



WIDER Working Paper 2021/139

Trends in inequality within countries using a novel dataset

Carlos Gradín and Annalena Opperl*

August 2021

Abstract: We revisit trends in within-country income inequality using a newly integrated dataset that covers at least 70 per cent of the global population since 1980. We investigate absolute and relative inequality trends across the past four decades, combining the use of Lorenz curves with a set of inequality measures to gain insights on countries without Lorenz dominance. We can conclude that the majority of the global population witnessed a robust increase in inequality in each decade, both absolute and relative, although the number of countries with evidence of declining relative inequality exceeds those with rising inequality in the 2000s and 2010s. Increasing absolute inequality is quite general, while evidence of increasing relative inequality is stronger in the 1990s and 2000s and weaker in the last decade and involves all country income groups. We found evidence of inequality levels converging over time, as well as of great heterogeneity across geographic regions.

Key words: within-country income inequality, integrated dataset

JEL classification: D31, E01, I31, O15

* Both authors: UNU-WIDER, corresponding author: Carlos Gradín, gradin@wider.unu.edu

This study has been prepared within the UNU-WIDER project [World Income Inequality Database \(WIID\)](#).

Copyright © UNU-WIDER 2021

UNU-WIDER employs a fair use policy for reasonable reproduction of UNU-WIDER copyrighted content—such as the reproduction of a table or a figure, and/or text not exceeding 400 words—with due acknowledgement of the original source, without requiring explicit permission from the copyright holder.

Information and requests: publications@wider.unu.edu

ISSN 1798-7237 ISBN 978-92-9267-079-5

<https://doi.org/10.35188/UNU-WIDER/2021/079-5>

Typescript prepared by Ayesha Chari.

United Nations University World Institute for Development Economics Research provides economic analysis and policy advice with the aim of promoting sustainable and equitable development. The Institute began operations in 1985 in Helsinki, Finland, as the first research and training centre of the United Nations University. Today it is a unique blend of think tank, research institute, and UN agency—providing a range of services from policy advice to governments as well as freely available original research.

The Institute is funded through income from an endowment fund with additional contributions to its work programme from Finland, Sweden, and the United Kingdom as well as earmarked contributions for specific projects from a variety of donors.

Katajanokanlaituri 6 B, 00160 Helsinki, Finland

The views expressed in this paper are those of the author(s), and do not necessarily reflect the views of the Institute or the United Nations University, nor the programme/project donors.

1 Introduction

Following a general growing concern with income distributions becoming more unequal in many countries, a multitude of studies have sought to identify country-level inequality trends over time, many of which focus on specific sub-sets of countries defined by regions, level of development, or inclusion in main data sources. This highly fragmented evidence generally reflects the asymmetric data limitations faced by such research, especially for low-income countries and certain geographic regions. Most comparative studies tend to focus on rich and middle-income countries (Brandolini and Smeeding 2007; Gottschalk and Smeeding 2000; Morelli et al. 2015; Smeeding and Grodner 2000). Hereby, identified trends are consistent in that studies generally describe a tendency for inequality to decline until the mid-1970s followed by an increase in the 1980s and 1990s, which especially applies to the United States and the United Kingdom with moderate increases in some European countries and a few identified exceptions such as Denmark or Canada in earlier periods or France more generally.

Although more scarce, there are also some recent cross-country studies which primarily focus on developing countries (Alvaredo and Gasparini 2015; Odusola et al. 2017; Gradín et al. 2021; Milanovic 2005; Simson 2018). These studies have shown a certain trend to increasing inequality, for example, in key Asian emerging countries like China, India, or Indonesia, following their economic transformation. Inequality also increased in the late 1980s and 1990s in Eastern Europe and Central Asia as well as in Latin America. However, during the 2000s, changes in distributions were found to become more equalizing in several developing countries, particularly in Latin America, with however moderate changes and considerable variety across countries. Studies included in Gradín et al. (2021) provide detailed comparative evidence of five large developing countries (Brazil, China, India, Mexico, and South Africa), highlighting the different patterns in terms of overall inequality, and how the distribution in these countries was primarily shaped by increasing tensions in the labour markets in transformation, only in part offset by a weak but changing redistributive capacity of their emerging public sectors.

Overall, there is a growing consensus that inequalities have been growing within countries in the last decades on average and therefore contributing to offset the large decline at least partially in inequalities between countries, resulting from faster economic growth in China and other emerging economies (e.g., Lakner and Milanovic 2013; or more recently, Gradín 2020a, 2021a). For example, Gradín (2020a) has compared the same welfare concept (e.g., per capita income or per capita consumption) for each country obtained from the same data source around 1990 and late 2010s. The results show that there is, paradoxically, a majority of countries (68) witnessing a decline of inequality (Gini) in the long-term than those exhibiting an increase (45). However, and consistently with popular beliefs, if increase in inequality occurring in the most populous countries was accounted for, a majority of people saw inequality increase in their country over that period of time: at least 58 per cent of the world's population, compared with 26 per cent witnessing a decline, 8 per cent showing stability (i.e. changing less than 1 Gini point), and another 8 per cent with no data. This and other evidence (e.g., Frazer 2006; Simson and Savage 2020) suggest that amid a large level of heterogeneity, some patterns emerge in terms of trend, convergence (i.e. inequality in countries with initially high levels appears to decrease and vice versa), region (e.g., inequality increasing in North America or most of Asia, but declining in Latin America or the Middle East and North Africa), or level of development (e.g., inequality more clearly increasing in high-income countries).

In this paper, we draw on a novel companion dataset on country income distributions based on the World Income Inequality Database (WIID) (i.e. WIID Companion), held at the United Nations

University World Institute for Development Economics Research (UNU-WIDER) in Helsinki, Finland, to consolidate and expand existing evidence on inequality trends within countries over the past four decades (see UNU-WIDER 2021a, 2021b) . Using a sample of this dataset with consistent per capita income distributions at the percentile level for countries representing between 72 and 96 per cent of the global population, we aim at identifying and characterizing inequality trends every decade since 1980 and the extent to which they depend or not on specific views about inequality. For that, we begin with an assessment of Lorenz curves to see how far we can get with a well-established methodology that allows identifying inequality trends with the minimum possible set of value judgements. This includes both absolute and relative inequality. Because of the large share of cases that remain undefined with this method in the case of relative inequality (lack of Lorenz dominance), we then expand this assessment by using popular inequality measures, including the Gini coefficient, the Palma index, and various members from the generalized entropy and Atkinson families that give different weighting to the bottom (poor) or top (rich) of distributions. A joint discussion across measures allows us to identify cases without Lorenz dominance, but with a high degree of consensus among the main inequality measures.

In this study, we thus contribute to the discussion on within-country inequality trends worldwide in the following way. First, we address some of the issues regarding data harmonization and comparability faced by previous studies by using a new dataset based on integrated inequality series that allows more consistent comparisons over time and across countries (Gradín 2021a). All comparisons are based on per capita income distributions after original values based on other welfare concepts have been standardized. Second, since the dataset combines information from many sources, including the Luxembourg Income Study (LIS), PovcalNet, national statistical authorities, and others, we obtained more breadth than other studies in terms of data coverage in the past four decades, with a richer representation of low-income countries or from regions with poorer data, along high-income economies and rich-data countries, more often well represented in these studies. Third, we revisit and consolidate tendencies in inequality trends using a more comprehensive approach in terms of how changes in inequality are measured, looking beyond the use of a single measure (e.g., Gini index). Finally, we use our comprehensive approach to better characterize these inequality trends investigating patterns by geographical regions as well as level of development or initial level of inequality.

In what follows, Section 2 introduces the main feature of the dataset, Section 3 investigates the main trends, whereas Section 4 looks at general patterns in observed trends. Section 5 concludes.

2 Integrated inequality series

Generally, the analysis of long-term inequality trends across countries faces certain data constraints that primarily concern data availability and data harmonization. The latter is the result of the lack of comparability over time or across space because of different methodologies in data collection and consolidation. This mainly includes differences in chosen measure of resources (say net or gross income, or consumption), correction for household size or composition (i.e. total, per capita, or per equivalent adult), as well as geographical or population coverage via primary sampling units. To cope with such heterogeneity across data sources, we use a new income distribution database that utilizes the main series in each country as benchmark or reference, primarily from LIS, other harmonized databases, or national statistical authorities, to adjust and integrate selected data series for other periods coming from other sources. This then constructs harmonized series for each country and across countries over time. Via this approach, we are able to generate a comprehensive dataset that covers between 70 and 94 per cent of the global population in two consecutive decades

since 1980 and enables discussions on broader patterns in inequality trends that hold true across a range of inequality measures, a key focus of this paper.

2.1 WIID as data source

Our integrated database (WIID Companion, country dataset) is based on the World Income Inequality Database held at UNU-WIDER (2021b). WIID was first launched in 2000, giving continuity to one of the first most successful initiatives to collect cross-country information of inequality by Deininger and Squire (1996).

WIID has been updated and expanded several times, the most recent version being from May 2021. It is freely downloadable and contains the most comprehensive set of income inequality statistics in the world, covering over 200 countries (including four historical entities) (UNU-WIDER 2021a). WIID collects and stores information on income inequality for almost all countries in the world over the longest possible period of time for which reliable data are available. The information reported in WIID is collected from a variety of public sources, including international databases like PovcalNet, the LIS database, EURSOTAT, the Socio-Economic Database for Latin America and the Caribbean, the OECD, United Nations agencies like UNICEF or the UN Economic Commission for Latin America, several national statistical authorities, and many independent research studies. All this fragmented information is put together in a systematic and organized way.

2.2 The WIID Companion

In this section, we summarize how all those issues were addressed in constructing the WIID Companion country dataset that informs this study, although the entire process is documented in a series of technical notes that explain the process in more detail and include the Stata codes used to construct the global database from the original WIID.¹

Selection of inequality series

WIID has recently incorporated a companion database that was constructed for the purpose of making country and global inequality analyses easier. WIID contains several series that may overlap and refer to same or different periods, measures of resources or equivalent scales among other things, producing several possible estimates of inequality for each country and year. For that reason, the WIID Companion has selected some series to reproduce the longest possible trend for each country in the most consistent way. The resulting dataset is based on PovcalNet (26 per cent of country-year observations), LIS (20 per cent), research studies (13 per cent), various national statistical authorities (11 per cent), and other sources. About 90 per cent of all country-year observations include information on the income shares mainly by deciles, but at least by quintiles (in both cases with or without information for the bottom and top 5 per cent). Using the Shorrocks and Wan (2008) approach to disaggregate grouped income distributions, income shares were then estimated at the percentile level. These are the series considered in our analysis as they allow the estimation of the Lorenz curves and various inequality measures.

¹ The approach followed to construct the dataset is explained in Gradín (2021a). Furthermore, Gradín (2021b, 2021c, and 2021d) provide a more detailed description regarding the selection of data series, as well as the standardization process, and the construction of the mean income series (gross domestic product per capita).

Part of the heterogeneity in the income percentile series is resolved by taking one series as a reference (e.g., LIS) and extending the series with other overlapping series that are re-scaled so that the trend is preserved but the scale is comparable to that in the reference series. After these adjustments, the integrated series of some countries refer to the target welfare concept, net income per capita, but some refer to a heterogeneity of other welfare concepts. In a second stage, these income distributions are then converted to per capita net income using a modelling approach that is described in detail in Gradín (2021c). This approach estimates the relationship among income percentile shares using different welfare concepts in the LIS sample in WIID (based on microdata). These relationships are used to convert income distributions based on different welfare concepts into net income distributions, using the coefficients estimated mainly for the same country geographic region and income group.²

The income distribution then reflects the share of net income per capita in each country for each percentile. Relative inequality measures and Lorenz values are estimated using these standardized income distributions. For the analysis of absolute inequality, per capita income in the country is obtained from an integrated series of gross domestic product (GDP) per capita in 2017 US dollar purchasing power parities (PPPs) from various sources (the World Development Indicators, the Maddison Project, and the Penn World Tables).

Overall, the WIID Companion provides harmonized data series across the longest possible time interval for countries given data quality criteria. The dataset facilitates the analysis of within-country inequality trends in a longitudinal as well as spatial manner.

2.3 Sample selection

In this study, we compare inequality trends across the past four decades. Hence, we use the beginning of each decade to identify inequality trends, starting in 1980 up until 2018. Not all countries included in the WIID Companion have actual income distributions in the selected years (i.e. 1980, 1990, 2000, 2010, and 2018). To determine the level of inequality in each comparison year, we need to use information from the closest years. First, we limit our analysis to cases in which there is at least one survey year within a distance of at most 4 years (before or after) from each comparison year, labelling the other cases as having not enough data. If available, we take the income distribution of the comparison years. In countries in which there is no income distribution in one comparison year, our main approach interpolates the income distributions between the previous and next survey year around the year of comparison within the defined bandwidth. For robustness, we also compute the results using the closest observation with no interpolation; however, results were very similar. In cases in which there is no survey year before or after the comparison year, we take the income distribution in the closest survey year.

For example, Afghanistan has information available in 2008, 2012, and 2017 only. It is considered as part of the sample comparison only between 2010 and 2018 and labelled as having not enough data in the comparison of previous decades. The income distribution in 2017 is used for 2018. For 2010, the main approach is to use interpolated income percentiles (assuming a linear trend) between 2008 and 2012. For robustness, we also considered the case of using the actual 2008

² In some cases, the corrections are based on the same country (in different years) if the country is in the LIS sample, or in either the same region whenever the required combination of region and income group is not in LIS.

income distribution for 2010 instead, but results were very similar, and the main trends and patterns discussed in the empirical sections are maintained.

When applying the above-described selection approach, we obtain the following sample across the selected time observations shown in Table 1. The coverage of our sample is high in terms of population shares including at least 72 per cent of the global population in the 1980s, reaching a maximum of 96 per cent in the 2000s.³ Country coverage is the lowest and most biased in terms of geographic regions in the 1980s because of the limited information for Sub-Saharan Africa (29 per cent of the population), the Middle East and North Africa (37 per cent), or most of Eastern Europe. Therefore, results for this decade will be less informative than in other decades. Obviously, the population coverage tends to be larger if both China and India are part of the sample, and for that reason it declines in the last decade, with no information for India (along with other developing countries).

Table 1: Overview of data availability and population coverage

Available countries	Total	Time period			
		1980–90	1990–2000	2000–10	2010–18
Number of countries	200	55	115	154	139
Percentage of countries	100	27.5	57.5	77.0	69.5
Percentage of global population	100	72.0	88.7	95.8	75.7

Note: population as in the last of each comparison period.

Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).

The coverage in all decades is smaller if measured in terms of number of countries, but this is mainly driven by relatively small countries or territories without enough information in the dataset. Out of a total of 200 countries or territories,⁴ 189 have at least one observation in the dataset, with 169 countries reporting distributive information in at least one of the decades studied here (i.e. 31 countries do not have enough information in any decade), while 51 countries have information in every decade. This study includes distributive information for more than half of the sample of countries from 1990 onward. A detailed overview of data availability by region is displayed in Appendix Table A1.

2.4 Assessing inequality trends

We follow a comprehensive approach to assess trends in inequality. First, we compute the Lorenz curve of each country income distribution to test for Lorenz dominance between the two comparison years for each decade. Comparing the Lorenz curves of two distributions is known as being a method that allows ranking distributions in terms of inequality with a high level of consensus among different views about inequality (Atkinson 1970; Moyes 1987). Namely, if total income is constant, one only needs to agree with inequality in (anonymous) per capita incomes being decreasing with rank and mean-preserving progressive transfers from one person to anyone else with lower income (Pigou–Dalton principle of transfers), as well as that inequality remains constant if the population is replicated several times (population principle). If total income changes, one additionally needs to agree with inequality remaining constant after either all incomes

³ For population weights, that is, the share of populations represented by each country, we use the population of the last comparison year (e.g., population of the year 1990 for the 1980s).

⁴ The dataset includes a total of 200 countries or territories including the current 193 United Nations member states and 7 territories such as Greenland, Hong Kong, Kosovo, Macao, Puerto Rico, Taiwan, and West Bank and Gaza. All 200 countries and territories are accounted for in global population percentages regardless of whether or not they have distributive information.

are multiplied by the same factor (scale invariance or relative inequality), or after all incomes are added a common factor (translation invariance for absolute inequality).⁵ This is because the existence of Lorenz dominance—when one curve falls above the other one—indicates that the former distribution exhibits lower inequality because it can be obtained from the other after a sequence of progressive transfers. However, this high level of consensus comes at the price of obtaining incomplete orderings, since situations abound in which one distribution can be obtained from another one after a mix of equalizing and disequalizing transfers. In these situations, the Lorenz curves intersect at least once, and the absence of Lorenz dominance implies that the assessment of whether inequality declined or increased cannot generally be made based only on the principles of anonymity, population invariance, scale invariance, and Pigou–Dalton principle of transfers. The same happens if we want to quantify the difference in inequality between the two comparison distributions. One needs additional value judgements to conclude which distribution has more inequality (and by how much), particularly value judgements about how much relevance to give to equalizing and disequalizing movements that occur at different parts of the distribution. In other words, one can be concerned with the improvement of the poor, with the concentration among the most affluent, or with the enhancement of the middle class, for instance. If we do not observe Lorenz dominance, we classify countries’ trends as ‘undefined’ in that particular decade.

For these reasons, further, and in addition to using Lorenz curve assessments as reference point for the identification of inequality trends, we expand our analysis by using a range of relative inequality measures that reflect different sensitivities at different parts of the distribution. For example, it is known that the mean log deviation (MLD) (M-Theil index) is more sensitive to the bottom of the distribution, while the L-Theil index is more sensitive to the top, and the Gini index is less sensitive than both indices to the extremes.⁶

Our analysis includes the Gini coefficient, the general entropy class, the Atkinson index, and the Palma ratio as relative measures. The Gini coefficient is the most commonly used inequality measure that satisfies all key properties of inequality indices. The general entropy class is a parametric family of indices in which a lower value of the parameter indicates higher sensitivity to the bottom of the distribution. It includes MLD, L-Theil, and a monotonic transformation of the coefficient of variation as particular cases (for values 0, 1, and 2 respectively). Similarly, the Atkinson family is a normative parametric family in which a higher value of the parameter (inequality aversion) also indicates higher sensitivity to the redistribution that affects the bottom of the distribution. The Palma ratio measures the ratio between the total income of the top 10 and bottom 40 per cent of the population. The analysis of absolute inequality will include the absolute Gini index and the standard deviation.

The WIID Companion provides country synthetic distributions at the percentile level, from which the set of inequality measures are computed. These income distributions are also used to compute the corresponding Lorenz curves. Relative Lorenz curves map the accumulated income share at each percentile. The absolute Lorenz curve maps the accumulated income gap with the mean instead. For robustness, however, we also use a higher level of aggregation (vintiles) to test for

⁵ That is, if total income is doubled, relative inequality remains constant if all incomes are doubled, whereas absolute inequality remains constant if all incomes are added the same per capita income change.

⁶ For example, this can be easily assessed looking at the contribution to overall inequality of marginally increasing the proportion of the population at different parts of the distribution using the recentred influence function for various indices (Gradín 2020b). All well-known inequality measures are more sensitive to the extremes than to the middle, but the extent varies across measures.

Lorenz dominance, to check the sensitivity of results to potential outlier values at the extreme of the distribution (as aggregation also smoothens distributions, curves are less likely to intersect).

Note that inequality indices that are consistent with the Lorenz dominance ordering (all discussed earlier except the Palma ratio) should exhibit the same direction in inequality trends as the one indicated by Lorenz ordinates, when computed at the same level of aggregation (percentiles). However, we define an increase in an inequality index when any measure in the group of relative indicators increases (some of which are unbounded) by at least 2 per cent or more of the level of inequality identified at the beginning of the decade, but further test how sensitive indicated trends are to the use of higher thresholds (i.e. 3 and 4 per cent). With this, we consider that some changes in inequality are so small that they can be deemed as having no clearly identifiable trend, as they would very likely be statistically insignificant (if statistical inference were possible in this context). As we are labelling these small changes in inequality measures as ‘undefined’, this implies that consistency with Lorenz dominance here applies in a weak sense. Whenever inequality is higher in one year than in another with Lorenz, inequality will not be lower with consistent measures (but they may exhibit stability), or vice versa. Note that when comparing single indicators of absolute inequality (Section 3), we distinguish increasing, decreasing, and stable trends depending on whether the indicator exceeds the 2 per cent threshold in changes of either direction.

To summarize changes across the different relative inequality measures and to identify situations with a large degree of agreement among them (regardless of whether or not they involve Lorenz dominance), we classify trends of a country in a given decade as mostly increasing, or mostly decreasing if at least eight out of eleven indicators depict the same trend.⁷ Results labelled as undefined then refer to country-years where indicators do not show a uniform or identifiable direction in trend.

3 General patterns in inequality trends since 1980

We now turn to discuss the identified patterns in inequality trends across the past four decades since 1980. Thus, we focus both on the number of countries as well as on the population shares they represent. As mentioned, we use Lorenz curves as a reference point to identify trends and expand by consulting results from our aggregated relative measures.

3.1 Relative Lorenz curves

Previous findings in the global inequality literature as well as in cross-country studies have identified a dominant increasing trend in within-country inequality. This section investigates how far we can go in that assessment across countries using Lorenz dominance, the most robust method.

The results first indicate that a notable share of countries and global population show no clear Lorenz dominance, and therefore, the inequality trend may depend on the sensitivity to distributional changes occurring at different parts of the distribution. This applies to about 18–19 per cent of the global population with intersecting Lorenz curves in each decade except the 2010s, when it rises to 38 per cent because of the inclusion of China in this group (Table 2). This applies

⁷ Note that among the indices included, $\mathcal{A}(1)$ is ordinally equivalent to GE(0) or MLD, whereas $\mathcal{A}(2)$ is ordinally equivalent to GE(-1).

to 58 and 57 countries during the two most recent decades (2000s and 2010s). It also applies to another 31 countries in the 1990s and 22 countries in the 1980s.

Table 2: Inequality trends based on Lorenz curves

Year	Increase	Decrease	Undefined	No data	Total
1980–90	20	13	22	145	200
	38.7	23.9	9.4	28.0	100
1990–2000	55	32	28	85	200
	59.0	10.9	18.8	11.3	100
2000–10	35	58	61	46	200
	53.5	23.0	19.2	4.2	100
2010–18	29	55	55	61	200
	19.4	18.3	38.0	24.3	100
Total ^a	41.8	19.0	22.6	16.7	100

Note: first row shows ‘number of countries’ and second row shows ‘population percentages’. ^aTotal refers to the share of the global population to which given trends apply across observed decades. See map representations in Appendix Figures A1–A4.

Source: authors’ construction based on WIID Companion (UNU-WIDER 2021b).

However, the results also show that by using only the Lorenz approach we can already identify increasing country-level inequality as a dominant trend in all except the last decade. This further indicates that the trend for these countries does not depend on how relative income changes at different parts of the distribution (e.g., top or bottom) are evaluated. In every decade, the share of population residing in countries with unambiguously increasing inequality is larger than the share in countries with declining inequality for all indices consistent with Lorenz. At least, near 40 per cent of the global population in the 1980s, near 60 per cent in the 1990s, and more than 50 per cent in the 2000s unambiguously exhibited increasing inequality, which contrast with only 11 per cent (1990s) or around 23–24 per cent (1980s and 2000s) with a declining trend. In the last decade, however, the proportions are more balanced (19 and 18 per cent, respectively).

In terms of the number of countries, however, there is a clear shift. In the 1980s and 1990s, more countries exhibited increasing inequality than declining inequality, whereas in the 2000s and 2010s (when country coverage is highest) the opposite is true, introducing the paradox of inequality increasing for more people but for fewer (but more populated) countries.

3.2 Relative inequality indices

When assessing inequality trends based on a high level of agreement among relative inequality indicators (see Table 3), patterns become more distinct because we obtain further insights into cases with no identifiable trend based on Lorenz curves alone. The global picture depicted by the analysis of Lorenz dominance does not change, but it is rather reinforced. When shifting from Lorenz to the set of indicators, the population in countries with increasing inequality increases by the same or a larger proportion than the population living in countries with decreasing inequality, particularly true in the 1990s.

Now, it turns out that in each decade between 1980 and 2010, at least 40 per cent of the global population witnessed rising inequality with a large consensus among inequality measures, with the largest percentages (68 and 59 per cent) in the 1990s and 2000s. At the same time, the proportion of population witnessing a decline in inequality with this criterion was always below 30 per cent, with lowest percentages in the 1980s, 1990s, and 2010s (between 19 and 26 per cent) and the largest in the 2000s (29 per cent). Again, it turns out that the percentages are almost exactly balanced in the last decade.

Table 3: Inequality trends based on relative indicators

Relative inequality measures	Majority increase	Majority decrease	Undefined	No data	Total
1980–90	28	24	3	145	200
	43.1	26.6	2.3	28.0	100
1990–2000	68	42	5	85	200
	68.3	18.7	1.6	11.3	100
2000–10	54	77	23	46	200
	59.1	28.7	8.0	4.2	100
2010–18	41	82	16	61	200
	26.4	26.3	23.0	24.3	100
Total	48.4	25.2	9.7	16.7	100

Note: first row shows ‘number of countries’ and second row shows ‘population percentages’. See country graphs in Appendix Figures A5–A16.

Source: authors’ construction based on WIID Companion (UNU-WIDER 2021b).

The pattern in terms of the number of countries involved in each trend is the same as when using the Lorenz criterion, with predominance of countries exhibiting an increasing trend in the 1980s and, especially, the 1990s, and decreasing in the 2000s and 2010s.

Therefore, the results obtained with the Lorenz curves are ratified with consensus among indices. The main contribution of indices is probably to reduce the percentage of undefined cases, especially in the 2010s with the largest share of countries and population with intersecting Lorenz curves, although the result is the same balance already observed with Lorenz in that decade.

In sum, our data confirm that during the four last decades increasing within-country inequality was predominant in terms of population, with the trend being particularly true in the 1990s and 2000s, following the transition to market economies in Eastern Europe and the expansion of globalization with structural transformation experienced by the main developing countries. At least almost 50 per cent of the population if using the most general criterion and around 60 per cent or more with a set of inequality measures saw increasing inequality in these two decades, compared with a still high level (around 43 per cent) in the 1980s. A lower population coverage and the undefined trend in China might explain why results are less conclusive during the last decade. In terms of the number of countries, however, the story is more nuanced. The number of countries exhibiting increasing inequality was larger than those with declining inequality in the 1980s and 1990s, but our data also suggest that this pattern is reversed in the last two decades.

3.3 Absolute inequality

Absolute inequality measures, such as the absolute Gini coefficient or the standard deviation, focus on absolute income differences between individuals. While these measures are not used as widely, absolute differences in inequality are an important aspect of inequality as many people evaluate the impact of income changes on inequality in absolute terms (Amiel and Cowell 1992).

Absolute changes in income, captured by the absolute Lorenz curve comparisons and inequality measures, show a more unambiguous increase for at least 62 per cent of the global population in each decade, reaching 78 and 89 per cent in the 1990s and 2000s, in all cases affecting a majority of countries (more than 120 in the last two decades) (see Table 4). With economic growth, and rising mean incomes, absolute inequality tends to increase. Absolute inequality mainly declined in countries with stagnant or declining per capita income (see Tables 5 and 6) including mostly a few Latin American and Sub-Saharan African countries, but also a few Eastern European countries in the 2000s such as Croatia, Latvia, and Lithuania, or Greece in 2018. Other examples include conflict zones such as Syria, Yemen, and Venezuela. Between 3 and 9 per cent of the global

population showed a decline in absolute inequality, whereas between 3 and 5 per cent exhibited an ambiguous trend due to intersecting absolute Lorenz curves.

Table 4: Trend based on absolute inequality using absolute Lorenz curves

Year	Increase	Decrease	Undefined	No data	Total
1980–90	39	12	4	145	200
	62.5	7.5	2.0	28.0	100
1990–2000	82	27	6	85	200
	77.7	9.4	1.7	11.3	100
2000–10	132	9	13	46	200
	89.3	2.9	3.6	4.2	100
2010–18	121	12	6	61	200
	65.1	6.0	4.6	24.3	100
Total ^a	74.0	6.3	3.1	16.7	100

Note: first row shows ‘number of countries’ and second row shows ‘population percentages’. ^aTotal refers to total population percentage.

Source: authors’ construction based on WIID Companion (UNU-WIDER 2021b).

Table 1: Inequality trends indicated by absolute Gini coefficient

Year	Increase	Decrease	Stable	No data	Total
1980–90	27	8	20	145	200
	52.9	4.0	15.1	28.0	100
1990–2000	63	25	27	85	200
	63.7	8.5	16.4	11.3	100
2000–10	98	7	49	46	200
	74.2	1.5	20.1	4.2	100
2010–18	63	7	69	61	200
	45.0	3.8	26.9	24.3	100

Note: first row shows ‘number of countries’ and second row shows ‘population percentages’.

Source: authors’ construction based on WIID Companion (UNU-WIDER 2021b).

Table 6: Inequality trends indicated by standard deviation

Year	Increase	Decrease	Stable	No data	Total
1980–90	40	12	3	145	200
	62.9	4.2	4.9	28.0	100
1990–2000	82	27	6	85	200
	79.0	8.7	1.0	11.3	100
2000–10	121	18	15	46	200
	83.6	4.0	8.2	4.2	100
2010–18	96	13	30	61	200
	56.7	6.2	12.8	24.3	100

Note: first row shows ‘number of countries’ and second row shows ‘population percentages’.

Source: authors’ construction based on WIID Companion (UNU-WIDER 2021b).

The use of absolute measures of inequality like the Gini index or the standard deviation confirms this general pattern of increasing inequality over time. In this case, however, it also highlights that a substantial proportion of changes are small (below 2 per cent) and are therefore classified here as stable (between 15 and 27 per cent of the global population).

4 Patterns in relative inequality trends

In this section, we investigate the extent to which clear patterns emerge in relative inequality trends among countries based on their initial level of inequality (convergence), their geographic region, or their level of development (income group). For region and income group, we use the classification as defined by the World Bank (2021). For income groups, we refer to the most recent classification of a country in 2020 into low, lower middle, upper middle, and high-income groups. We considered seven regions: North America, Latin America and the Caribbean, Europe and Central Asia, Middle East and North Africa, Sub-Saharan Africa, South Asia, and South Asia. Note that in terms of population, some regions mainly reflect the situation of one country (i.e. China represents 61 per cent of East Asia and Pacific in 2019, India 74 per cent of South Asia, and the United States is 90 per cent of North America).

4.1 Initial level of inequality: convergence

Earlier evidence suggests a tendency to convergence in inequality levels in the last decades (see discussion in Alvaredo and Gasparini 2015). Convergence in our context implies a negative correlation between initial inequality levels and changes thereof. That is, countries with higher levels of inequality experience a decline or smaller increases whereas countries with lower levels of inequality experience larger increases (or smaller declines). To test that, we compare changes in inequality levels measured by the Gini coefficient and the GE(0) and GE(1) indices, with the level of inequality at the beginning of each decade as in Table 7. Indeed, we observe a clear negative correlation since the 1990s across selected indicators. Convergence is more notable in the 1990s and 2000s. This is because a considerable number of countries with high levels of inequality witnessed a decline in inequality towards the end of the decade, including Brazil (Appendix Figure A7) and other countries in the region. Correlation is still generally negative but weaker in the 1980s and 2010s. For example, some countries with moderate or medium levels of inequality compared with the global average also witnessed a decline in the 2010s, such as the United Kingdom or France (see also Appendix Figures A12–A13).

Table 2: Convergence across decades

Convergence	Correlation with initial levels of inequality					
	Final-Initial			(Final-Initial)/Initial		
	Gini	GE(0)	GE(1)	Gini	GE(0)	GE(1)
1980–90	0.00	0.22	0.20	-0.16	-0.04	-0.11
1990–2000	-0.56	-0.68	-0.56	-0.57	-0.54	-0.52
2000–10	-0.35	-0.42	-0.42	-0.30	-0.28	-0.28
2010–18	-0.14	-0.18	-0.25	-0.06	-0.07	-0.07

Note: Pearson correlation coefficients.

Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).

4.2 Regional patterns

One important aspect of within-country inequality trends is the high degree of geographic heterogeneity. We address this heterogeneity by answering two questions: First, to what extent is the trend observed in every decade universal and applies to all regions? Second, do regions tend to exhibit persistent trends over time?

We can answer the first question by indicating that in none of the four decades a general trend that clearly dominates for the population in all regions was represented in the sample. Therefore,

the predominant trend of increasing inequality does not apply to all regions and hides geographic heterogeneity that varies across decades. The closest to a general trend was the generalized increase in inequality in the 1990s, but even in this case this did not apply to Sub-Saharan Africa, where inequality declined, and there is also evidence of declining inequality in a substantial part of Latin American and Caribbean. The trends tend to be more varied across regions in the remaining decades. The results are quite consistent regardless of the criterion used (the Lorenz curve or agreement among inequality measures). We summarize the results by decade.

During the 1980s (see Table 8), inequality increased in North America (United States), in two-thirds of the population in East Asia and the Pacific, and in Latin America and the Caribbean. This contrasts with only 10, 11, and 8 per cent of the corresponding regional populations in countries with evidence of falling inequality during that decade. European countries represented in the sample show more balanced results, with 23 per cent with an increase and 20 per cent with a decline, but in the context of poor information for Eastern Europe (only Hungary and Romania), where the end of the decade is characterized by a large increase in inequality during the transition to a market economy. The limited evidence for Sub-Saharan countries in this decade also points at increasing inequality in the region (affecting at least 27 per cent of the population, with only evidence of a decline for 2 per cent). However, we find strong evidence of declining inequality during this decade in South Asia (77 per cent of the population, led by India) and in the Middle East and North Africa (37 per cent represented in the sample).

Table 3: Inequality trend patterns across regions in the 1980s

Region	Trend 1980–90				
	Increase	Decrease	Undefined	No data	Total
North America	90.2	9.9	0.0	0.0	100
	90.2	9.9	0.0		
Latin America and the Caribbean	66.4	1.8	5.9	26.0	100
	66.4	7.7	0.0		
Europe and Central Asia	10.5	12.3	20.8	56.5	100
	22.7	20.3	0.6		
Middle East and North Africa	0.0	22.1	14.8	63.2	100
	0.0	36.8	0.0		
Sub-Saharan Africa	26.8	0.0	2.3	71.0	100
	26.8	2.3	0.0		
South Asia	9.1	77.0	9.5	4.4	100
	18.6	77.0	0.0		
East Asia and the Pacific	64.0	11.2	7.5	17.3	100
	65.2	11.2	6.4		
Total	38.7	23.9	9.4	28.0	100
	43.1	26.6	2.3		

Note: all results shown in population shares (population at end of decade). First row shows results obtained from Lorenz curves. Second row shows results obtained from relative indicators. Undefined refers to no Lorenz dominance or no clear tendency (at least eight out of eleven indicators) in observed trend across indicators.

Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).

During the 1990s (see Table 9), there is only evidence of the share of the population with declining inequality being larger than the share with increasing inequality in the case of Sub-Saharan Africa (45 per cent versus 18 per cent). Domestic and external economic liberalization, deregulation, and similar policies were seen as primary reasons for rising inequality in the 1990s, paired with slow economic growth (e.g., UNESCO 2016). Increases in inequality were generalized during this decade, including the entire North America and the two most populated regions: South Asia (85 per cent, see Appendix Figure A9 for India), and East Asia and the Pacific (72 per cent, see

Appendix Figure A10 for China). Macroeconomic policies such as fiscal tightening and regressive tax policies as well as liberalization rules for foreign and domestic investment have contributed to such rise in India (Pal and Ghosh 2007), whereas China exhibited rising spatial inequalities across the rural–urban divide after market reforms (Benjamin et al. 2005; Meng 2004; Xie and Zhou 2014). In Europe and Central Asia, inequality increased for 76 per cent of its population, which reflects the sharp income declines in Eastern Europe due to the reform process that were followed by varying, and in some cases slow, rates of recovery (Lakner and Milanovic 2013). Increases in inequality were also predominant during the 1990s in half or more of the population in Latin America and the Caribbean, as well as in the Middle East and North Africa, where rising inequalities have been discussed amid the onset of rapid population growth that led to lower per capita income growth overall as well as high levels of income going to the top 10 per cent in the region (Alvaredo et al. 2019).

Table 4: Inequality trend patterns across regions in the 1990s

Region	Trend 1990–2000				
	Increase	Decrease	Undefined	No data	Total
North America	100	0.0	0.0	0.0	100
	100	0.0	0.0		
Latin America and the Caribbean	29.5	4.1	57.1	9.4	100
	50.1	38.9	1.6		
Europe and Central Asia	56.3	11.3	27.5	4.9	100
	76.1	18.5	0.5		
Middle East and North Africa	11.7	17.0	45.7	25.6	100
	54.3	17.0	3.1		
Sub-Saharan Africa	12.8	33.1	16.6	37.6	100
	17.8	44.6	0.00		
South Asia	85.1	0.00	10.2	4.6	100
	85.1	10.2	0.00		
East Asia and the Pacific	65.8	13.3	10.9	10.1	100
	71.9	14.2	3.8		
Total	59.0	10.9	18.8		100
	68.3	18.7	1.7	11.3	

Note: all results shown in population shares (population at end of decade). First row shows results obtained from Lorenz curves. Second row shows results obtained from relative indicators. Undefined refers to no Lorenz dominance or no clear tendency (at least eight out of eleven indicators) in observed trend across indicators.

Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).

During the 2000s (see Table 10), increasing inequality continued to be the majority trend in North America (United States), South Asia (86 per cent, including India), East Asia and the Pacific (78 per cent, including China), and Sub-Saharan Africa (39 per cent). Evidence of a decline became dominant particularly in Latin America and the Caribbean (93 per cent), and to a lesser yet still notable extent in the Middle East and North Africa (59 per cent) followed by Europe and Central Asia (47 per cent).

Finally, during the most recent decade (see Table 11), increasing inequality continued to be predominant in North America (United States). Increasing inequality dominates now in the Middle East and North Africa (29 per cent versus 15 per cent), and South Asia (23 per cent, as there is no information for India in this decade). Inequality continued to decline in most of Latin America and the Caribbean, but to a much lesser extent than the preceding decade (56 per cent of the population compared with 38 exhibiting an increase). Inequality trends are more balanced during this last decade, but with a larger share of the population witnessing a decline in Sub-Saharan Africa (41 per cent decline versus 34 per cent increase) and in Europe and Central Asia (53 per cent

decline versus 27 per cent increase). The case of East Asia and the Pacific is dominated by the fact that China shows an undefined trend (crossing Lorenz curves and lack of consensus among indices), whereas the rest of the region is split between 25 per cent of the population exhibiting a decline in inequality and 12 per cent an increase.

Table 5: Inequality trend patterns across regions in the 2000s

Region	Trend 2000–10				
	Increase	Decrease	Undefined	No data	Total
North America	90.1	0.0	10.0	0.0	100
	90.1	0.00	9.9		
Latin America and the Caribbean	1.7	87.0	8.2	3.2	100
	2.9	93.3	0.6		
Europe and Central Asia	12.7	36.1	46.2	4.8	100
	26.3	47.2	21.7		
Middle East and North Africa	10.9	14.9	60.5	13.8	100
	18.9	59.0	8.4		
Sub-Saharan Africa	30.4	33.6	27.5	8.5	100
	39.0	36.3	16.2		
South Asia	76.6	12.6	9.1	1.8	100
	85.6	12.6	0.0		
East Asia and the Pacific	77.2	9.4	10.0	3.4	100
	77.7	12.2	6.8		
Total	53.9	21.1	17.3		100
	59.1	28.7	8.00	4.2	

Note: all results shown in population shares (population at end of decade). First row shows results obtained from Lorenz curves. Second row shows results obtained from relative indicators. Undefined refers to no Lorenz dominance or no clear tendency (at least eight out of eleven indicators) in observed trend across indicators.

Source: authors' construction based on WIID companion (UNU-WIDER 2021b).

Table 6: Inequality trend patterns across regions in the 2010s

Region	Trend 2010–18				
	Increase	Decrease	Undefined	No data	Total
North America	0.0	0.0	100	0.00	100
	89.8	10.2	0.0		
Latin America and the Caribbean	33.7	54.2	7.4	4.7	100
	38.2	56.3	0.8		
Europe and Central Asia	22.9	18.5	54.1	4.6	100
	26.7	52.8	15.9		
Middle East and North Africa	28.3	10.8	32.1	28.8	100
	29.4	15.0	26.8		
Sub-Saharan Africa	25.4	36.3	18.2	20.1	100
	34.3	41.2	4.4		
South Asia	25.4	36.3	18.2	76.1	100
	22.6	1.2	0.0		
East Asia and the Pacific	11.8	18.5	67.2	2.5	100
	11.9	24.9	60.8		
Total	19.4	18.3	38.0	24.3	100
	26.4	26.3	23.0		

Note: all results shown in population shares (population at end of decade). First row shows results obtained from Lorenz curves. Second row shows results obtained from relative indicators. Undefined refers to no Lorenz dominance or no clear tendency (at least eight out of eleven indicators) in observed trend across indicators.

Source: authors' construction based on WIID companion (UNU-WIDER 2021b).

Regarding the second question, most regions exhibited mixed inequality trends over the four decades of study, except North America, which shows a continuous upward trend.

Indeed, inequality has generally increased in North America throughout all four decades, except for the lack of Lorenz dominance in the last decade. However, there is a large consensus among relative measures that inequality also increased in the last decade. As has already been extensively documented in other studies (e.g., Fisher et al. 2013), this trend was led by the United States (Appendix Figure A5), while inequality increased in Canada only in the 1990s, decreasing in the 1980s and 2010s

East Asia and the Pacific region, led by China, also exhibit a continued increase until the last decade, when China (see Appendix Figure A10) shows lack of Lorenz dominance as well as lack of agreement among indices. Inequality was mainly decreasing but was stable or even increasing when sensitivity to the bottom of the distribution increased. The evolution of income inequality in China over the past 40 years can be described as the net result of structural change during the (uncomplete) transition from a planned to a market economy, combined with government efforts (new social and welfare programmes) to moderate rise in inequality (Liu 2006), with most recent years showing a potential trend change. The evidence for other countries in the region during the last decade is mixed, with 12 per cent of the regional population showing increasing inequality and 25 per cent a declining trend.

Latin America and the Caribbean is a good example of a shift from a dominant trend of increasing inequality in the 1980s (66 per cent), which partly continues in the 1990s (50 per cent with increase, 39 per cent with decline), towards a clear decline in the 2000s (93 per cent), which continued to some extent in the 2010s, overall (56 per cent). This trend in inequality was facilitated by substantial progress along the demographic transition (declines in the population dependency rate) and the expansion of education systems leading to falling schooling returns, as well as the structural economic transformation following reforms introduced in the 1990s; however, it was also highly dependent on short-term factors like a shift to more favourable terms of trade (Székely and Mendoza 2015, 2017). The trend was particularly robust until the most recent financial crisis in Brazil (Appendix Figure A7), the largest economy (for instance, see Lopez-Calva and Rocha 2012; Neri 2021), in which case a reduction in the returns to labour market experience was identified as a much more important factor driving lower wage disparities (Ferreira et al. 2021). Inequality has also been reduced in Mexico to some extent, as a result of lower returns to skills after an increase in supply of workers with at least high school degrees above the increase in their demand (Campos-Vazquez et al. 2021) but exhibiting a more irregular trend (Appendix Figure A11). South Asia, on the contrary, shifts from a decline in the 1980s to an increase in the next decades (although with no information for India in the last decade).

The Middle East and North Africa region as well as Sub-Saharan Africa show more complex trends. The former region shows clear instability in its trend, shifting from a declining trend during the 1980s (37 per cent) to increasing inequality in the 1990s (54 per cent of the population), to decline again in the 2000s (59 per cent), with another increase in the 2010s (29 per cent). Sub-Saharan Africa, with limited evidence pointing to an increase in the 1980s (27 per cent), exhibits a decline in 1990s (45 versus 18 per cent), and a slight increase again in the 2000s (39 and 36 per cent) followed by a decline in the most recent decade (41 and 31 per cent). Some previous studies pointed at inequality being rather stable in most of the Sub-Saharan African region (e.g., Alvaredo and Gasparini 2015; Odusola et al. 2017), whereas Odusola et al. (2017) highlighted the great heterogeneity of distributive trends, with rising inequality in economies with growth taking place in sectors characterized by high capital and skilled labour intensity and falling in countries when growth is based in labour-intensive sectors. Simson (2018) also points at favourable market forces in agrarian societies since 2005 in West Africa as a driver of lower inequality.

Europe and Central Asia is the region that shows more mixed evidence with significant shares of the population showing increases and declines in every decade except in the 1990s, when rising inequality was the norm (76 per cent), to a large extent reflecting the transition of Eastern European countries to a market economy. Although inequality tended to decline in the last two decades for a larger share of the population (47 and 52 per cent versus 26 and 27 per cent). In European countries, rising inequality was especially detected among the top, driven by a greater dispersion in wages and salaries as well as changes in working conditions, that is, a decline in the share of workers in the middle of the workforce and increases in the proportions of workers in high- and low-skill jobs (Cohen and Ladaïque 2018).

4.3 By level of development

The general trend in each decade was also dominant among the population in all country income groups with data, with only a few exceptions, and there was no clear trend based on level of development. Appendix Tables A2–A5 summarize the results using Lorenz curves and indicators across country income groups.

During the 1980s, inequality increased for high and upper middle-income countries and declined for lower middle-income countries, in a context of almost no information for low-income countries. During the 1990s, inequality increased in all income groups except for the limited low-income countries with available information, for which decreasing inequality was the norm. It was during the 2000s that evidence shows inequality increasing for all country income groups with no exception. Similarly, inequality also increased for all country income groups in the 2010s, except for upper middle-income countries, because the trend for China remained undefined.

Looking at the same issue from another angle, Table 12 reports the correlation between change in inequality in each decade and initial level of income, as measured by GDP (in logs) in 2017 US dollar PPPs. Although there is no correlation in the 2000s and 2010s between inequality change and initial per capita income, there is a substantial negative correlation in the 1980s (poorest countries tend to exhibit largest increases in inequality) that shifts to a positive correlation in the 1990s (richest countries tend to exhibit larger increases).

Table 7: Inequality change and initial log GDP

Convergence	Correlation with initial levels of inequality					
	Final-Initial			(Final-Initial)/Initial		
	Gini	GE(0)	GE(1)	Gini	GE(0)	GE(1)
1980–90	-0.22	-0.26	-0.26	-0.13	-0.14	-0.10
1990–2000	0.27	0.30	0.26	0.28	0.25	0.27
2000–10	0.08	0.07	0.10	0.06	0.04	0.05
2010–18	-0.05	-0.07	-0.04	-0.06	-0.08	-0.06

Note: Pearson correlation coefficients.

Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).

5 Concluding remarks

In this paper, we revisited within-country inequality trends for every decade since 1980 by drawing on a novel integrated and standardized dataset, the WIID Companion (UNU-WIDER 2021b). First, despite the limited available data, we are able to use information about the entire income distribution covering between 72 per cent of the global population in the 1980s and 96 per cent in the 2000s. Second, we use a broad approach that includes both relative and absolute inequality,

and combines using Lorenz curves to produce robust results, with consensus among a set of inequality measures to gain a more holistic overview of within-country inequality trends even in cases where no Lorenz dominance can be observed.

Absolute inequality is predominantly rising for the majority of the global population, excluding countries with stagnant or negative income growth, including transition economic or conflict-affected areas, although some of these increases are relatively small in percentual terms. Overall, we observe that for a majority of the global population, relative inequality has also increased in the last four decades. However, more heterogeneous patterns arise in this case and, therefore, a more nuanced narrative is required.

The main result is that robust increasing inequality was predominant for the share of the population involved in each decade but especially in the 1990s and 2000s, while the share was more balanced in the most recent decade, 2010s. In the decade of the 2010s, we need to consider that there is no consensus among inequality measures in the case of China, and there is no information for India.

However, the result of inequality increasing for a larger share of the population, largely driven by the trends in the most populous countries like China, India, or the United States, is compatible with the fact that the number of countries exhibiting decreasing inequality was larger in the last two decades. This means that when asserting inequality within countries is increasing or declining, we need to be explicit whether we refer to the trend experienced by the majority of people or by the majority of countries. The former is directly related to the within-country component of global inequality after between-country inequalities have been removed, whereas the latter reflects the average situation when countries, not people, are taken as the unit of analysis.

Our results also confirmed a tendency to convergence in levels of relative inequality, with a clear negative correlation between initial inequality levels and changes thereof, especially during the 1990s and 2000s and weaker during the 1980s and 2010s. Furthermore, increasing relative inequality has generally dominated across all income groups, but with significant exceptions, like decreasing inequality for lower middle-income countries in the 1980s and for low-income countries in the 1990s, or the lack of consensus among upper middle-income countries in the 2010s. We only found correlation between the inequality trend and initial income in the 1980s, with poor countries exhibiting larger increases or smaller declines, and in the 1990s, with rich countries exhibiting larger increases or smaller declines. This pattern shifted to no correlation at all being observed thereafter. The trend towards higher inequality is particularly heterogeneous across geographic regions. Even during the 1990s, the decade with the strongest evidence of increasing inequality, it is important to highlight the exception of Sub-Saharan Africa and a substantial part of Latin America and the Caribbean. Most regions exhibit mixed trends depending on the period, but some patterns emerge, such as the continuous increasing inequality in North America, the increasing inequality in East Asia and Pacific (except for the last decade), or the inverted U-shape in Latin America and the Caribbean and the U-shape in South Asia.

References

- Alvaredo, F., and L. Gasparini (2015). 'Recent Trends in Inequality and Poverty in Developing Countries'. In A.B. Atkinson and F. Bourguignon (eds), *Handbook of Income Distribution* (Volume 2, Chapter 9, pp. 697–805). Amsterdam: Elsevier. <https://doi.org/10.1016/B978-0-444-59428-0.00010-2>

- Alvaredo, F., L. Assouad, and T. Piketty (2019). ‘Measuring Inequality in the Middle East 1990–2016: The World’s Most Unequal Region?’. *Review of Income and Wealth*, 65(4): 685–711. <https://doi.org/10.1111/roiw.12385>
- Amiel, Y., and F. Cowell (1992). ‘Measurement of Income Inequality: Experimental Test by Questionnaire’. *Journal of Public Economics*, 47(1): 3–26. [https://doi.org/10.1016/0047-2727\(92\)90003-X](https://doi.org/10.1016/0047-2727(92)90003-X)
- Atkinson, A.B. (1970). ‘On the Measurement of Inequality’. *Journal of Economic Theory*, 2(3): 244–63. [https://doi.org/10.1016/0022-0531\(70\)90039-6](https://doi.org/10.1016/0022-0531(70)90039-6)
- Benjamin, D., L. Brandt, and J. Giles (2005). ‘The Evolution of Income Inequality in Rural China’. *Economic Development and Cultural Change*, 53(4): 769–824. <https://doi.org/10.1086/428713>
- Brandolini, A., and T. Smeeding (2007). ‘Inequality Patterns in Western-Type Democracies: Cross-Country Differences and Time Changes’. LIS Working Paper Series 458. Luxembourg: Luxembourg Income Study (LIS). Available at: <https://www.econstor.eu/bitstream/10419/95393/1/539427225.pdf> (accessed July 2021).
- Campos-Vazquez, R.M., N. Lustig, and J. Scott (2021). ‘Mexico: Labour Markets and Fiscal Redistribution 1989–2014’. In C. Gradín, M.V. Leibbrandt, and F. Tarp (eds), *Inequality in the Developing World* (pp. 180–204). Oxford: Oxford University Press. <https://doi.org/10.1093/oso/9780198863960.003.0008>
- Cohen, G., and M. Ladaïque (2018). ‘Drivers of Growing Income Inequalities in OECD and European Countries’. In R.M. Carmo, C. Rio, and M. Medgyesi (eds) *Reducing Inequalities: A Challenge for the European Union?* (pp. 31–43). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-319-65006-7_3
- Deiningner, K., and L. Squire (1996). ‘A New Data Set Measuring Income Inequality’. *The World Bank Economic Review*, 10(3): 565–91. <https://doi.org/10.1093/wber/10.3.565>
- Ferreira, F.H.G., S.P. Firpo, and J. Messina (2021). ‘Labor Market Experience and Falling Earnings Inequality in Brazil: 1995–2012’. *World Bank Economic Review*, Article lhab005. <https://doi.org/10.1093/wber/lhab005>
- Fisher, J.D., D.S. Johnson, and T.M. Smeeding (2013). ‘Measuring the Trends in Inequality of Individuals and Families: Income and Consumption’. *American Economic Review*, 103(3): 184–88. <https://doi.org/10.1257/aer.103.3.184>
- Frazer, G. (2006). ‘Inequality and Development Across and Within Countries’. *World Development*, 34(9): 1459–81. <https://doi.org/10.1016/j.worlddev.2005.12.006>
- Gottschalk, P., and T.M. Smeeding (2000). ‘Empirical Evidence on Income Inequality in Industrialized Countries’. In A.B. Atkinson and F. Bourguignon (eds), *Handbook of Income Distribution* (Volume 1, Chapter 5, pp. 261–307). Amsterdam: Elsevier. [https://doi.org/10.1016/S1574-0056\(00\)80008-1](https://doi.org/10.1016/S1574-0056(00)80008-1)
- Gradín, C. (2020a). ‘Changes in Inequality within Countries After 1990’. <https://doi.org/10.35188/UNU-WIDER/2020/873-3>
- Gradín, C. (2020b). ‘Quantifying the Contribution of a Subpopulation to Inequality an Application to Mozambique’, *The Journal of Economic Inequality*, 18(3): 391–419. <https://doi.org/10.1007/s10888-020-09451-w>
- Gradín, C. (2021a). ‘Trends in Global Inequality Using a New Integrated Dataset’. WIDER Working Paper 61/2021. Helsinki: UNU-WIDER. <https://doi.org/10.35188/UNU-WIDER/2021/999-0>
- Gradín, C. (2021b). ‘WIID Companion (May 2021): Data Selection’. WIDER Technical Note 7/2021. Helsinki: UNU-WIDER. <https://doi.org/10.35188/UNU-WIDER/WTN/2021-7>
- Gradín, C. (2021c). ‘WIID Companion (May 2021): Integrated and Standardized Series’. WIDER Technical Note 8/2021. Helsinki: UNU-WIDER. <https://doi.org/10.35188/UNU-WIDER/WTN/2021-8>
- Gradín, C. (2021d). ‘WIID Companion (May 2021): Global Income Distribution’. WIDER Technical Note 9/2021. Helsinki: UNU-WIDER. <https://doi.org/10.35188/UNU-WIDER/WTN/2021-9>

- Gradín, C., M. Leibbrandt, and F. Tarp (eds) (2021). *Inequality in the Developing World*. Oxford, New York: Oxford University Press. <https://doi.org/10.1093/oso/9780198863960.001.0001>
- Lakner, C., and B. Milanovic (2013). ‘Global Income Distribution: From the Fall of the Berlin Wall to the Great Recession’. Policy Research Working Paper 6719, p. 62. Washington, DC: World Bank. <https://doi.org/10.1596/1813-9450-6719>
- Liu, H. (2006). ‘Changing Regional Rural Inequality in China 1980–2002’. *Area*, 38(4): 377–89. <https://doi.org/10.1111/j.1475-4762.2006.00703.x>
- Lopez-Calva, L.F., and S. Rocha (2012). *Exiting Belinidia? Lessons from the Recent Decline in Income Inequality in Brazil*. Washington, DC: World Bank, p. 64. Available at: <https://openknowledge.worldbank.org/handle/10986/12808?locale-attribute=en> (accessed July 2021).
- Meng, X. (2004). ‘Economic Restructuring and Income Inequality in Urban China’. *Review of Income and Wealth*, 50(3): 357–79. <https://doi.org/10.1111/j.0034-6586.2004.00130.x>
- Milanovic, B. (2005). ‘Half a World: Regional Inequality in Five Great Federations’. Policy Research Working Paper 3699. Washington, DC: World Bank, p. 52. <https://doi.org/10.1596/1813-9450-3699>
- Morelli, S., T. Smeeding, and J. Thompson (2015). ‘Post-1970 Trends in Within-Country Inequality and Poverty: Rich and Middle-Income Countries’. In A.B. Atkinson and F. Bourguignon (eds), *Handbook of Income Distribution* (Volume 2A, Chapter 8, pp. 593–696). Amsterdam: North-Holland <https://doi.org/10.1016/B978-0-444-59428-0.00009-6>
- Moyes, P. (1987). ‘A New Concept of Lorenz Domination’. *Economics Letters*, 23(2): 203–07. [https://doi.org/10.1016/0165-1765\(87\)90040-1](https://doi.org/10.1016/0165-1765(87)90040-1)
- Neri, M. (2021). ‘What Are the Main Drivers of Income Distribution Changes in the New Millennium?’. In C. Gradín, M.V. Leibbrandt, and F. Tarp (eds), *Inequality in the Developing World* (pp. 109–32). Oxford: Oxford University Press. <https://doi.org/10.1093/oso/9780198863960.003.0005>
- Oduola, A., G.A. Cornia, H. Bhorat, and P. Conceição (2017). *Income Inequality Trends in Sub-Saharan Africa: Divergence, Determinants and Consequences*. New York: United Nations Development Programme. Available at: <https://www.africa.undp.org/content/rba/en/home/library/reports/income-inequality-trends-in-sub-saharan-africa--divergence--dete.html> (accessed 21 June 2021).
- Pal, P., and J. Ghosh (2007). ‘Inequality in India: A Survey of Recent Trends’. UN/DESA Working Paper 45: 1–28. Available at: https://www.un.org/esa/desa/papers/2007/wp45_2007.pdf (accessed July 2021).
- Shorrocks, A.F., and G. Wan (2008). ‘Ungrouping Income Distributions: Synthesising Samples for Inequality and Poverty Analysis’. WIDER Working Paper Series RP2008-16. Helsinki: UNU-WIDER. Available at: <https://ideas.repec.org/p/unu/wpaper/rp2008-16.html> (accessed 21 June 2021).
- Simson, R. (2018). ‘Mapping Recent Inequality Trends in Developing Countries’. LSE Working Paper 24. London: London School of Economics (LSE) International Inequalities Institute.
- Simson, R., and M. Savage (2020). ‘The Global Significance of National Inequality Decline’. *Third World Quarterly*, 41(1): 20–41. <https://doi.org/10.1080/01436597.2019.1662287>
- Smeeding, T.M., and A. Grodner (2000). ‘Changing Income Inequality in OECD Countries: Updated Results from the Luxembourg Income Study (LIS)’. In R. Hauser and I. Becker (eds), *The Personal Distribution of Income in an International Perspective* (pp. 205–24). Berlin, Heidelberg: Springer. https://doi.org/10.1007/978-3-642-57232-6_10
- Székely, M., and P. Mendoza (2015). ‘Is the Decline in Inequality in Latin America Here to Stay?’. *Journal of Human Development and Capabilities*, 16(3): 397–419. <https://doi.org/10.1080/19452829.2015.1050320>
- Székely, M., and P. Mendoza (2017). ‘Declining Inequality in Latin America: Structural Shift or Temporary Phenomenon?’. *Oxford Development Studies*, 45(2): 204–21. <https://doi.org/10.1080/13600818.2016.1140134>
- UNESCO (ed.) (2016). *Challenging Inequalities: Pathways to a Just World*. Paris: UNESCO Publishing.

- UNU-WIDER (2021a). World Income Inequality Database (WIID). Version 31 May. <https://doi.org/10.35188/UNU-WIDER/WIID-310521>
- UNU-WIDER (2021b). World Income Inequality Database (WIID) Companion dataset (wiidcountry). Version 31 May. <https://doi.org/10.35188/UNU-WIDER/WIIDcomp-310521>
- World Bank (2021). World Development Indicators. Available at: <https://databank.worldbank.org/source/world-development-indicators> (accessed August 2021).
- Xie, Y., and X. Zhou (2014). 'Income Inequality in Today's China'. *Proceedings of the National Academy of Sciences*, 111(19): 6928–33. <https://doi.org/10.1073/pnas.1403158111>

Appendix A

A1 Data availability across region and level of development

Table A1: Data availability across regions and decades

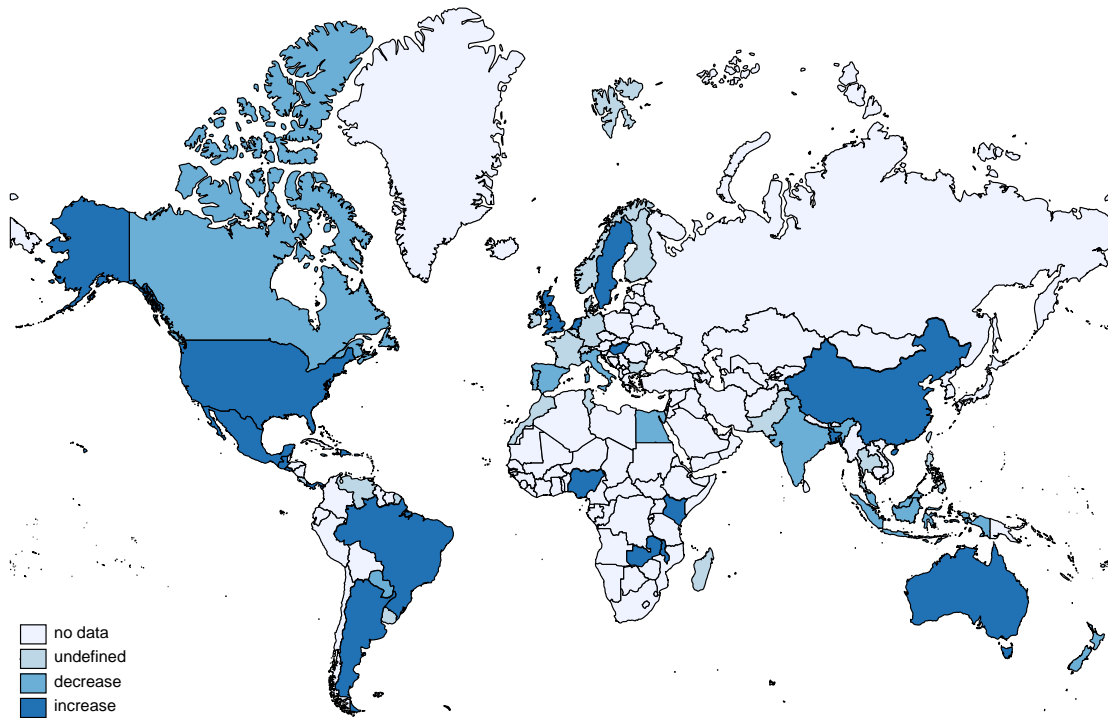
Regions	Time period			
	1980–90	1990–2000	2000–10	2010–18
North America	2	2	2	2
(% countries)	100.00	100.00	100.00	100.00
(% population)	100.00	100.00	100.00	100.00
Latin America and the Caribbean	14	21	21	19
(% countries)	41.2	61.7	61.8	61.29
(% population)	74.0	90.6	96.8	95.3
Europe and Central Asia	17	39	47	47
(% countries)	31.5	72.2	87.0	90.20
(% population)	43.6	95.1	95.2	95.5
Middle East and North Africa	4	9	14	11
(% countries)	19.1	42.8	66.7	58.82
(% population)	36.8	74.4	86.2	71.2
Sub-Saharan Africa	5	26	39	34
(% countries)	10.4	54.2	81.3	68.75
(% population)	29.1	62.5	91.6	79.9
South Asia	3	3	7	6
(% countries)	37.5	37.5	87.5	75.00
(% population)	95.6	95.4	98.2	23.9
East Asia and the Pacific	10	15	24	20
(% countries)	30.3	45.5	72.7	63.33
(% population)	82.7	89.9	96.6	97.5
High income	27	40	48	46
(% countries)	40.9	60.6	72.7	69.7
(% population)	68.9	85.0	95.8	94.4
Upper middle income	15	31	39	40
(% countries)	27.3	56.4	70.9	72.7
(% population)	78.0	95.6	98.5	98.7
Lower middle income	11	30	46	37
(% countries)	22.0	60.0	92.0	74.0
(% population)	77.4	92.8	96.9	47.7
Low income	2	14	21	16
(% countries)	6.9	48.3	72.4	55.2
(% population)	6.9	33.6	76.8	62.1
Total	55	115	154	139
(% countries)	27.5	57.5	77.0	72.19
(% population)	72.0	88.7	95.8	75.7

Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).

A2 Global trend patterns

Figure A1: Global trend patterns 1980s

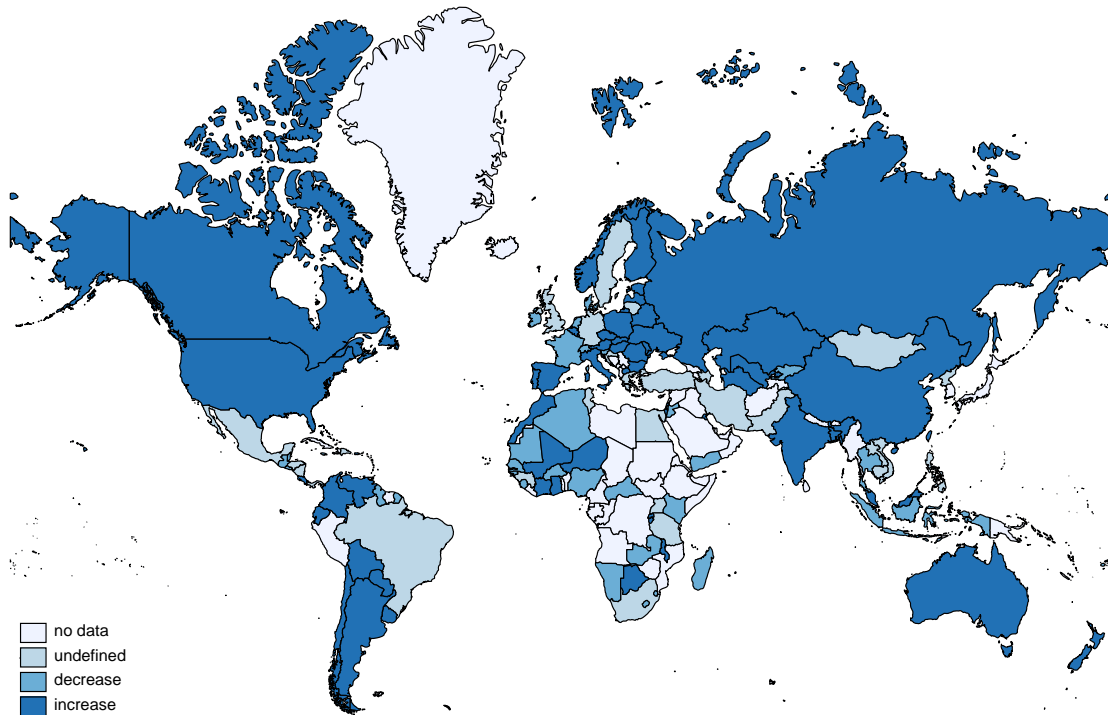
Inequality Trends 1980s - Lorenz curves



Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).

Figure A2: Global trend patterns 1990s

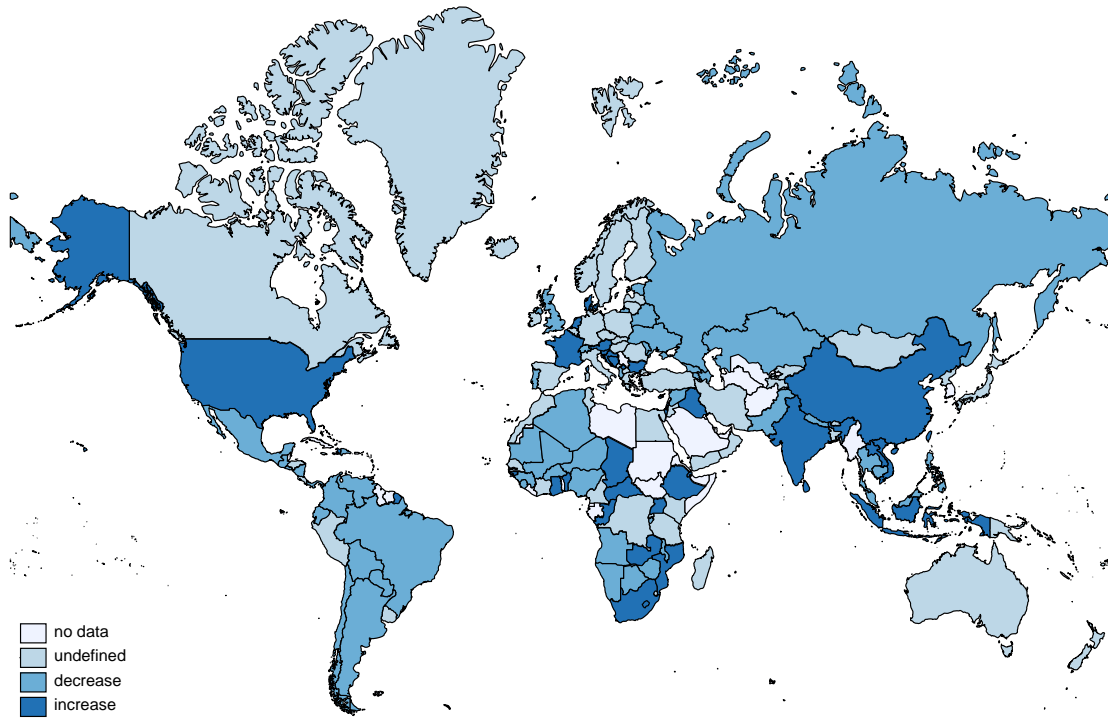
Inequality Trends 1990s - Lorenz curves



Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).

Figure A3: Global trend patterns 2000s

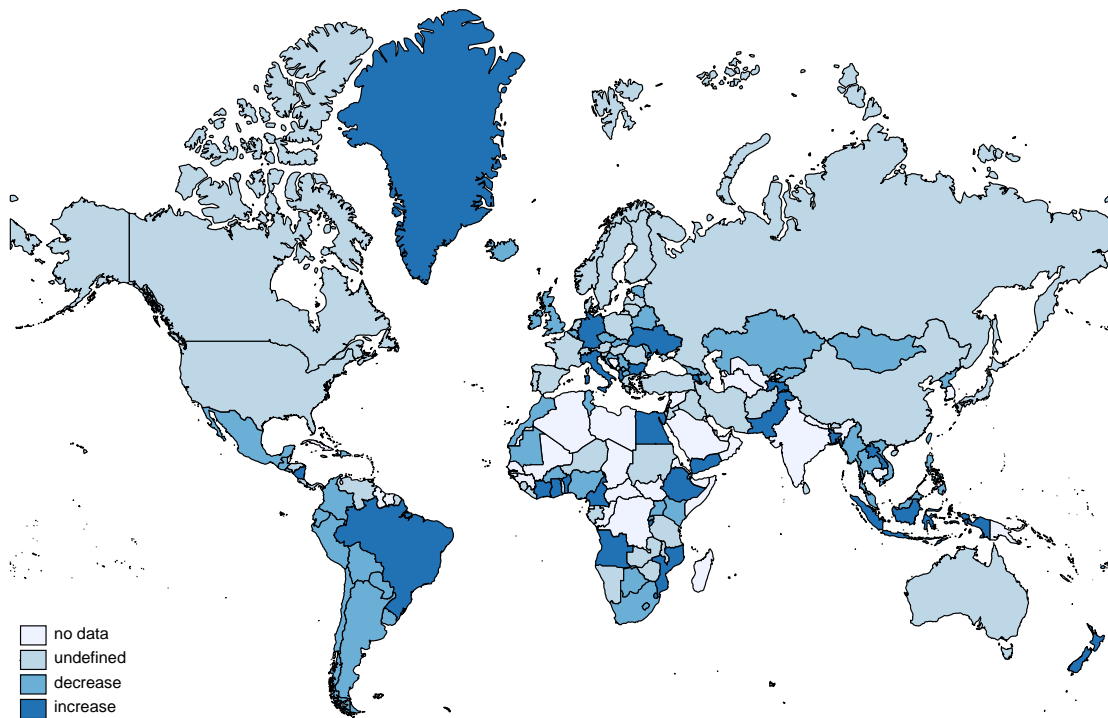
Inequality Trends 2000s - Lorenz curves



Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).

Figure A4: Global trend patterns 2010s

Inequality Trends 2010s - Lorenz curves



Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).

A3 Trend patterns across income groups

Table A2: Trend patterns across income groups in the 1980s

Income group	Trend 1980–90				
	Increase	Decrease	Undefined	No data	Total
High income	35.6	14.0	19.3	31.1	100.00
	46.9	21.5	0.5		
Upper middle income	64.9	9.2	4.0	22.0	100.00
	65.3	10.2	2.5		
Lower middle income	13.3	52.6	11.5	22.6	100.00
	19.4	54.5	3.5		
Low Income	3.1	0.0	3.8	93.1	100.00
	3.1	3.8	0.0		
Total	38.7	23.9	9.4	28.0	100.00
	43.1	26.6	2.3		

Note: all results shown in population shares (population at end of decade). First row shows results obtained from Lorenz curves. Second row shows results obtained from relative indicators. Undefined refers to no Lorenz dominance or no clear tendency (at least nine out of eleven indicators) in observed trend across indicators.

Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).

Table A3: Trend patterns across income groups in the 1990s

Income group	Trend 1990–2000				
	Increase	Decrease	Undefined	No data	Total
High income	56.6	8.5	19.9	15.0	100.00
	75.8	8.5	0.7		
Upper middle income	65.1	11.9	18.6	4.4	100.00
	72.4	23.3	0.0		
Lower middle income	61.9	10.3	20.6	7.3	100.00
	70.3	18.1	4.3		
Low Income	11.9	13.8	7.9	66.4	100.00
	11.9	21.8	0.0		
Total	59.0	10.7	18.8	11.3	100.00
	68.3	18.7	1.6		

Note: all results shown in population shares (population at end of decade). First row shows results obtained from Lorenz curves. Second row shows results obtained from relative indicators. Undefined refers to no Lorenz dominance or no clear tendency (at least nine out of eleven indicators) in observed trend across indicators.

Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).

Table A4: Trend patterns across income groups in the 2000s

Income group	Trend 2000–10				
	Increase	Decrease	Undefined	No data	Total
High income	37.5	9.3	49.0	4.2	100.00
	47.4	16.0	32.4		
Upper middle income	63.2	28.1	7.2	1.5	100.00
	63.8	34.6	0.0		
Lower middle income	55.1	24.5	17.3	3.1	100.00
	63.6	29.0	4.3		
Low Income	32.3	20.7	23.8	23.2	100.00
	39.9	24.7	12.2		
Total	53.5	23.0	19.2	4.2	100.00
	59.1	28.7	28.7		

Note: all results shown in population shares (population at end of decade). First row shows results obtained from Lorenz curves. Second row shows results obtained from relative indicators. Undefined refers to no Lorenz dominance or no clear tendency (at least nine out of eleven indicators) in observed trend across indicators.

Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).

Table A5: Trend patterns across income groups in the 2010s

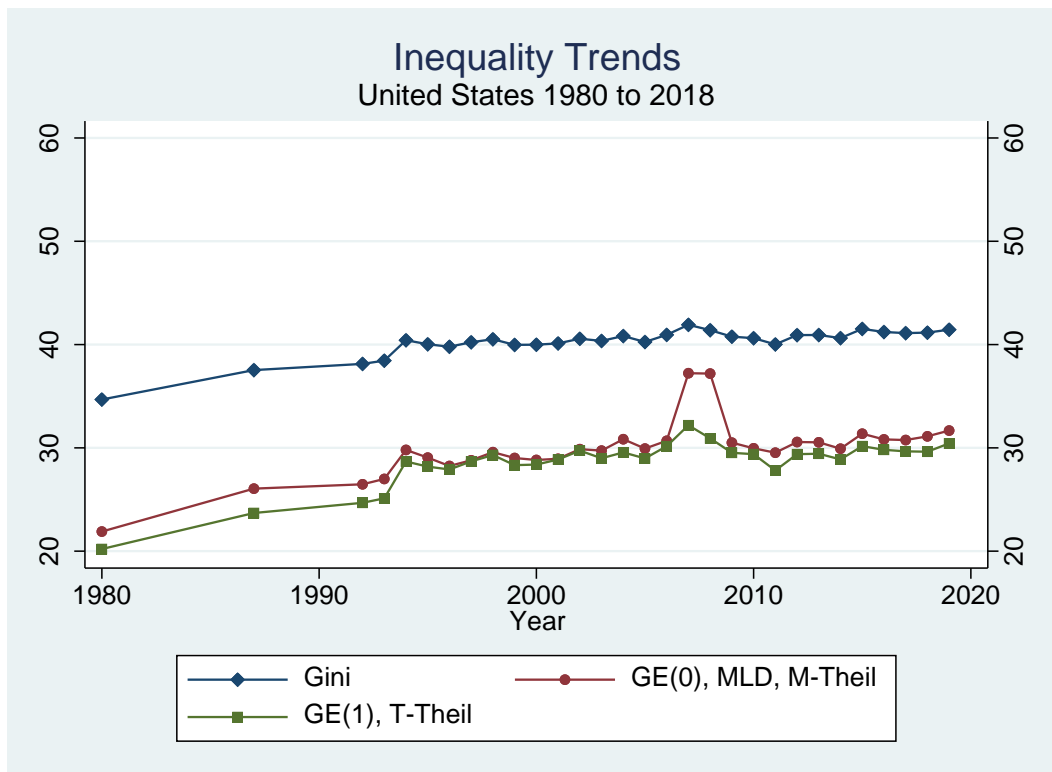
Income group	Trend 2000–10				
	Increase	Decrease	Undefined	No data	Total
High income	12.2	16.5	65.8	5.6	100.00
	41.7	46.9	5.8		
Upper middle income	17.0	18.2	63.5	1.3	100.00
	18.1	23.7	56.9		
Lower middle income	22.8	20.5	4.3	52.3	100.00
	25.5	21.6	0.5		
Low Income	28.8	11.8	21.5	37.9	100.00
	37.9	19.5	4.7		
Total	19.4	18.3	38.0	24.4	100.00
	26.4	26.3	24.0		

Note: all results shown in population shares (population at end of decade). First row shows results obtained from Lorenz curves. Second row shows results obtained from relative indicators. Undefined refers to no Lorenz dominance or no clear tendency (at least nine out of eleven indicators) in observed trend across indicators.

Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).

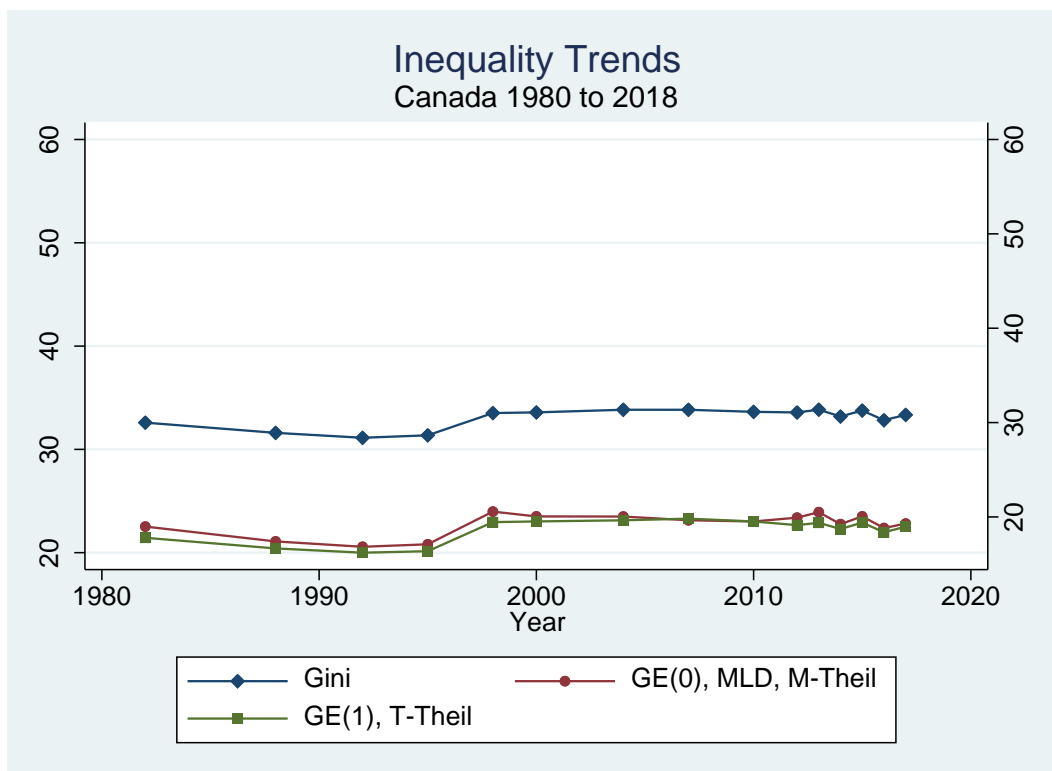
A4 Selected country trends

Figure A5: United States



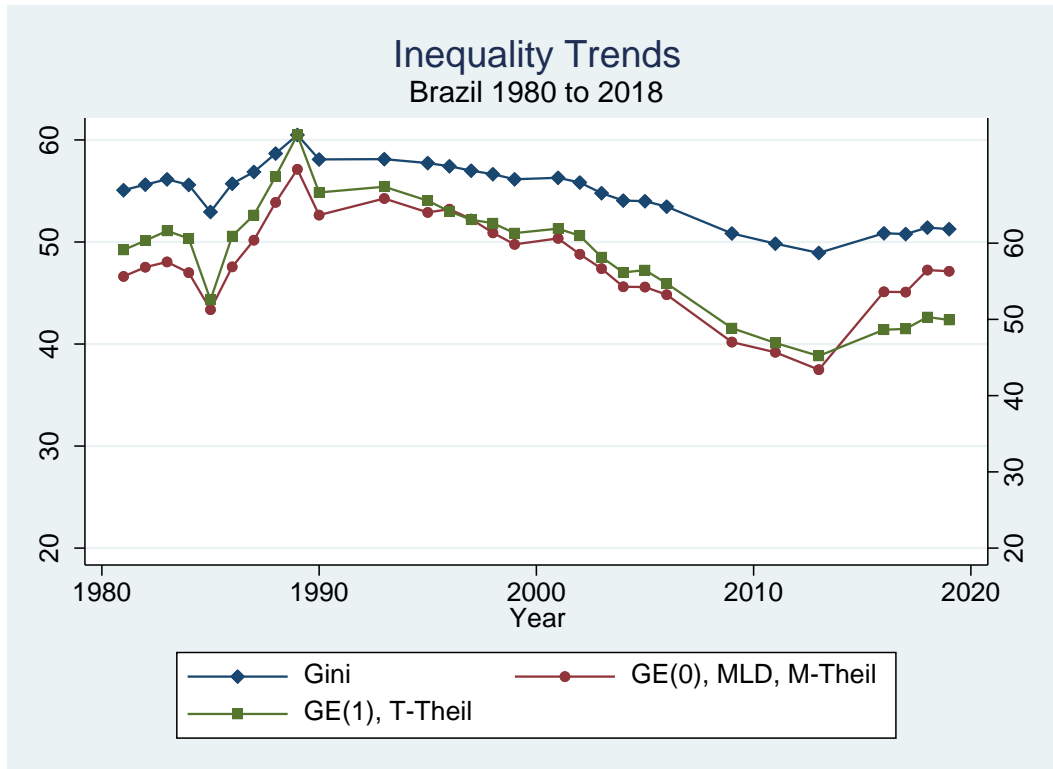
Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).

Figure A6: Canada



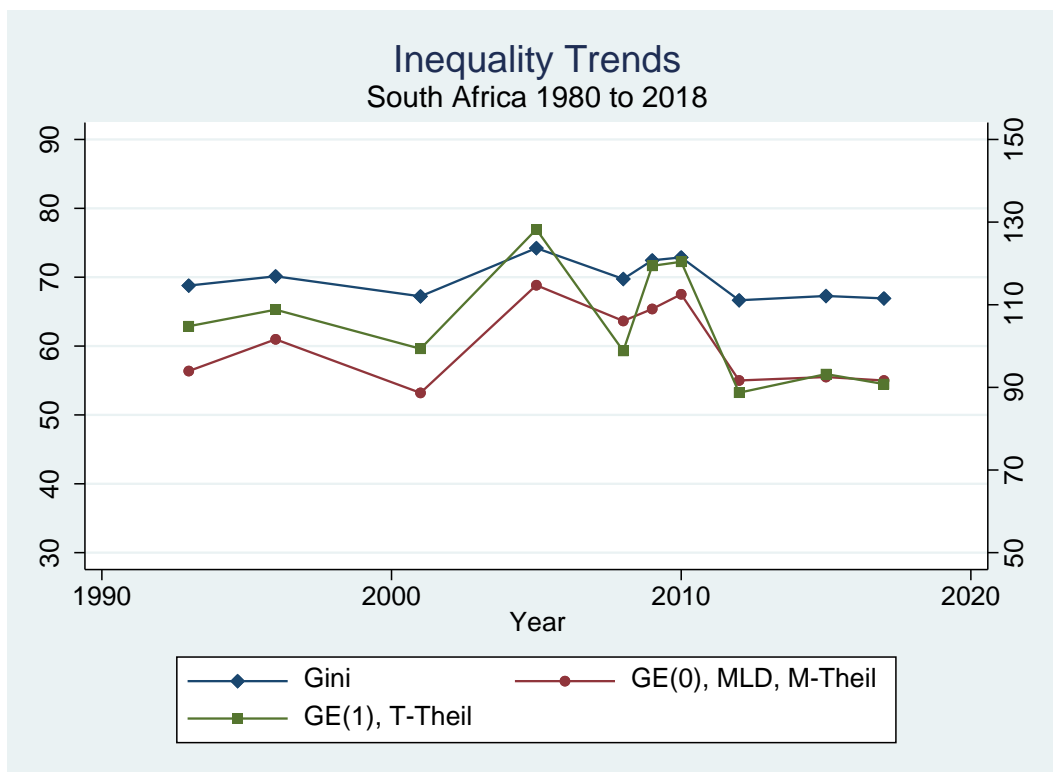
Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).

Figure A7: Brazil



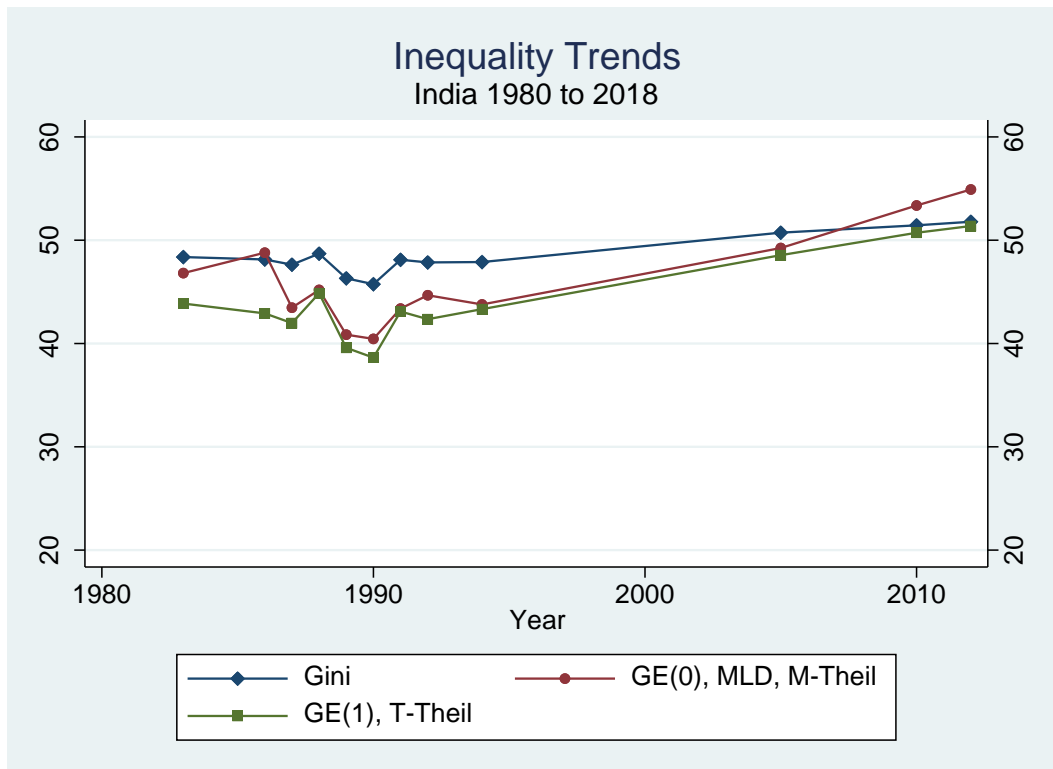
Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).

Figure A8: South Africa



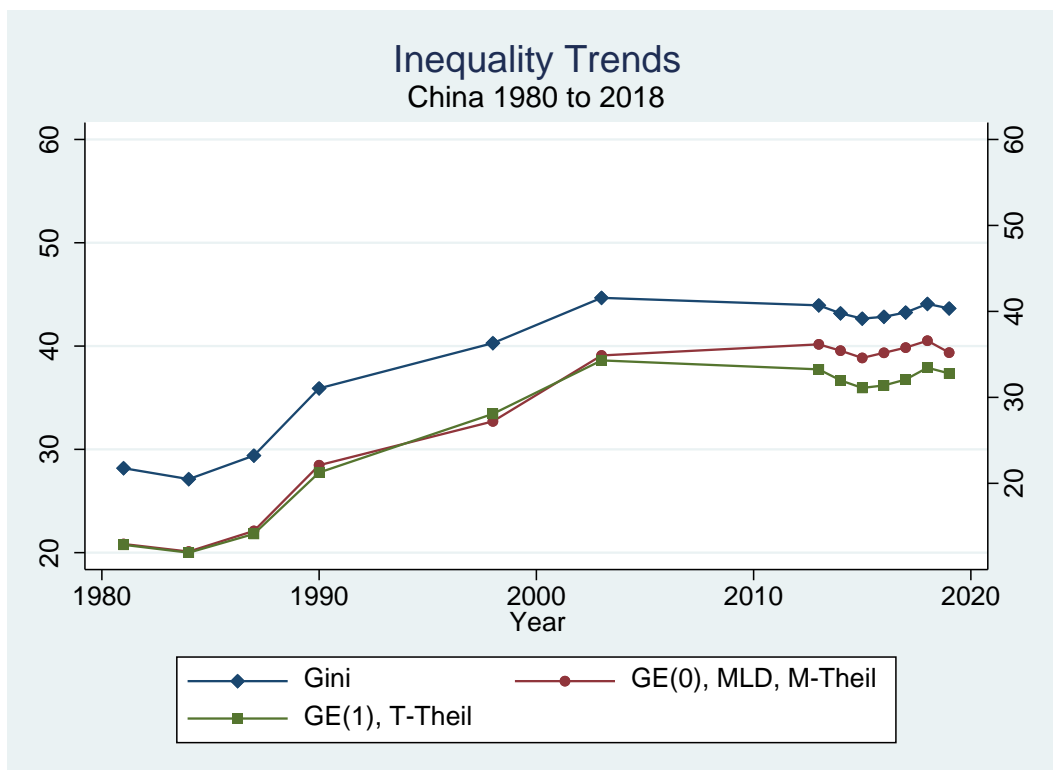
Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).

Figure A9: India



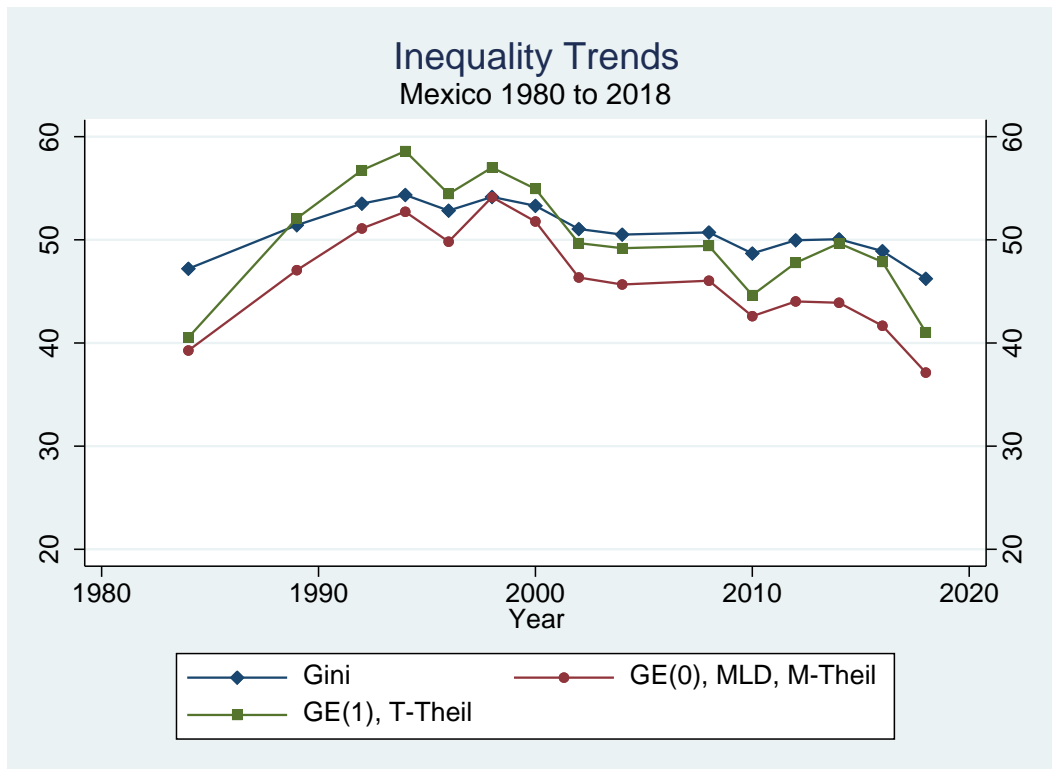
Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).

Figure A10: China



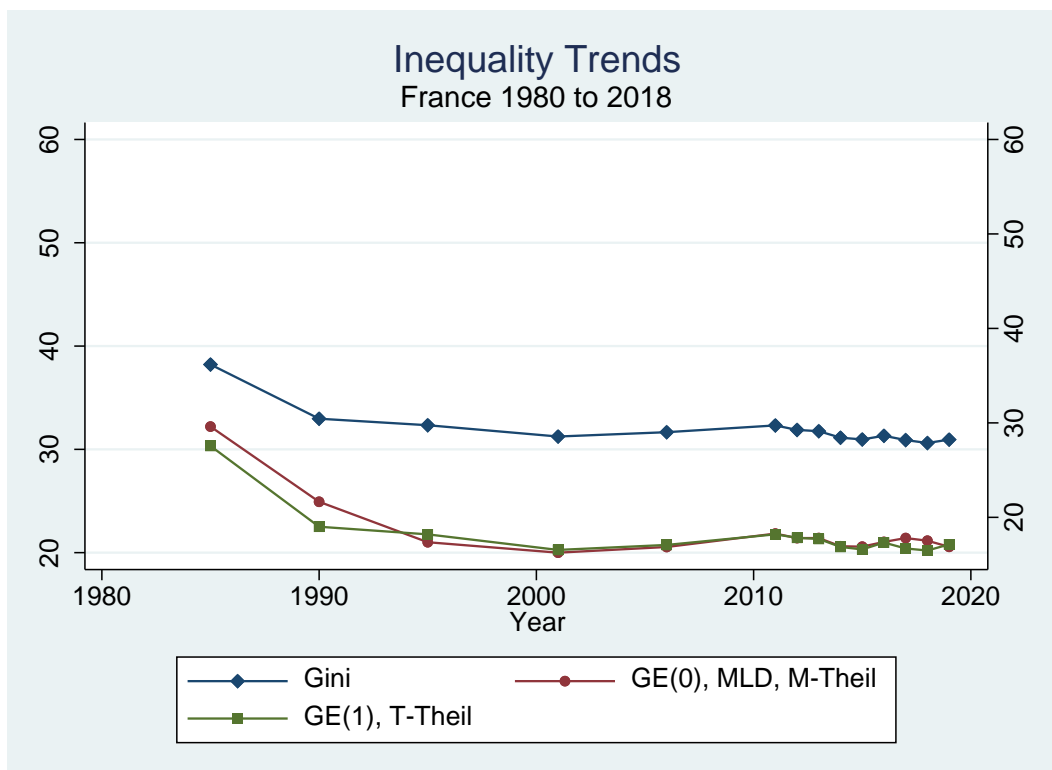
Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).

Figure A11: Mexico



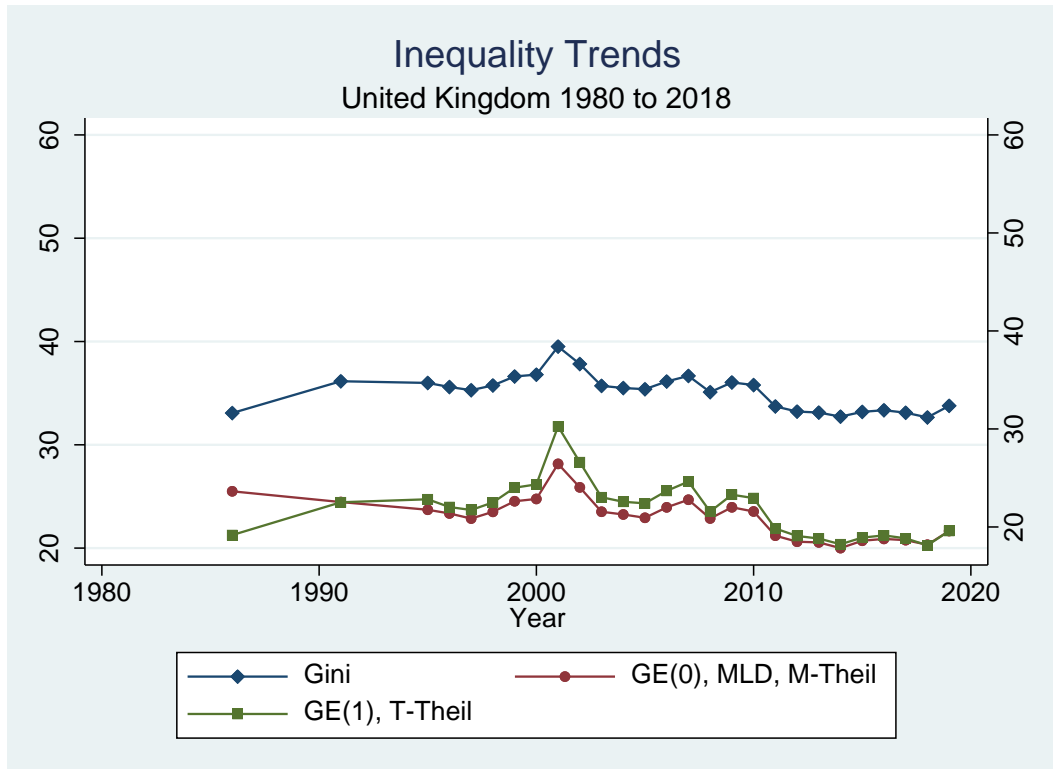
Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).

Figure A12: France



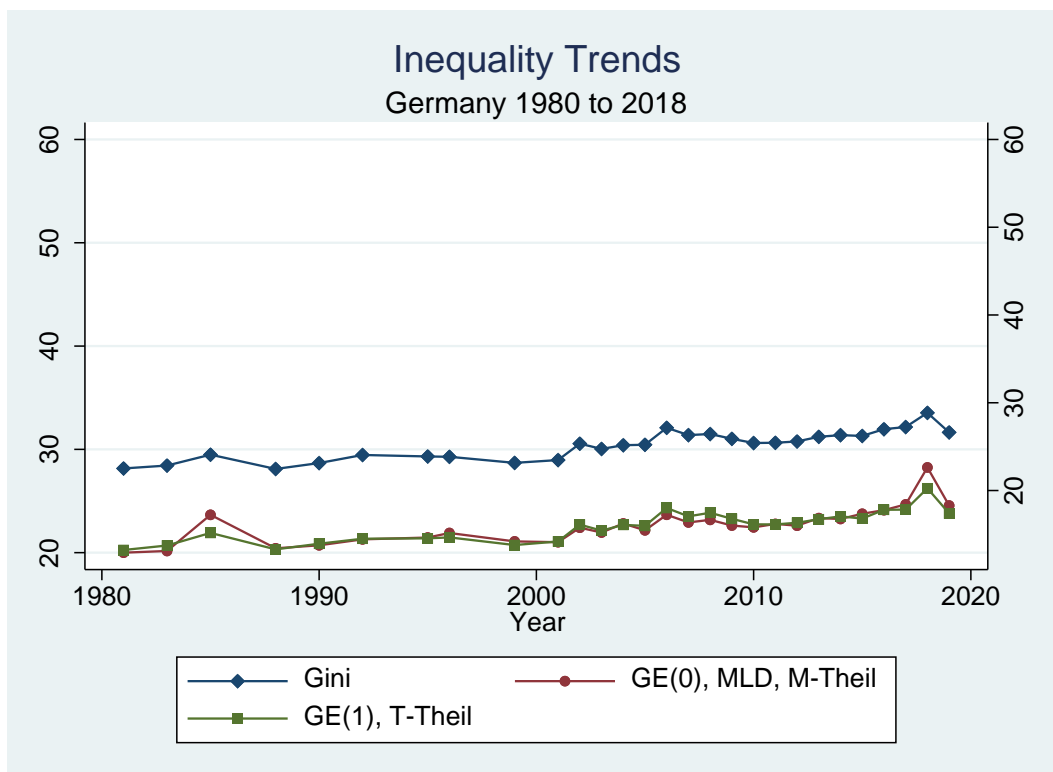
Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).

Figure A13: United Kingdom



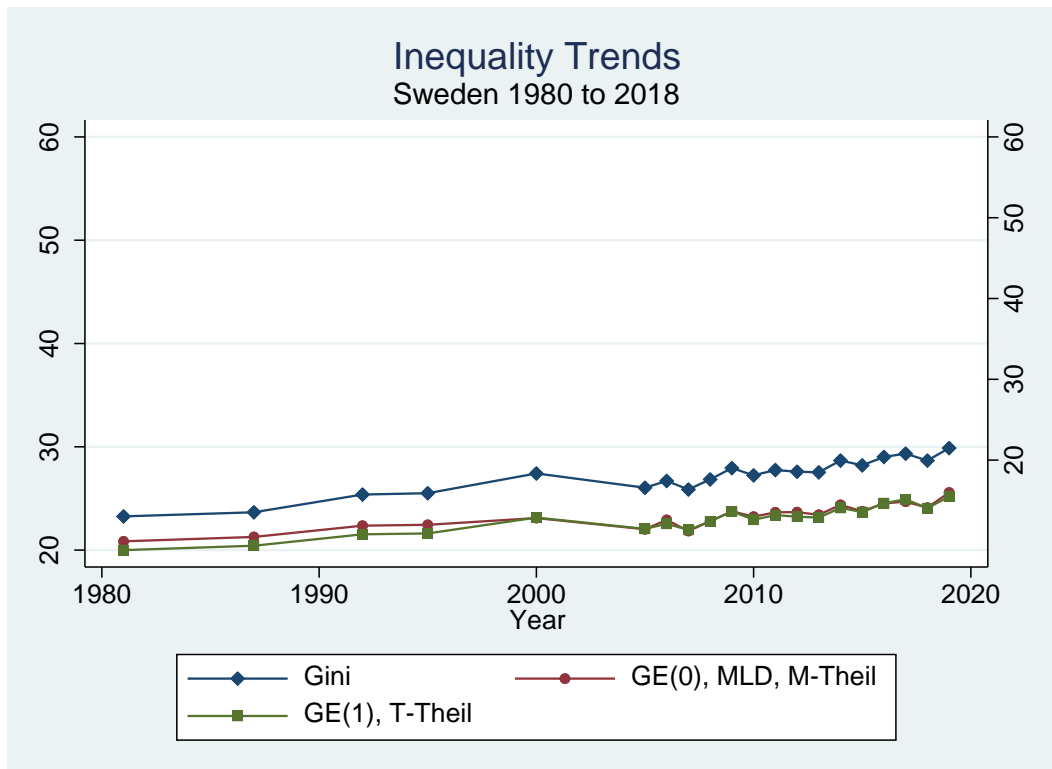
Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).

Figure A14: Germany



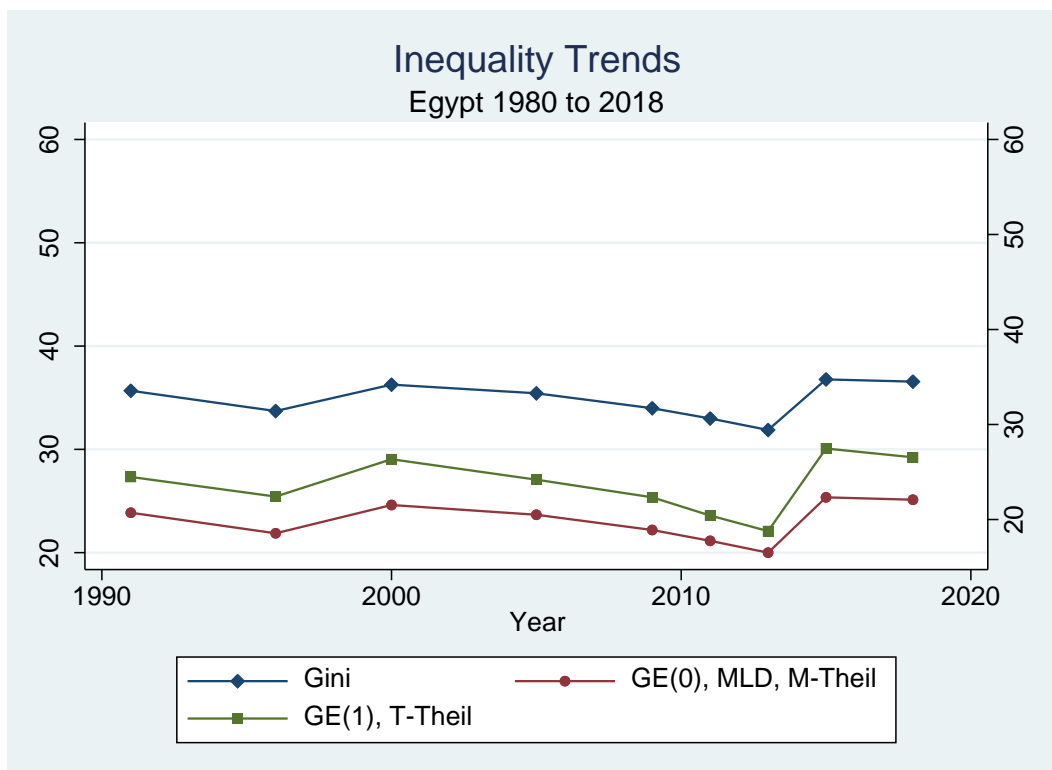
Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).

Figure A15: Sweden



Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).

Figure A16: Egypt



Source: authors' construction based on WIID Companion (UNU-WIDER 2021b).