors, with the decline in between-country inequality due largely to the rise of mean income in China and, to an extent, in India.

Estimating the global distribution of household wealth was first attempted by Davies et al. (2008, 2011) for the year 2000. The overall strategy involved three main steps. First, estimates of the level of wealth per adult were produced for each country using household balance sheets where available, survey evidence for a few countries, and regression-based results elsewhere for countries

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[1] See table 1 of appendix 1 in Lakner and Milanovic (2013) for a summary of Milanovic's evolving estimates over his 2002, 2005, and 2012 articles.

with suitable data. Evidence on wealth distribution within countries was then assembled and combined with the wealth level estimate for each country to produce a large synthetic sample of wealth observations. Processing this sample yielded estimates of wealth distribution within each country and region, and for the world as a whole. Improvements and updates of these estimates have been reported each year since 2010 in the annual *Global Wealth Report* and *Global Wealth Databook* published by the Credit Suisse Research Institute (Davies et al. 2018a, 2018b). Davies et al. (2017) provides further details of the methodological revisions.

The level of world wealth inequality is exceptionally high. Davies et al. (2011) reported a Gini coefficient of 89.2 per cent for global wealth in the year 2000 using official exchange rates. Our more recent estimates make an adjustment to the top tail to try to correct for under-reporting. This adjustment tends to raise the estimated figure for global inequality, although more accurate data on average wealth levels across countries have mitigated its impact. Our latest estimates for 2000 suggest a Gini value of 90.4 per cent, and a figure of 84.8 per cent for the share of the global top 10 per cent, close to the 85.1 per cent reported in Davies et al. (2011).

To date, no other research team has offered an estimate of the global distribution of wealth—in sharp contrast to the world income distribution literature.[2] There are a number of reasons for this neglect of the wealth dimension of global inequality. One is that income may be considered more important than wealth, covering the flow of purchasing power from both human and non-human wealth, and hence appearing to be more comprehensive. Another reason for the neglect of global wealth inequality concerns data quality and availability. Although the number of countries with good wealth data continues to increase, there are currently only about 35 countries with a national household wealth survey. From our viewpoint this is not a stumbling block, because this list includes all the wealthiest countries as well as the most populous non-OECD countries. We estimate that these countries have about two-thirds of the global population and 95 per cent of world household wealth. To round out the picture, imputations can be made for the missing countries, as explained in Davies et al. (2017).

## 3    Data issues

The results obtained for income or wealth distributions are often sensitive to the choices made in the construction of the income or wealth samples and in the way that the samples are processed to obtain the results. Comparing income and wealth series raises additional issues, because there are potentially more dimensions which can affect comparability. It is therefore important to understand the way that the data are assembled and analysed.

Our income sample is based on a revised version of the WIID database, which has been adjusted to control for a variety of household characteristics. We use the adjusted Lorenz curve data corresponding to net household income per household member for the period 2000–15, which provides an observation for each country and year for which a record exists in the WIID database. Gaps in the database are filled by estimating Lorenz curves for countries and years which lack a

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[2] There has, however, been significant research on related aspects. Global wealth aggregates were studied by Goldsmith (1985) and the World Bank (2006, 2011), while international comparisons of wealth distribution have been reported in Bönke et al. (2017), Kessler and Wolff (1991), Klevmarken et al. (2003), and Wolff (1987). The Luxembourg Wealth Study (LIS Data Center 2016; Sierminska et al. 2006) and the ECB-coordinated Household Finance and Consumption Surveys in 18 Eurozone countries plus Poland and Hungary have made consistent wealth distribution data available across many countries. And increased interest in wealth distribution from an international perspective is reflected in Alvaredo et al. (2018) and Piketty (2014).

WIID record. For each country and year, we then construct a synthetic income sample which conforms exactly to the Lorenz data, and scale the sample values and sample weights to match per-capita income and population size, respectively. Pooling these samples enables estimates of global inequality values to be produced.

The wealth sample refers to net household wealth per adult and is drawn from the micro wealth database underlying the material published in Davies et al. (2018a, 2018b). This yields a slightly longer series covering end-of year values for 2000–17. The wealth sample differs from the income sample with regard to the reference population—adults rather than all individuals—and because the top tail values have been adjusted to match evidence from the Forbes billionaire records. In other respects, however, the global inequality estimates for wealth are produced in a similar way to those for income.

The definitions and methods used in our estimation of global income and wealth distributions reflect choices made with regard to a range of data issues. The options and choices made are outlined below in order to indicate how analysts could in principle produce different sets of results.

## 3.1 Income and wealth definitions

Several alternative income definitions have been used in the literature. The latest WIID dataset focuses on three of these: gross income, net income, and consumption. Gross income includes all sources of money income with no deduction for taxes. Net income is the same as gross income but is net of direct taxes—principally income tax. Consumption is measured by consumer expenditure. We work with net income in this paper since it reflects the actual flow of purchasing power for a household.

In principle, our wealth definition corresponds with that in the official System of National Accounts (SNA): i.e. the value of all assets owned by households minus household debts (European Commission et al. 2009). Both financial assets and real (or 'non-financial') assets are included. Real assets include producer durables and real estate, while financial assets include both liquid and non-liquid assets, the latter including the value of employer-based pension funds and private retirement savings. Human capital and state pensions are excluded, as is all capital owned by sectors other than households—for example, assets in public ownership. While the household balance sheet data we use are part of the SNA and therefore conform to this definition, household wealth surveys generally omit some assets or debts, perhaps because the benefits of including them are judged to be outweighed by the costs (for example in lengthening questionnaires and therefore reducing response rates).

## 3.2 Target population

The target population for income could be restricted to its legal recipients and that for wealth could be confined to its legal owners. In practice, distributional studies often aggregate both income and wealth within families or households, and the latter are taken as the target population. There is a good argument for that approach in the case of income, since a family's income is usually assumed to be used for the benefit of all its members. However, wealth represents deferred spending, and benefits of that future spending are more likely to accrue to the owners of the family's wealth, who are mainly its adult members, than equally to all current family members. For this reason, we take adults as the target population for wealth.

### 3.3 Income sharing rule

The default assumption in much work on income distribution is equal sharing of income within the family. This motivates looking at income on either a per capita or a household equivalent basis. In the case of wealth, however, this approach is not the natural one. First, as argued above, adults are the appropriate target population. Second, even within marriage the presumption of fully equal sharing only applies in a community property regime, which is observed in relatively few jurisdictions around the world (World Bank 2012). Much more common is a limited community property regime in which the property brought to a marriage or inherited while married is under individual ownership. And there are many countries, particularly in South Asia and Africa, in which property ownership within marriage is separate. Hence the most natural variable to consider, in principle, is individual adult wealth. In practice, it is often difficult to obtain estimates on that basis, but we prefer to use such estimates whenever they are available.

### 3.4 Exchange rates

In order to pool income or wealth distributions across countries one must use some system of exchange rates. In the case of income, there is a strong argument for using purchasing power parity (PPP) rates. For wealth, however, it is not clear that PPP rates are superior to market or 'official' exchange rates. Wealth is highly concentrated, and the value of assets to wealthy owners is not determined solely by consumer prices in their home country. It also depends on consumer prices abroad if they spend a significant amount of time and money in other countries, and on asset prices both at home and abroad unless they do all their saving and investment domestically. While recognizing the case for using PPP rates, for reasons of both convenience and comparability, we applied official exchange rates to both the income and wealth data in this study.

### 3.5 Inequality index

In studying economic inequality, it is important to use a range of summary indices which reflect inequality in different portions of the distribution. Here we use the shares of the top 10 per cent and the top 1 per cent as well as the Gini coefficient. We also report the ratio of the median to the mean. This index is not commonly reported, but it is intuitively attractive and experience suggests that it captures important aspects of inequality trends. For the decomposition exercises which we discuss below, there is a natural case for using indices from the Entropy family. However, the more sophisticated decomposition procedures that we employ circumvent most of the disadvantages of the other indices, making inclusion of the Entropy indices unnecessary.

### 3.6 Top tail adjustments

As noted earlier, some researchers have used top tail adjustments in their estimation of global income inequality. We make such adjustments to the wealth data, based on the annual Forbes world list of billionaires.[3] However, no top tail adjustment is made to incomes, as we have not yet found a satisfactory way to do that with our large sample of countries. This no doubt leads to a downward bias in our estimated level of global income inequality relative to the global wealth inequality figures. As mentioned above, Anand and Segal (2015) and Lakner and Milanovic (2016) found that making a top tail adjustment removes the downward trend in global income inequality otherwise found in the period from about 1988 to 2008, so that observation should be borne in mind when interpreting our results.

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[3] Available at: https://www.forbes.com/billionaires/#64531bab251c (accessed 10 December 2018).

## 3.7 Time period

Our wealth data are only available for this century, and any attempt to provide satisfactory estimates for earlier years poses great difficulties due to data limitations. The WIID data allow reasonable estimates to be constructed back to at least 1980, and possibly 1960. However, for reasons of comparability, we confine attention to income and wealth inequality trends over the course of this century.

## 4    Trends in income and wealth inequality

We begin by considering the income inequality trajectory during 2000–15 for each of the selected indices. As displayed in Figure 1, the Gini coefficient value eased down from 78.9 per cent in 2000 to 77.4 per cent in 2005, after which the decline speeds up until 2010 and then levels off, the Gini reaching 73.3 per cent in 2015. The share of the top 10 per cent shows a similar pattern, falling from 67.9 per cent in 2000 to 61.4 per cent in 2015: in fact, the total decline (6.5 percentage points) over the 15 years is almost identical to the total drop (6.6 percentage points) in the Gini value. The mean/median ratio also echoes this pattern, although the percentage decline is much greater, falling over 40 per cent from an initial ratio of 6.4 in 2000 to a multiple of 3.7 in 2015. The outlier, so to speak, amongst the inequality indices is the share of the top 1 per cent, which is relatively flat over the period under consideration, declining just 0.8 percentage points from 21.2 per cent in 2000 to 20.4 per cent in 2015.

Figure 1: Income inequality trends 2000–15, selected indices
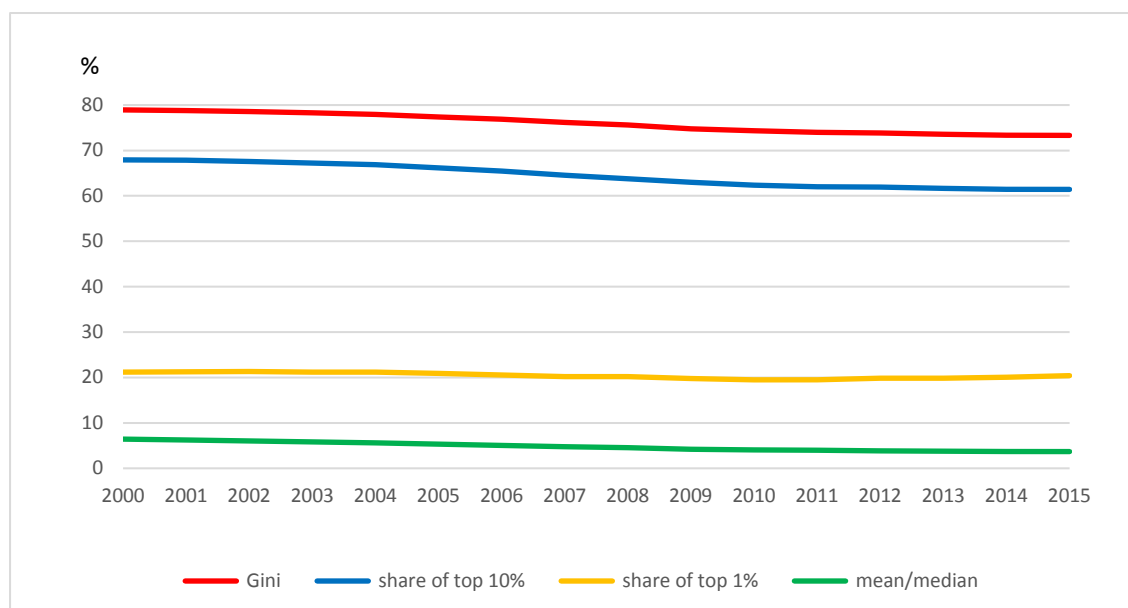


Source: Original estimates by the authors.

This assessment of inequality trends is broadly in line with the findings of previous studies. Niño-Zarazúa et al. (2014) and Lakner and Milanovic (2016), which looked at the trend up to about 2008, agree with us that inequality declined from 2000 to 2008 in the absence of a top tail adjustment. Alvaredo et al. (2018) found the opposite when the top tail is adjusted using income tax records, but, like us, they found a decrease in the period after 2007.

The wealth inequality series differ from the income inequality series in a number of important respects. As is evident from Figure 2, in every year and for each of the indicators, wealth inequality is significantly higher than income inequality. In part, this reflects the fact that top tail adjustments have been applied to the wealth sample, but not to the income sample. It may also reflect the fact that the wealth data refer to the distribution across adults while the income data refer to the distribution across individuals. However, even allowing for these considerations, it is likely that the wealth inequality values far exceed the income inequality values, as numerous past studies have shown. And it is unlikely that the way in which the sample data are constructed makes much difference to the pattern of inequality trends over time.

Figure 2: Trends in wealth inequality vs income inequality, selected indices



Source: Original estimates by the authors.

The trends in income and wealth inequality differ in various ways according to the inequality index selected. For the Gini coefficient, both series show a steady decline until 2008. But in the period since the global financial crisis, the wealth Gini shows no downward movement, and in fact is

slightly higher (90.3 per cent) in 2017 than in 2008 (89.6 per cent). This levelling-off since 2008 contrasts with the continuing decline registered in the income inequality series. The initial similarity and the contrasting experience since 2008 are also apparent in the income and wealth shares of the top 10 per cent, and are evident as well in the comparison between the mean/median ratios for income and wealth, where the wealth series shows a very marked decline until 2008, followed by a mild upward trend in recent years.

Differences between the inequality trends for income and wealth are most apparent in the series for the share of the top 1 per cent. The wealth share declines markedly from 47.1 per cent in 2000 to 42.6 per cent in 2008 and on to 42.1 per cent in 2011, considerably more than the fall recorded for the income share of the top 1 per cent over this period. But since 2011 the wealth share of the top 1 per cent has climbed back to reach 47.5 per cent in 2016, more than reversing the earlier decline. This recent rise in the wealth share of the top 1 per cent likely reflects the prolonged and pronounced gains in equity prices seen in most countries over the past decade, and the disproportionate gains made by the very wealthiest individuals. If top tail adjustments are applied to the income series, a similar reversal in recent years might also appear, although it is unlikely to be as pronounced as in the wealth series, as suggested by the Alvaredo et al. (2018) results.

In summary, comparison of the inequality series for income and wealth suggest significant differences. First, that the global inequality values for wealth are consistently higher than the corresponding values for income. Second, while both income and wealth inequality appear to have declined in the first decade of the century, the pattern has diverged in more recent years, with income inequality continuing to fall at a modest rate while wealth inequality has levelled off and probably even risen at the very top of the distribution. Both of these conclusions may be tempered if the income and wealth series are aligned by applying top tail adjustments to the income series. It is, however, likely that the differences would still be evident.

## 5    Decomposing the level of income and wealth inequality

For a given population structure across countries, the level of global inequality is completely determined by the mean income or wealth of each country and the corresponding Lorenz, so we can write:

$$I = F(m_1, m_2, \ldots, m_n; L_1, L_2, \ldots, L_n) \tag{1}$$

where $I$ is an inequality indicator, and $m_k$ and $L_k$ are respectively the mean and Lorenz curve of country $k = 1, 2, \ldots, n$. Expressed more simply, this becomes

$$I = F(B, W) \tag{2}$$

where $B = (m_1, m_2, \ldots, m_n)$ is the 'between-country' factor capturing differences in the average level of income and wealth between countries, and $W = (L_1, L_2, \ldots, L_n)$ is the 'within-country' factor representing relative differences in income and wealth within countries. To understand the determinants of the level and time path of global income and wealth inequality, it is useful to begin by identifying the contributions of these two core factors.

Let $(B_1, W_1)$ denote the observed means and Lorenz curves, let $B_0$ refer to a situation in which all countries have the same mean income or mean wealth, and let $W_0$ indicate the situation in which income or wealth differences have been eliminated within all countries (so each country registers zero inequality). Then $F(B_0, W_0)$ represents complete equality in global terms. Note that

$F(B_0, W_0) = 0$ for the Gini coefficient, but $F(B_0, W_0) = 10$ per cent when the share of the top 10 per cent is used as the indicator, and the corresponding baseline values for the share of the top 1 per cent and the mean/median ratio are 1 per cent and 1, respectively. The decomposition exercise therefore becomes one of splitting total inequality $F(B_1, W_1) - F(B_0, W_0)$ into the between-country and within-country components.

In the context of income inequality, the between-group contribution $C_B$ is typically captured by calculating the level of inequality which would arise if the only source of inequality were differences in country means: in the above notation,

$$C_B = F(B_1, W_0) - F(B_0, W_0). \tag{3}$$

It is then natural to regard the remainder

$$F(B_1, W_1) - F(B_0, W_0) - [F(B_1, W_0) - F(B_0, W_0)] = F(B_1, W_1) - (B_1, W_0) \tag{4}$$

as the within-group contribution. However, to be consistent with (3), the within-group contribution should be expressed as

$$C_W = F(B_0, W_1) - F(B_0, W_0), \tag{5}$$

in other words, the inequality which would occur if each country had its own observed Lorenz curve but the same mean income as all other countries (which implies that $C_W$ is obtained by averaging the Lorenz curves across countries using the population sizes as weights). The remainder

$$F(B_1, W_1) - F(B_0, W_0) - [F(B_0, W_1) - F(B_0, W_0)] = F(B_1, W_1) - (B_0, W_1) \tag{6}$$

then yields an alternative estimate of the between-group contribution. The problem for most researchers is that while $C_B$ in equation (3) is relatively easy to compute (since it requires only information on country means), $C_W$ in equation (5) is a more complex calculation requiring distributional information for all countries. Our global income micro database gives us a unique capacity to make the appropriate calculation, as we report below.

There remains the problem that $C_B$ in (3) and $C_W$ in (5) do not sum to total inequality, so the relative importance of the two factors is not immediately apparent. However, inspection of the alternative decompositions captured in Figure 3 suggests a simple solution: average the contributions across the two routes as suggested by the Shorrocks-Shapley decomposition (Shorrocks 2013).

Figure 3: Alternative decomposition routes
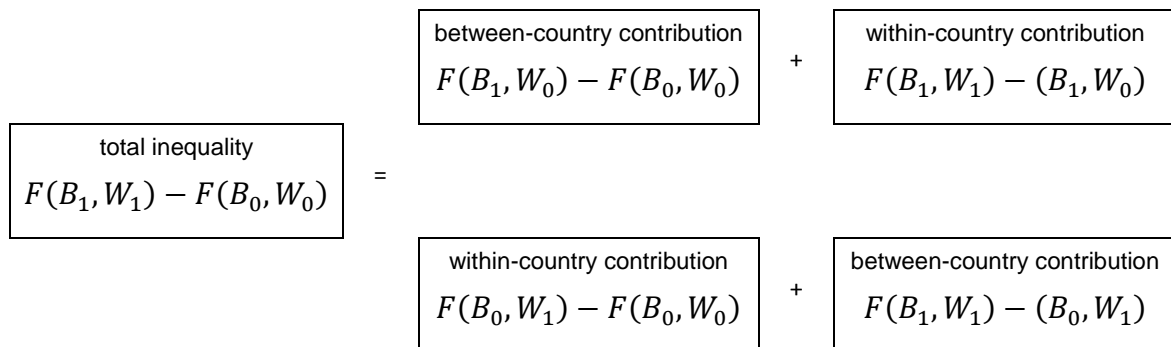


Source: Authors.

This yields the revised formula

$$C_B = [F(B_1, W_0) - F(B_0, W_0) + F(B_1, W_1) - (B_0, W_1)]/2$$

(7)

$$C_W = [F(B_0, W_1) - F(B_0, W_0) + F(B_1, W_1) - (B_1, W_0)]/2.$$

These between-country and within-country contributions sum to total inequality and are the ones reported below.

The values we obtain for the between-country and within-country contributions to total global income inequality are illustrated in Figure 4 and recorded in more detail in Table 1. A clear picture emerges. For the Gini coefficient, the between-country component is roughly twice the level of the within-country term. Thus differences in mean incomes across countries account for about two-thirds of total inequality. However, the between-country component has trended downward for the whole of this century while the within-country element has been quite stable, and has actually risen slightly since 2010. So while differences in country means still dominate global inequality, they have become progressively less important over the years. This suggests that rapid growth in the developing world, especially in China, has reduced income differences across countries and hence contributed substantially to the decline in overall global income inequality discussed in Section 4.

Figure 4: Between-country and within-country components of income inequality
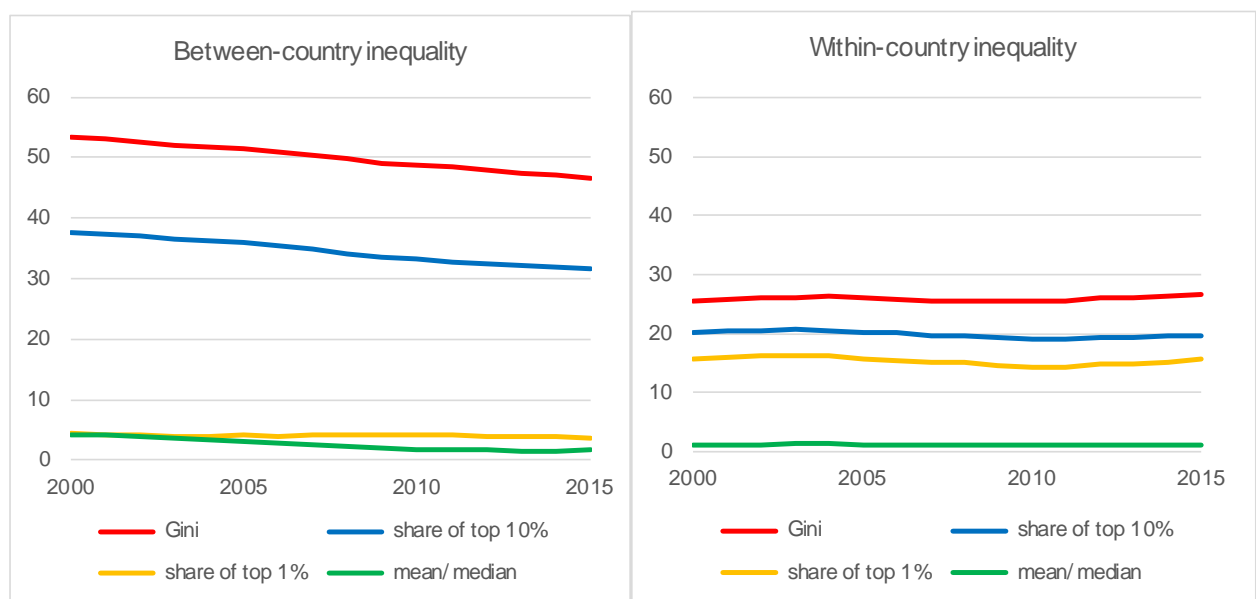


Source: Original estimates by the authors.

Table 1: Shorrocks-Shapley decomposition of global income inequality

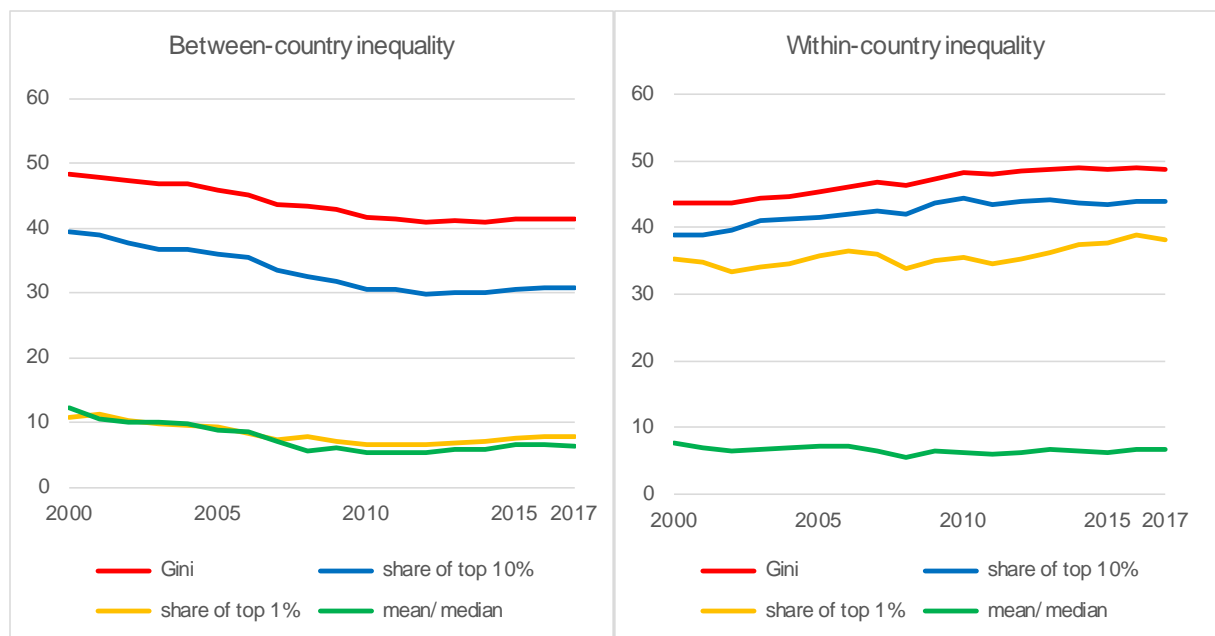| | | Raw inequality values | | | | Shorrocks-Shapley contribution | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Year | Total | Between | Within | Baseline | Between | % | Within | % |
| Gini | 2000 | 78.9 | 71.3 | 43.5 | 0 | 53.4 | 67.6 | 25.5 | 32.4 |
| | 2001 | 78.8 | 71.0 | 43.7 | 0 | 53.0 | 67.3 | 25.7 | 32.7 |
| | 2002 | 78.6 | 70.7 | 44.1 | 0 | 52.6 | 66.9 | 26.0 | 33.1 |
| | 2003 | 78.3 | 70.2 | 44.3 | 0 | 52.1 | 66.5 | 26.2 | 33.5 |
| | 2004 | 77.9 | 69.8 | 44.3 | 0 | 51.7 | 66.3 | 26.2 | 33.7 |
| | 2005 | 77.4 | 69.3 | 43.8 | 0 | 51.4 | 66.5 | 26.0 | 33.5 |
| | 2006 | 76.8 | 68.6 | 43.7 | 0 | 50.9 | 66.2 | 25.9 | 33.8 |
| | 2007 | 76.1 | 67.9 | 43.1 | 0 | 50.5 | 66.3 | 25.7 | 33.7 |
| | 2008 | 75.6 | 67.2 | 42.9 | 0 | 50.0 | 66.1 | 25.7 | 33.9 |
| | 2009 | 74.8 | 66.1 | 42.6 | 0 | 49.1 | 65.7 | 25.6 | 34.3 |
| | 2010 | 74.3 | 65.6 | 42.4 | 0 | 48.8 | 65.6 | 25.6 | 34.4 |
| | 2011 | 74.0 | 65.2 | 42.4 | 0 | 48.4 | 65.4 | 25.6 | 34.6 |
| | 2012 | 73.8 | 64.7 | 42.9 | 0 | 47.9 | 64.8 | 26.0 | 35.2 |
| | 2013 | 73.6 | 64.4 | 43.0 | 0 | 47.5 | 64.5 | 26.1 | 35.5 |
| | 2014 | 73.4 | 63.9 | 43.2 | 0 | 47.0 | 64.1 | 26.3 | 35.9 |
| | 2015 | 73.3 | 63.6 | 43.5 | 0 | 46.7 | 63.7 | 26.6 | 36.3 |
| Share top 10% | 2000 | 67.9 | 54.8 | 37.5 | 10 | 37.6 | 64.9 | 20.3 | 35.1 |
| | 2001 | 67.8 | 54.6 | 37.7 | 10 | 37.4 | 64.6 | 20.5 | 35.4 |
| | 2002 | 67.6 | 54.4 | 38.0 | 10 | 37.0 | 64.2 | 20.6 | 35.8 |
| | 2003 | 67.3 | 54.3 | 38.3 | 10 | 36.6 | 64.0 | 20.6 | 36.0 |
| | 2004 | 66.8 | 53.9 | 38.3 | 10 | 36.2 | 63.7 | 20.6 | 36.3 |
| | 2005 | 66.2 | 53.6 | 37.8 | 10 | 36.0 | 64.1 | 20.1 | 35.9 |
| | 2006 | 65.5 | 52.9 | 37.6 | 10 | 35.4 | 63.8 | 20.1 | 36.2 |
| | 2007 | 64.5 | 52.1 | 37.0 | 10 | 34.8 | 63.9 | 19.7 | 36.1 |
| | 2008 | 63.8 | 51.4 | 36.8 | 10 | 34.2 | 63.5 | 19.6 | 36.5 |
| | 2009 | 63.0 | 50.8 | 36.6 | 10 | 33.6 | 63.4 | 19.4 | 36.6 |
| | 2010 | 62.4 | 50.4 | 36.4 | 10 | 33.2 | 63.4 | 19.2 | 36.6 |
| | 2011 | 62.0 | 50.1 | 36.4 | 10 | 32.9 | 63.2 | 19.1 | 36.8 |
| | 2012 | 61.9 | 49.9 | 36.9 | 10 | 32.5 | 62.6 | 19.4 | 37.4 |
| | 2013 | 61.6 | 49.9 | 36.9 | 10 | 32.3 | 62.5 | 19.4 | 37.5 |
| | 2014 | 61.5 | 49.5 | 37.2 | 10 | 31.9 | 62.0 | 19.5 | 38.0 |
| | 2015 | 61.4 | 49.6 | 37.5 | 10 | 31.7 | 61.7 | 19.7 | 38.3 |
| Share top 1% | 2000 | 21.2 | 6.5 | 17.8 | 1 | 4.4 | 21.9 | 15.7 | 78.1 |
| | 2001 | 21.3 | 6.3 | 18.0 | 1 | 4.3 | 21.3 | 15.9 | 78.7 |
| | 2002 | 21.3 | 6.3 | 18.4 | 1 | 4.1 | 20.2 | 16.2 | 79.8 |
| | 2003 | 21.2 | 6.5 | 18.7 | 1 | 3.9 | 19.5 | 16.2 | 80.5 |
| | 2004 | 21.2 | 6.4 | 18.7 | 1 | 4.0 | 19.6 | 16.2 | 80.4 |
| | 2005 | 20.9 | 6.4 | 18.0 | 1 | 4.2 | 20.9 | 15.8 | 79.1 |
| | 2006 | 20.6 | 6.3 | 17.8 | 1 | 4.0 | 20.6 | 15.5 | 79.4 |
| | 2007 | 20.2 | 6.0 | 17.1 | 1 | 4.1 | 21.2 | 15.1 | 78.8 |
| | 2008 | 20.2 | 6.0 | 16.9 | 1 | 4.2 | 21.7 | 15.1 | 78.3 |
| | 2009 | 19.8 | 6.1 | 16.6 | 1 | 4.1 | 22.0 | 14.6 | 78.0 |
| | 2010 | 19.5 | 6.1 | 16.4 | 1 | 4.1 | 22.1 | 14.4 | 77.9 |
| | 2011 | 19.5 | 6.0 | 16.4 | 1 | 4.1 | 22.0 | 14.4 | 78.0 |
| | 2012 | 19.9 | 6.0 | 16.9 | 1 | 4.0 | 21.0 | 14.9 | 79.0 |
| | 2013 | 19.8 | 5.9 | 17.0 | 1 | 3.9 | 20.6 | 15.0 | 79.4 |
| | 2014 | 20.0 | 5.8 | 17.3 | 1 | 3.8 | 19.9 | 15.2 | 80.1 |
| | 2015 | 20.4 | 5.8 | 17.7 | 1 | 3.7 | 19.2 | 15.7 | 80.8 |
| Mean/median | 2000 | 6.4 | 4.6 | 1.5 | 1 | 4.3 | 79.4 | 1.1 | 20.6 |
| | 2001 | 6.2 | 4.4 | 1.5 | 1 | 4.1 | 77.6 | 1.2 | 22.4 |
| | 2002 | 6.0 | 4.0 | 1.5 | 1 | 3.8 | 75.3 | 1.2 | 24.7 |
| | 2003 | 5.8 | 3.7 | 1.5 | 1 | 3.5 | 73.5 | 1.3 | 26.5 |
| | 2004 | 5.6 | 3.5 | 1.5 | 1 | 3.3 | 72.0 | 1.3 | 28.0 |
| | 2005 | 5.3 | 3.3 | 1.5 | 1 | 3.1 | 70.9 | 1.3 | 29.1 |
| | 2006 | 5.0 | 3.0 | 1.5 | 1 | 2.8 | 69.0 | 1.3 | 31.0 |
| | 2007 | 4.7 | 2.7 | 1.4 | 1 | 2.5 | 66.8 | 1.2 | 33.2 |
| | 2008 | 4.5 | 2.5 | 1.4 | 1 | 2.3 | 64.6 | 1.3 | 35.4 |
| | 2009 | 4.2 | 2.2 | 1.4 | 1 | 2.0 | 62.3 | 1.2 | 37.7 |
| | 2010 | 4.1 | 2.1 | 1.4 | 1 | 1.9 | 60.8 | 1.2 | 39.2 |
| | 2011 | 4.0 | 2.0 | 1.4 | 1 | 1.8 | 59.4 | 1.2 | 40.6 |
| | 2012 | 3.9 | 1.9 | 1.4 | 1 | 1.7 | 57.7 | 1.2 | 42.3 |
| | 2013 | 3.8 | 1.9 | 1.4 | 1 | 1.6 | 57.8 | 1.2 | 42.2 |
| | 2014 | 3.7 | 1.9 | 1.4 | 1 | 1.6 | 59.1 | 1.1 | 40.9 |
| | 2015 | 3.7 | 2.1 | 1.5 | 1 | 1.7 | 61.8 | 1.0 | 38.2 |

Source: Original estimates by the authors.

Decomposition of the share of the top 10 per cent reveals a similar pattern, although the contribution of differences in country mean income is somewhat less, and declines from 64.9 per cent in 2000 to 61.7 per cent in 2015. As regards the mean/median ratio, the between-country contribution was more than four times the within-country contribution in 2000 and accounted for 80 per cent of total inequality. But the relative contribution fell rapidly until 2010, after which it stabilized. Mean income differences across countries now account for a little over 60 per cent of the mean/median income ratio, almost exactly the same as for the Gini coefficient and the share of the top 10 per cent.

As might be expected, decomposition of the share of the top 1 per cent gives a very different outcome. Income differences within countries alone would produce a share of about 15 per cent for the top 1 per cent, considerably higher than the share of around 4 per cent associated with differences in mean incomes across countries. Furthermore, the proportion of global inequality attributable to within-country differences has remained close to 80 per cent for the entire period under consideration. The small contribution of the between-country component helps us understand why the downward trend in mean income differences across countries has not translated into a reduction in the income share of the top 1 per cent.

The corresponding decomposition of global wealth inequality is displayed in Figure 5. There are many similarities with Figure 4, but also many important differences. As regards the between-country component, the levels for each of the indicators are broadly similar, although for the share of the top 10 per cent and for the mean/median ratio the wealth values are roughly double those obtained for income. In addition, the flattening-out since 2010 is more evident in the wealth figures than in the income graphs. For the within-country component, the time profile remains flat for the mean/median ratio, but for the other indicators the trend is clearly upwards for most of the period under consideration.

Figure 5: Between-country and within-country components of wealth inequality



Source: Original estimates by the authors.

Table 2: Shorrocks-Shapley decomposition of global wealth inequality

| | | Raw inequality values | | | | Shorrocks-Shapley contribution | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Year | Total | Between | Within | Baseline | Between | % | Within | % |
| Gini | 2000 | 91.9 | 77.5 | 73.0 | 0 | 48.2 | 52.4 | 43.7 | 47.6 |
| | 2001 | 91.6 | 76.9 | 72.7 | 0 | 47.9 | 52.3 | 43.7 | 47.7 |
| | 2002 | 91.1 | 75.8 | 72.1 | 0 | 47.4 | 52.0 | 43.7 | 48.0 |
| | 2003 | 91.2 | 75.3 | 72.8 | 0 | 46.9 | 51.4 | 44.4 | 48.6 |
| | 2004 | 91.3 | 75.4 | 73.2 | 0 | 46.7 | 51.2 | 44.6 | 48.8 |
| | 2005 | 91.2 | 75.0 | 74.4 | 0 | 45.9 | 50.3 | 45.3 | 49.7 |
| | 2006 | 91.1 | 74.2 | 75.2 | 0 | 45.0 | 49.4 | 46.1 | 50.6 |
| | 2007 | 90.4 | 72.2 | 75.5 | 0 | 43.5 | 48.2 | 46.9 | 51.8 |
| | 2008 | 89.6 | 71.1 | 74.0 | 0 | 43.4 | 48.4 | 46.2 | 51.6 |
| | 2009 | 90.1 | 71.0 | 75.6 | 0 | 42.8 | 47.5 | 47.4 | 52.5 |
| | 2010 | 89.9 | 69.5 | 76.2 | 0 | 41.6 | 46.3 | 48.3 | 53.7 |
| | 2011 | 89.4 | 69.3 | 75.8 | 0 | 41.5 | 46.4 | 48.0 | 53.6 |
| | 2012 | 89.6 | 68.9 | 76.5 | 0 | 41.0 | 45.8 | 48.6 | 54.2 |
| | 2013 | 90.0 | 69.4 | 77.2 | 0 | 41.1 | 45.7 | 48.9 | 54.3 |
| | 2014 | 89.8 | 69.4 | 77.4 | 0 | 40.9 | 45.5 | 48.9 | 54.5 |
| | 2015 | 89.9 | 69.9 | 77.3 | 0 | 41.3 | 45.9 | 48.7 | 54.1 |
| | 2016 | 90.4 | 70.5 | 77.9 | 0 | 41.5 | 45.9 | 48.9 | 54.1 |
| | 2017 | 90.3 | 70.4 | 77.7 | 0 | 41.5 | 46.0 | 48.8 | 54.0 |
| Share top 10% | 2000 | 88.5 | 62.0 | 61.5 | 10 | 39.5 | 50.3 | 39.0 | 49.7 |
| | 2001 | 87.9 | 61.1 | 61.0 | 10 | 39.0 | 50.0 | 38.9 | 50.0 |
| | 2002 | 87.4 | 58.4 | 60.2 | 10 | 37.8 | 48.8 | 39.6 | 51.2 |
| | 2003 | 87.7 | 56.5 | 61.0 | 10 | 36.6 | 47.1 | 41.1 | 52.9 |
| | 2004 | 87.8 | 56.8 | 61.4 | 10 | 36.6 | 47.1 | 41.2 | 52.9 |
| | 2005 | 87.6 | 57.4 | 62.9 | 10 | 36.1 | 46.5 | 41.5 | 53.5 |
| | 2006 | 87.3 | 57.5 | 64.1 | 10 | 35.4 | 45.8 | 41.9 | 54.2 |
| | 2007 | 86.1 | 55.3 | 64.3 | 10 | 33.5 | 44.0 | 42.6 | 56.0 |
| | 2008 | 84.7 | 52.7 | 62.1 | 10 | 32.6 | 43.7 | 42.1 | 56.3 |
| | 2009 | 85.4 | 52.2 | 64.2 | 10 | 31.7 | 42.0 | 43.7 | 58.0 |
| | 2010 | 84.8 | 51.2 | 65.0 | 10 | 30.5 | 40.8 | 44.3 | 59.2 |
| | 2011 | 83.8 | 51.5 | 64.4 | 10 | 30.4 | 41.2 | 43.4 | 58.8 |
| | 2012 | 83.8 | 51.1 | 65.2 | 10 | 29.8 | 40.4 | 44.0 | 59.6 |
| | 2013 | 84.2 | 52.1 | 66.2 | 10 | 30.0 | 40.5 | 44.2 | 59.5 |
| | 2014 | 83.8 | 52.8 | 66.5 | 10 | 30.1 | 40.7 | 43.7 | 59.3 |
| | 2015 | 84.0 | 53.4 | 66.3 | 10 | 30.5 | 41.3 | 43.4 | 58.7 |
| | 2016 | 84.8 | 54.2 | 67.2 | 10 | 30.9 | 41.3 | 43.9 | 58.7 |
| | 2017 | 84.6 | 53.6 | 66.7 | 10 | 30.7 | 41.2 | 43.9 | 58.8 |
| Share top 1% | 2000 | 47.1 | 6.8 | 31.2 | 1 | 10.9 | 23.6 | 35.2 | 76.4 |
| | 2001 | 47.1 | 7.0 | 30.6 | 1 | 11.3 | 24.4 | 34.9 | 75.6 |
| | 2002 | 44.6 | 6.5 | 29.7 | 1 | 10.2 | 23.4 | 33.4 | 76.6 |
| | 2003 | 45.0 | 6.2 | 30.5 | 1 | 9.9 | 22.4 | 34.2 | 77.6 |
| | 2004 | 45.1 | 6.3 | 31.3 | 1 | 9.5 | 21.6 | 34.5 | 78.4 |
| | 2005 | 46.1 | 6.5 | 33.2 | 1 | 9.2 | 20.5 | 35.9 | 79.5 |
| | 2006 | 45.8 | 6.3 | 34.5 | 1 | 8.3 | 18.4 | 36.5 | 81.6 |
| | 2007 | 44.3 | 6.2 | 35.0 | 1 | 7.3 | 16.9 | 36.0 | 83.1 |
| | 2008 | 42.6 | 6.1 | 32.1 | 1 | 7.8 | 18.8 | 33.8 | 81.2 |
| | 2009 | 42.9 | 6.5 | 34.5 | 1 | 6.9 | 16.6 | 35.0 | 83.4 |
| | 2010 | 43.1 | 6.4 | 35.4 | 1 | 6.6 | 15.6 | 35.6 | 84.4 |
| | 2011 | 42.1 | 6.4 | 34.5 | 1 | 6.5 | 15.8 | 34.6 | 84.2 |
| | 2012 | 42.9 | 6.6 | 35.3 | 1 | 6.6 | 15.8 | 35.3 | 84.2 |
| | 2013 | 44.1 | 6.4 | 35.7 | 1 | 6.9 | 16.0 | 36.2 | 84.0 |
| | 2014 | 45.5 | 6.5 | 37.0 | 1 | 7.0 | 15.8 | 37.5 | 84.2 |
| | 2015 | 46.3 | 6.6 | 36.7 | 1 | 7.6 | 16.9 | 37.7 | 83.1 |
| | 2016 | 47.5 | 6.8 | 37.9 | 1 | 7.7 | 16.6 | 38.8 | 83.4 |
| | 2017 | 46.9 | 6.8 | 37.3 | 1 | 7.7 | 16.8 | 38.2 | 83.2 |
| Mean/median | 2000 | 21.0 | 7.3 | 2.8 | 1 | 12.3 | 61.3 | 7.7 | 38.7 |
| | 2001 | 18.6 | 6.4 | 2.8 | 1 | 10.6 | 60.3 | 7.0 | 39.7 |
| | 2002 | 17.5 | 6.1 | 2.7 | 1 | 9.9 | 60.2 | 6.6 | 39.8 |
| | 2003 | 17.7 | 6.1 | 2.8 | 1 | 10.0 | 59.9 | 6.7 | 40.1 |
| | 2004 | 17.7 | 5.7 | 2.8 | 1 | 9.8 | 58.6 | 6.9 | 41.4 |
| | 2005 | 17.0 | 4.8 | 3.0 | 1 | 8.9 | 55.5 | 7.1 | 44.5 |
| | 2006 | 16.6 | 4.4 | 3.1 | 1 | 8.5 | 54.3 | 7.1 | 45.7 |
| | 2007 | 14.5 | 3.7 | 3.2 | 1 | 7.0 | 52.0 | 6.5 | 48.0 |
| | 2008 | 12.1 | 2.8 | 2.9 | 1 | 5.5 | 49.5 | 5.6 | 50.5 |
| | 2009 | 13.5 | 2.6 | 3.2 | 1 | 5.9 | 47.7 | 6.5 | 52.3 |
| | 2010 | 12.4 | 2.4 | 3.3 | 1 | 5.2 | 46.1 | 6.1 | 53.9 |
| | 2011 | 12.4 | 2.5 | 3.2 | 1 | 5.3 | 46.7 | 6.1 | 53.3 |
| | 2012 | 12.6 | 2.4 | 3.4 | 1 | 5.3 | 46.0 | 6.2 | 54.0 |
| | 2013 | 13.6 | 2.7 | 3.5 | 1 | 5.9 | 46.7 | 6.7 | 53.3 |
| | 2014 | 13.4 | 2.7 | 3.5 | 1 | 5.8 | 46.8 | 6.6 | 53.2 |
| | 2015 | 13.8 | 3.8 | 3.5 | 1 | 6.5 | 50.9 | 6.3 | 49.1 |
| | 2016 | 14.3 | 3.5 | 3.6 | 1 | 6.6 | 49.7 | 6.7 | 50.3 |
| | 2017 | 14.2 | 3.2 | 3.6 | 1 | 6.4 | 48.6 | 6.8 | 51.4 |

Source: Original estimates by the authors.

The most significant difference between the wealth and income graphs is the much higher within-country contribution to global inequality. In fact, when the Gini coefficient, the share of the top 10 per cent, or the mean/median ratio is used, the within-country component is broadly similar to the between-country component, indicating that both factors account for roughly half of global wealth inequality. Furthermore, the contribution of within-country country differences has been increasing over time. For each of the selected inequality indicators, the contribution of within-country differences in wealth now exceeds the contribution of between-country differences (see Table 2 for details).

The evidence discussed in Section 4 suggests that global income inequality is on a downward trend. Wealth inequality also shows no significant upward trend since 2000, although there is evidence of a rise since the financial crisis in 2007–08. These facts are at variance with the widespread feeling that both income and wealth inequality have risen in recent years. Our decompositions of global income and wealth inequality into the between-country and within-country components casts light on this conundrum. In global terms, between-country differences have been an equalizing influence; but within-country differences show no significant decline over time and some tendency to increase. This is particularly true in the context of wealth inequality, where there is strong evidence that wealth differences within countries have increased significantly during this century.

## 6    Decomposing the inequality trend of income and wealth

The evidence discussed in the previous section hints at the relative contributions of within-country and between-country factors to the trend in inequality over time. It suggests that changes in country means are likely to dominate changes in income inequality over time for inequality indices other than the share of the top 1 per cent, but that changes in inequality within countries have a more significant impact when it comes to wealth inequality over time. However, when changes over time are examined, we also have to make allowance for changes in the population size of countries. This could be considered as an additional factor, but given that its contribution is likely to be limited, we treat it as part of the between-country component.

It is useful to start by considering two counterfactual questions. First, what would the global inequality trend look like if inequality within countries was frozen at the year 2000 values, but the mean incomes and population sizes of countries changed in the way observed since the turn of the century? Second, how would the global inequality trend appear if mean incomes and population sizes were kept at the 2000 values, but inequality within countries changed as observed in the intervening years? Figure 6 displays the corresponding income inequality graphs for each of our chosen inequality indices. The results are striking. First, changes in the mean incomes and population sizes of countries have had a continuous equalizing impact for all of this century. Second, for three of the indicators—the Gini coefficient, the share of the top decile, and the mean/median ratio—if income distribution within each country had remained unchanged this century, global inequality would still have evolved in almost exactly the way that transpired. For these three indicators, therefore, changes in mean incomes and population sizes account for virtually all of the downward movement in income inequality, and this is largely true of any subperiod too.

Figure 6: Counterfactual trends in income inequality
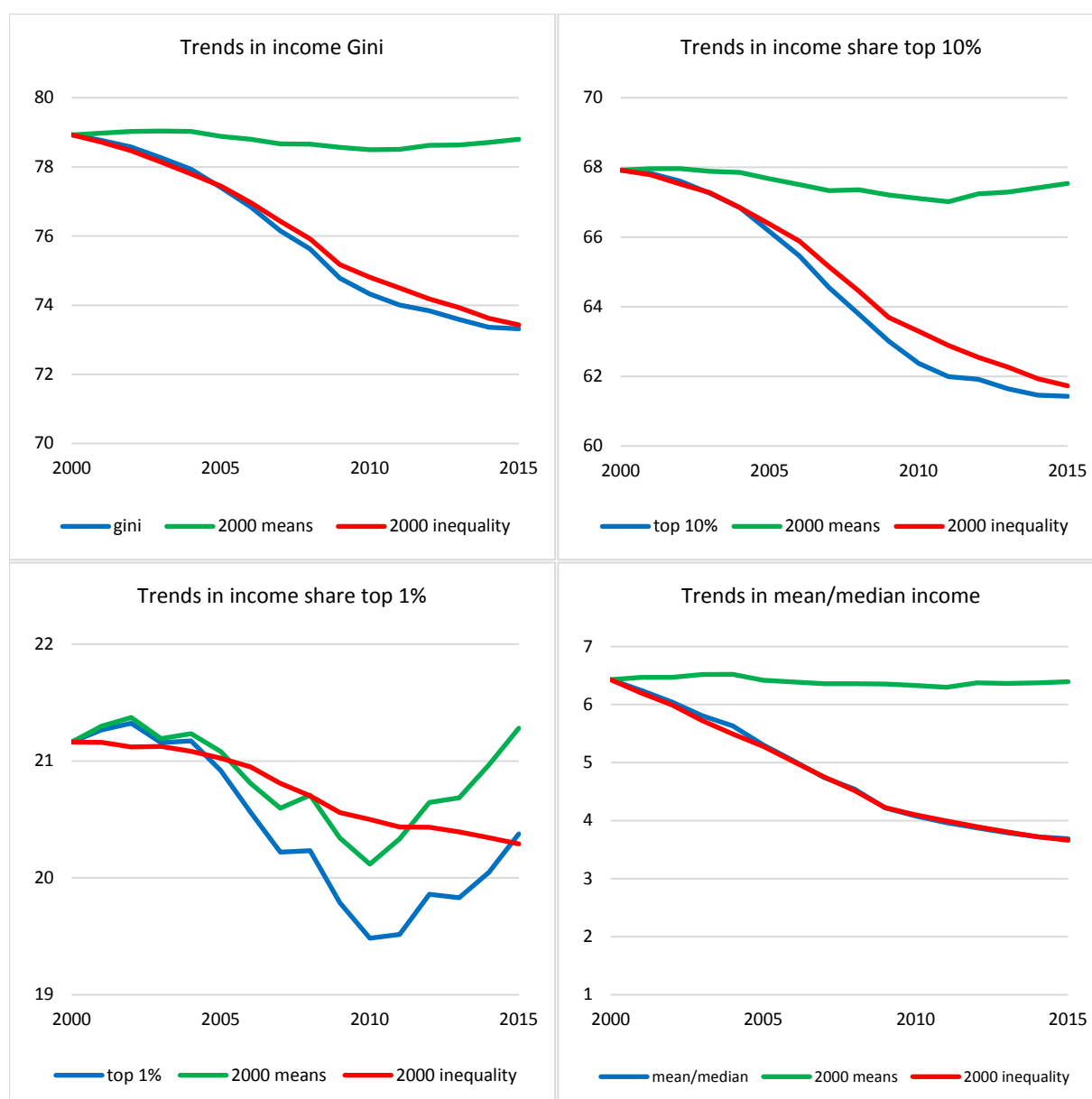


Source: Original estimates by the authors.

For the share of the top 1 per cent, the picture is slightly different. Over the whole period 2000–15, changes in mean incomes and population sizes again account for almost 100 per cent of the fall in global inequality; but in the period 2000–10, the share of the top 1 per cent fell by roughly twice as much as would have been predicted from the changes in mean incomes and population sizes, leaving a significant residual due to inequality reductions within countries. Then this process went into reverse, with the top 1 per cent rising sharply within countries after 2010, overcoming the continuing equalizing effect of changes in means and population to produce a significant increase in the global share of the top 1 per cent.

For wealth inequality, the results of the counterfactual exercises are even more striking in some respects, although slightly different. When inequality within countries is held at the 2000 values, Figure 7 shows that trends in country mean wealth and population sizes cause global wealth inequality to fall sharply during the first decade of this century. This is similar to the findings for

income, although unlike income the trend reverses in recent years for each of the indices considered.

Figure 7: Counterfactual trends in wealth inequality
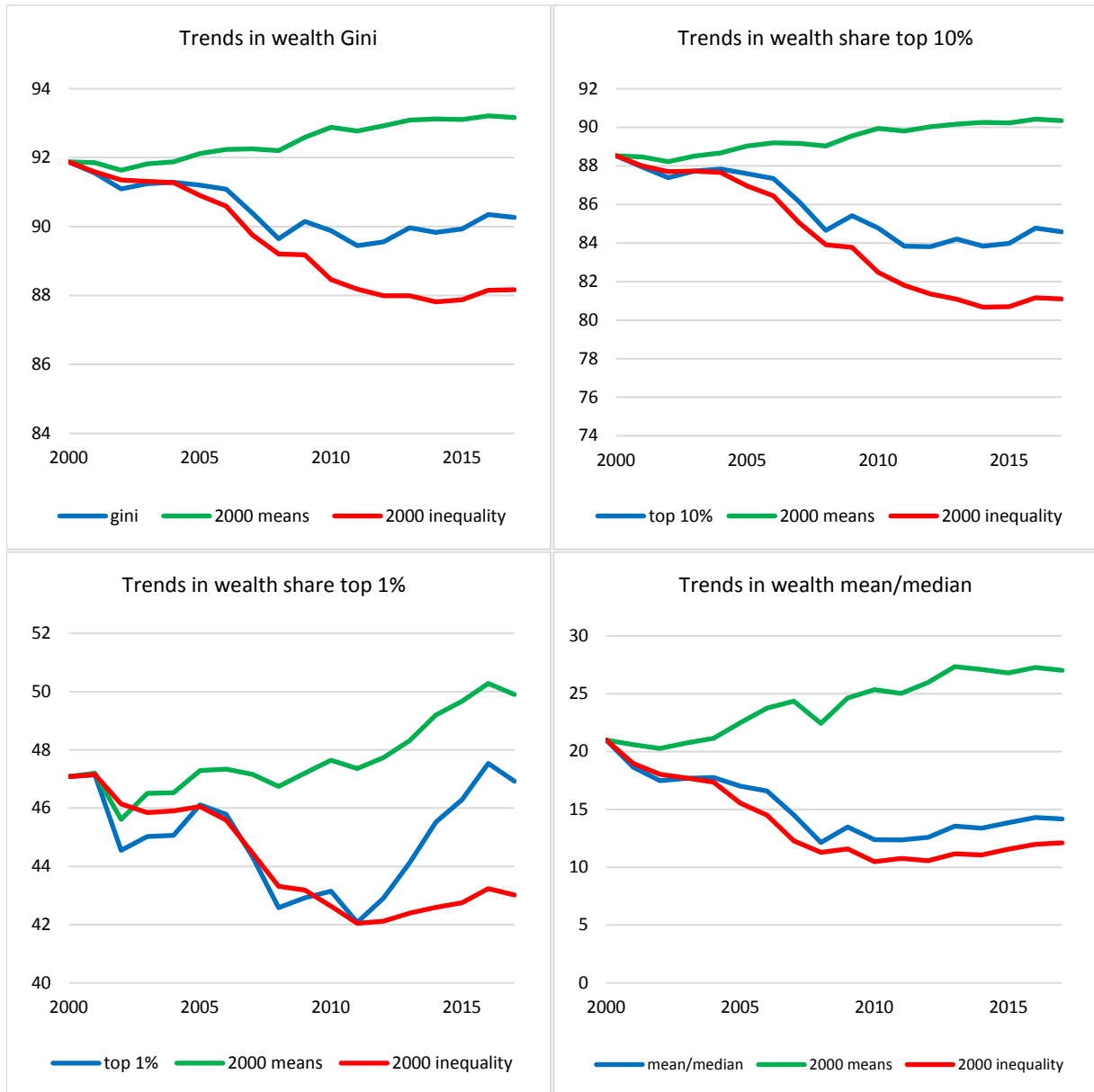


Source: Original estimates by the authors.

The most noticeable difference between the wealth and income graphs concerns the time path traced out when mean wealth and population sizes are held at the year 2000 values. Once country growth rates are discounted in this way, for each of the indicators global wealth inequality rises markedly over the course of this century and more or less continuously. For the share of the top 1 per cent there is even evidence that the rise in wealth inequality accelerated in the aftermath of the global financial crisis. While wealth inequality may have fallen in certain individual countries, the results show that, on balance, wealth inequality within countries has clearly risen whichever inequality indicator is used.

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As regards the time path of wealth inequality discussed in Section 4, it now becomes evident that the observed trend is a compromise between two strong opposing forces: the evolution of the between-country factors tending to reduce global wealth inequality for at least the first decade, and the evolution of within-country inequality driving movement in the opposite direction. The observed series suggest that the between-country factors dominated in the early years of the century while the rise in within-country inequality has been the decisive force more recently.

To provide a more formal assessment of the between-country and within-country contributions to the income and wealth inequality change since the year 2000, we revert to the terminology used in the previous section and express the change in inequality from time $0$ to time $T$ as

$$\Delta I = F(B_T, W_T) - F(B_0, W_0) = S_B + S_W \tag{8}$$

where

$$S_B = \tfrac{1}{2}\{F(B_T, W_0) - F(B_0, W_0) + F(B_T, W_T) - F(B_0, W_T)\} \tag{9}$$

and

$$S_W = \tfrac{1}{2}\{F(B_0, W_T) - F(B_0, W_0) + F(B_T, W_T) - F(B_T, W_0)\} \tag{10}$$

denote the Shorrocks-Shapley between-country and within-country components, respectively. Note that $S_B$ is the change in inequality obtained using the fixed within-country distributions observed in the initial year averaged with the change in inequality using the fixed within-country distributions observed in the final year. The within-country contribution $S_W$ has a parallel interpretation.

Table 3: Shorrocks-Shapley decomposition of changes in global income and wealth inequality

| | Counterfactual values | | | | Shorrocks-Shapley contributions | | |
|---|---|---|---|---|---|---|---|
| | $F(B_0, W_0)$ | $F(B_0, W_T)$ | $F(B_T, W_0)$ | $F(B_T, W_T)$ | $S_B$ | $S_W$ | Total |
| Income | | | | | | | |
| Gini | 78.9 | 78.8 | 73.4 | 73.3 | -5.5 | -0.1 | -5.6 |
| Share top 10% | 67.9 | 67.5 | 61.7 | 61.4 | -6.2 | -0.4 | -6.5 |
| Share top 1% | 21.2 | 21.3 | 20.3 | 20.4 | -0.9 | 0.1 | -0.8 |
| Mean/median | 6.4 | 6.4 | 3.7 | 3.7 | -2.7 | 0.0 | -2.7 |
| | | | | | | | |
| Wealth | | | | | | | |
| Gini | 91.9 | 93.2 | 88.2 | 90.3 | -3.3 | 1.7 | -1.6 |
| Share top 10% | 88.5 | 90.3 | 81.1 | 84.6 | -6.6 | 2.6 | -4.0 |
| Share top 1% | 47.1 | 49.9 | 43.0 | 46.9 | -3.5 | 3.4 | -0.2 |
| Mean/median | 21.0 | 27.0 | 12.1 | 14.2 | -10.9 | 4.0 | -6.8 |

Source: Original estimates by the authors.

The results recorded in Table 3 confirm the impressions gained from Figures 6 and 7. When the change in income inequality over the period 2000–15 is split into the two components, the between-country component is seen to account for virtually all of the reduction in inequality, leaving little or no contribution from the within-country changes. This is true for each of the

inequality indicators considered. Thus we can conclude that the fall in income inequality this century is almost entirely attributable to changes in country mean incomes and population sizes.

For the change in wealth inequality over the period 2000–17, the between-country factor again dominates. However, the overall decline in wealth inequality is seen to be the net outcome of a substantial fall in inequality due to changes in country means offset by an increase in inequality caused by a rise in wealth inequality within countries. Broadly speaking, the magnitude of the (negative) between-country component is roughly double the contribution of the (positive) within-country component, although the contributions are similar (and hence almost net out to zero) for the share of the top 1 per cent.


## 7    Conclusion


There is a widespread belief—amongst researchers as well as the general public—that economic inequality has been rising in recent years. However, it is difficult to square this belief with the numerous studies which show that income inequality has declined this century, and our previous work on wealth inequality, which suggests little change.

Our findings help to reconcile the two viewpoints. For both income and wealth, and for all the inequality indices considered, the degree of inequality attributable to differences in mean income and wealth across countries accounts for much, if not most, of the level of global inequality. As regards changing inequality over time, changes in mean income and wealth and population sizes have induced a strong downward element to the trend in global inequality regardless of the inequality index selected. There has been little underlying movement in income inequality within countries to offset the between-country trend. However, the evidence suggests that the underlying wealth inequality has risen significantly this century, although not by enough to offset the between-country contribution.

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