On Data and Trends in Income Inequality around the World

Florian Dorn[1]

The extent, drivers and consequences of income inequality are one of the most hotly debated issues in politics and research in recent years. In response to the enormous interest in income inequality, a growing number of cross-national inequality databases are now available. This article discusses these databases and describes trends in income inequality (within selected countries) around the world.

Causes and consequences – why do we care about income inequality?

In the discussion on inequality it is important to distinguish between inequality of outcomes, and inequality of opportunities due to differences in circumstances that are beyond individuals' control.[2] However, opportunities and outcomes are closely related to each other, especially in an intergenerational context. Parental income and wealth, for example, may result from the parents' own efforts on the one hand, and may influence their children's access to a good education, healthcare services and the ability to earn a high income on the other.

Income inequality itself arises from a combination of an individual's effort and talent and his/her opportunities, for example socioeconomic background of his/her parents as well as access to education, healthcare and financial services. If inequality undermines individuals' efforts, education choices and social mobility, however, citizens may lose confidence in institutions and the political system. Political and social instability due to inequality, in turn, may reduce investments and subsequently economic growth in the country (see Alesina and Perotti 1996).

Apart from investments, research results suggest that income distribution within countries matters for sustainable growth by affecting diverse growth drivers, such as human capital accumulation, innovation incentives, labor productivity, and aggregate demand (for an overview, see Dabla-Norris et al. 2015, 6ff.; OECD 2015, 60ff.). Theoretical predictions and empirical evidence on the relationship of income inequality and economic growth are ambiguous.

On the one hand, higher inequality may shift the preferences of the population and politicians towards more regulation and redistribution policies such as, for example, greater protectionism and redistribution (e.g. via higher taxation), which may, in turn, hamper economic growth (see Okun 1975; Bertola 1993; Alesina and Rodrik 1994; Persson and Tabellini 1994; Perotti 1996; Claessens and Perotti 2007). Higher income inequality may also negatively impact health and education outcomes if access to education and healthcare primarily depends on income.[3] This would result in lower growth rates due to the inefficient allocation of human capital and lower labor productivity in the long run than in more equitable societies (see Galor and Zeira 1993; Perotti 1996; Aghion, Caroli and Garcia-Penalosa 1999; Galor and Moav 2004; Stiglitz 2012; Cingano 2014; Ostry, Berg and Tsangarides 2014; OECD 2015).

On the other hand, some degree of inequality may provide incentives for people to make efforts, to invest and to move ahead in life, which could, in turn, boost education and innovation outcomes, entrepreneurship,

[1] Ifo Institute. The author thanks the Hanns-Seidel-Foundation for funding and Kristin Fischer for providing excellent research assistance.

[2] Outcomes are, for example, income, wealth, expenditure, education, or health. Differences in circumstances beyond the individuals' control that may shape opportunities include, for example, ethnicity, family background, gender, or location of birth.

[3] Low income earners have a budget restriction, as there is a fixed amount of income they need for consumption. Under the assumption of financial market imperfections, it is reasonable to assume that low income earners also have higher restrictions in their access to credits. Therefore, they do have less money to invest in education, which impacts the long-term productivity of the economy when the share of low income earners is high.

labor productivity, and thus economic growth (see Lazear and Rosen 1981; Barro 2000; Baumol 2007).[4] As richer income deciles have higher saving rates than their poorer counterparts, income inequality is associated with higher aggregate saving (see Dynan, Skinner and Zeldes 2004). Higher aggregate savings may increase investment, production possibilities and in turn the output level for all individuals (see Kaldor 1955, Bourguignon 1981). Thus, income inequality is not necessarily bad. Instead, it could be a precondition for increasing everyone's income in real terms. In theory, everyone could be better off, even if inequality rises. Ultimately, this is an empirical question.

Empirics suggest a nonlinear relationship between income inequality and growth that depends on the inequality level, the time dimension, as well as the development level in the country in question. Barro (2000), for example, describes that the relationship between income inequality and economic growth is negative in less developed countries, but positive in advanced economies. Chen (2003) proposes an inverted-U relationship between initial income distribution and long-term growth. Halter, Oechslin and Zweimüller (2014) suggest that higher income inequality helps economic performance in the short-run but reduces economic growth in the long-run. Kolev and Niehues (2016) describe the relationship as positive for advanced economies as long as the net income inequality level is not too high.[5]

Due to the potential consequences of income inequality, the literature on this topic also discusses several possible drivers of income inequality such as technological change, globalization, financial deepening, outsourcing and offshoring-activities. These drivers may all change relative demand for factors like capital, and skilled and unskilled labor – and, in turn, the relative skill-premium (see i.a. Stolper and Samuelson 1941; Acemoglu 1998; Aghion, Caroli and Garcia-Penalosa 1999; Card and Dinardo 2002; Feenstra and Hanson 1996, 1999). Regional disparities, changing demographic and household composition, as well as policies like redistribution or de-regulation and changes in labor market institutions, may also affect the income distribution within countries (see i.a. OECD 2011; Peichl, Pestel and Schneider 2012; Dabla-Norris et al. 2015).

[4] Incentives also depend on fairness perception of wages (see Akerlof and Yellen 1990; Cohn, Fehr and Goette 2014).

[5] The threshold is identified at a Gini net income inequality level of around 0.35 (Kolev and Niehues 2016).

Measuring income inequality – concepts and pitfalls

Income inequality is typically measured by the income shares of the population (for instance, by deciles or quintiles), the relation of income shares (for instance, (for instance, the income ratio of the top 10% to that of the median income, "P90/50", to that of the lowest income decile, "P90/10", or to the income of the bottom 40%, "Palma Ratio") or indices like the Atkinson index, Theil index or Gini index. The Gini index is the most widely used measure of income inequality in cross-national databases. The index coefficient is derived from the Lorenz curve and is produced by the seminal work of Corrado Gini (1921).[6] For a completely egalitarian income distribution, in which everyone in the population has the same income, the coefficient takes a value of 0. A Gini coefficient of 1 (or 100%) indicates that the total income of a country is concentrated in one person (or household), and all others have none – so it is the value of maximum inequality.

Gini coefficients are often non-comparable, because they are based on different sources and welfare concepts. Thus, there are different combinations in which Gini coefficients can be constructed:

Income or consumption/expenditure-based concepts

Gini measurements can be based on consumption and expenditure or the income of the observed statistical units. According to Atkinson and Bourguignon (2000), none of these concepts enjoys any clear advantage. On the one hand, consumption is smoother and less variable over time than income. African and Asian surveys, for example, prefer to collect detailed consumption data. On the other hand, the use of consumption raises problems of definition and observation. In the industrialized world, as well as Latin America, inequality is predominantly assessed with reference to income, not consumption (see Deaton and Zaidi 2002).

Labor and capital income

The total income of an economy can be allocated by labor and capital income – this reflects incomes based on wages or profits. Different datasets and studies use different measures to analyze inequality – such as inequality in wage incomes, overall labor incomes (including earnings by self-employment), or total incomes including capital gains (returns from investments). Scholars

[6] Scholars have devised several variants of writing the Gini coefficient (see Yitzhaki 1998).

should be aware of the data they are using. Inferences can change by using different datasets and compositions of statistical units. Inequality in wages, for example, can rise if more people switch from unemployment into a low-wage-sector employment; simultaneously, overall household income inequality can decline, if these low-wage incomes generate higher earnings than unemployment benefits did previously. Battisti, Felbermayr and Lehwald (2016) show, for the example of Germany, that a low level of unemployment is likely to imply higher levels of measured inequality in wages among the employed, due to a change in the composition of the employed population. At the same time the low unemployment level is likely to diminish inequality among the working-age population as a whole.

Statistical unit, household definitions and equivalence scales

The unit of analysis can be based on the individual or household level. In practice, households are often used as the basic statistical unit. However, due to economies of scale in consumption, the needs of a household do not grow in a proportional way with each additional member. Therefore, household observations are often adjusted by equivalence scales to take into account the relative need of different household sizes and the age of its members. There is no standardized way of adjusting scales across datasets and surveys, such that a wide range of equivalence scales exists (see Atkinson, Rainwater and Smeeding 1995). Available datasets across and within countries often differ in household definitions and weighting by equivalence scales; and this may affect the comparability and validity of estimates.

Market or net income inequality

Inequality measures such as Gini coefficients can be provided by using the market income (total income before redistribution), or the net income (disposable income after redistribution by taxation and transfers) of the observed statistical unit.

Due to the bundle of possible combinations and differences, various databases can lead to different results and conclusions about inequality dynamics in certain countries and periods.

Atkinson and Brandolini (2001, 2009), for example, show how levels and trends in distributional data can be affected by data choices. Researchers using income inequality data to compare trends within or across countries should be aware of the pitfalls if they combine various data sources.

Cross-national income inequality databases

Inequality can be measured as income distribution among all people at the global level, the distribution of income between countries, and the distribution among people within countries. Table 1 presents several world income inequality databases with a main focus on the latter, its included indicators, as well as the coverage of countries and periods within the database, respectively. The databases are differentiated by the sources of the data included – microdata-based, secondary source-based, and imputation-based datasets.

The first group of datasets is based on microdata, primarily released from household surveys or official statistics on tax returns. There is a general consensus that the Luxembourg Income Study (LIS) is the best option for receiving comparable data across (high income) countries, because its reliable microdata is based on national household income surveys using a standardized questionnaire. LIS is the only source, to date, that provides inequality statistics by using a uniform set of assumptions and definitions based on microdata that has been harmonized to maximize its comparability (see Solt 2016, 2). Like many available standardized microdata-based datasets, LIS data are available for a small country sample and small number of country-year observations only, as the data is not collected every year. Non-standardized datasets, on the other hand, achieve greater coverage at the expense of less cross country comparability. This reflects the fundamental trade-off between a broader coverage of countries and time, and a greater comparability across countries and time (see Ferreira, Lustig and Teles 2015). The use and misuse of inequality datasets, together with the search for the best suitable dataset, featuring a big cross-national and temporal coverage, is under intensive discussion at present (see i.a. Ferreira, Lustig and Teles 2015; Jenkins 2015; Solt 2015; Smeeding and Latner 2015).

While bigger microdata-based datasets often have many gaps in country-year-observations, secondary source datasets like the World Income Inequality Database (WIID) by UNU-WIDER (2015) and the '*All-the Ginis*' dataset by Milanovic (2014) combine different datasets to achieve a higher coverage. Both Gini databases are closely related to the seminal Gini dataset work of Deininger and Squire (1996), which was of-

Table 1

Selected income inequality datasets

	Income inequality indicators	Welfare concept	Country coverage	Period coverage	Further comments on the dataset	Source
Microdata based datasets						
CEPALSTAT.	Gini index; Theil index; Atkinson index; logarithmic variance; income shares; decile ratios.	Household gross income (=market income + transfers), not equivalence-scaled.	18 countries , Latin America and the Caribbean exclusively.	1989–2014	Ex-post standardization. Less standardized to achieve greater coverage and accurate calculation of indicators. Data released by national statistical offices.	UN CEPALSTAT; data available on: <*http://estadisticas.cepal.org/cepalstat/WEB_CEPALSTAT/Portada.asp*>.
Deininger-Squire.	Gini index; income shares of quintiles.	Household and individual income.	138 countries.	1890–1996	Household survey data.	Deininger and Squire (1996).
IDD (Income Distribution Database).	Gini index; average and median net household incomes; poverty indicators.	Equivalized household income (market, net, gross).	36 countries, primarily advanced economies.	1974–2014	Indicators are released by several country data providers, such as household surveys, tax registers and administrative records from national statistical offices, ministries or research institutes. Less standardized to achieve greater coverage and accurate calculation of indicators. Ex-post customized.	OECD; data available on: <*http://www.oecd.org/social/income-distribution-database.htm*>.
LIS (Luxembourg Income Study).	Gini index; Theil index; Atkinson index; income shares; decile ratios.	Equivalized household income and per capita income (market and net income).	48 countries, primarily advanced economies.	1967–2014	Ex-post standardization. Standardized questionnaire to achieve comparability across countries.	LIS Database; data available on: <*www.lisdatacenter.org*>.
SEDLAC (Socio-Economic Database for Latin America and the Caribbean).	Gini index; Theil index; Atkinson index; income shares; decile ratios.	Household and per capita income.	23 countries, Latin America and the Caribbean exclusively.	1974–2014	Ex-post standardization.	CEDLAS and World Bank; data available on: <*http://sedlac.econo.unlp.edu.ar/eng/*>.
SILC (Survey of Income and Living Conditions).	Gini index.	Equivalized net household income.	36 countries, primarily EU-countries.	2004–2015	Framework of harmonized variables, common guidelines, procedures, concepts and classifications to ensure comparability across countries.	Eurostat; data available on <*http://ec.europa.eu/eurostat/web/income-and-living-conditions*>.
PovcalNet, WDI (World Development Indicators).	Gini index; Theil index; income shares by decile.	Variation of per capita income and consumption, depending on country.	174 countries.	1974–2015	Based on household survey data. No harmonization across countries. Ex-post customized.	World Bank; data available on <*http://iresearch.worldbank.org/PovcalNet/home.aspx*>.
WID (World Wealth and Income Database); known as WTID (World Top Income Database) until 2015.	Income share earned by certain groups at the top of the income distribution (Top 10%, 5%, 1%, 0.5%, 0.1%, 0.01%, 0,005%).	Variation of household and per capita market income.	43 countries.	1810–2015	Microdata information released from tax returns.	Alvaredo et al. (2016); data available on <http://www.wid.world.>.
WYD (World Income Distribution).	Average per capita income/consumption per decile.	Individual income and consumption.	approx. 120 countries.	1988–2008	Based on household survey data.	Milanovic (2002, 2005, 2012); data available on:<*http://go.worldbank.org/IVEJIU0FJ0*>; and updated on Milanovic's university website.
Secondary sources based datasets						
ATG (All the Ginis).	Gini index.	Different welfare concepts depending on secondary source data.	166 countries.	1950–2015	All Ginis coming from nationally representing household surveys – released from various sources, such as published research papers, primary and secondary sources (e.g. LIS, SEDLAC, SILC, WYD, PovcalNet, WIID). Multiple entries for the same country and year.	Milanovic (2016); data available on: <*http://go.worldbank.org/9VCQW66LA0*>; and updated on Milanovic's university website.
LM-WPID *(Lakner-Milanovic World Panel Income Distribution).*	"Global" Gini index; Atkinson index; Theil index; Interpersonal global income inequality, based on national income deciles.	Average income or consumption of country-deciles. Per capita (no equivalence-scale effects).	162 countries.	1988–2008	Based on 565 different household surveys. Based on secondary sources (e.g. PovcalNet, WYD, LIS, SILC, and national household surveys). Household survey deciles are weighted by population. Each individual is assigned the income of his or her national income decile. Expressed in common currency and prices (PPP 2005).	Lakner and Milanovic (2015); data available on: <*http://go.worldbank.org/NWBUKI3JP0*>. and updated on Milanovic's university website.
UTIP *(University of Texas Income Project).*	Theil index; industrial pay-inequality measures.	Per capita income.	149–167 countries.	1963–2008	Derived from industrial, regional, and sectoral data, the World Bank's Deininger and Squire (1996) dataset, and other conditional variables.	Galbraith (2009); data available on: <*http://utip.lbj.utexas.edu/data.html*>.
SIDD *(Standardized Income Distribution Database).*	Gini index.	Per capita, market income or expenditure.	143 countries.	1960–1999	Based on secondary source (namely WIID).	Babones and Alvarez-Rivadulla (2007).
WIID *(World Income Inequality Database).*	Gini index; deciles; quintiles; P5; P95.	Household net income or expenditure, with and without adjustment for household size.	179 countries.	1867–2012	Based on various secondary sources such as published research papers or primary databases (e.g. LIS, SEDLAC, WDI). Provides "best" Gini proposals.	UNU-WIDER; data available on: <*https://www.wider.unu.edu/project/wiid-world-income-inequality-database*>.
Imputation based datasets						
GCIP *(Global Consumption and Income Project).*	Gini index; Atkinson index; Theil index; mean to median ratio; Palma ratio; P90/P10; mean log deviation; income shares.	Monthly real consumption and income per capita levels; and shares by decile.	More than 160 countries.	1960–2015	Based on secondary sources and multiple imputation methods.	Lahoti, Jayadev and Reddy (2015); data available on: <*http://gcip.info/*>.
SWIID *(Standardized World Income Inequality Database).*	Gini index.	Standardized adult-equivalent household market and net income.	176 countries.	1960–2015	Based primary and secondary sources (e.g. LIS, CEPALSTAT, SEDLAC, WDI, WIID). High coverage with respect to country-year-observations achieved through multiple-imputation-methods.	Solt (2016); data available on: <http://fsolt.org/swiid/>.

Note: Status as of November 2016. Period coverages include many country-year observation gaps.

Source: The author, updated by Kristin Fischer.

ten used in previous studies. WIID and *'All-the-Ginis'* consist of a large set of inequality statistics from several primary microdata datasets, supplemented by data from published research papers. However, the included observations are largely non-comparable across countries or over time within a single country.[7] Moreover, the global and constant adjustment strategies applied between the different measures across countries and time are likely to produce systematic errors in the data and estimation results. For example, Milanovic (2014) recommends using *'All-the-Ginis'* in the empirical strategy by including dummy variables. The dummies are assumed to correct for different Gini coefficient types being used within the same regression. This approach implicitly assumes that differences between various coefficients, for example market and net income inequality measures, remain constant across all world regions and over time. This assumption seems to be quite unlikely.

A third group of databases, like the Standardized World Income Inequality Database (SWIID) by Solt (2009, 2016), uses various imputation-techniques to estimate the ratios of different coefficients and to create comparable data availability. SWIID also incorporates Atkinson and Brandolini's (2001) recommendations to provide the most comparable data available for broadly cross-national research on income inequality.

The more flexible adjustment procedure is the main reason why SWIID is preferable to *'All-the-Ginis'* and WIID. Moreover, unlike most other databases, SWIID provides Gini inequality measures for market and net outcomes based on the same concept, and therefore allows to compare income inequality before and after redistribution. The new SWIID version 5.1 covers 176 countries between the years 1960 and 2015 and allocates more comparable country-year observations than any alternative database at that moment.[8] The database uses the LIS series as a baseline to which other included source data is standardized. In the new expanded version, Solt (2016) uses information from more sources than previously to generate model-based multiple imputation estimates for the missing observations in the LIS series.[9] By exploiting systematic relationships between different Gini types, the Gini coefficients of the SWIID are estimated on the basis of eleven different combinations of welfare definitions and income scales.[10] Nevertheless, there are some criticisms concerning the reliability of the results based on Solt's imputation technique strategy – especially for less developed countries, which provide few and less reliable baseline observations (see Jenkins 2015; Solt 2015; Wittenberg 2015).

Income inequality trends around the world

Studies measuring global income inequality among all people around the world show a very high level of inequality in per capita income disparities. However, due to the income convergence of several emerging countries, as well as a reduction in global poverty rates, a trend towards a decline in inequality has emerged over the last few decades (see Milanovic 2013; Lakner and Milanovic 2015; Lahoti, Jayadev and Reddy 2015).

I use market and net income Gini coefficients from from Solt's (2016) SWIID to present some trends in within-country income inequality for selected countries around the world in Figures A-D. The gap between market and net income inequality indicates the redistributive power of the welfare system of each country: the higher the gap, the higher the equalization of incomes by taxes and transfers (redistribution). The figures also include the 95%-confidence region of each country-year Gini coefficient estimate to illustrate the uncertainty of each estimated Gini coefficient. The figures show that estimates of the Gini indices are more certain in more recent years. Moreover, there is a lack of Gini observations in several countries in previous years, even in some developed countries such as Austria, Luxembourg or Switzerland, which is particularly pronounced prior to 1980.

In most Western European countries market income inequality has increased since the early 1980s (see Figures A). Net income inequality, however, has not risen as

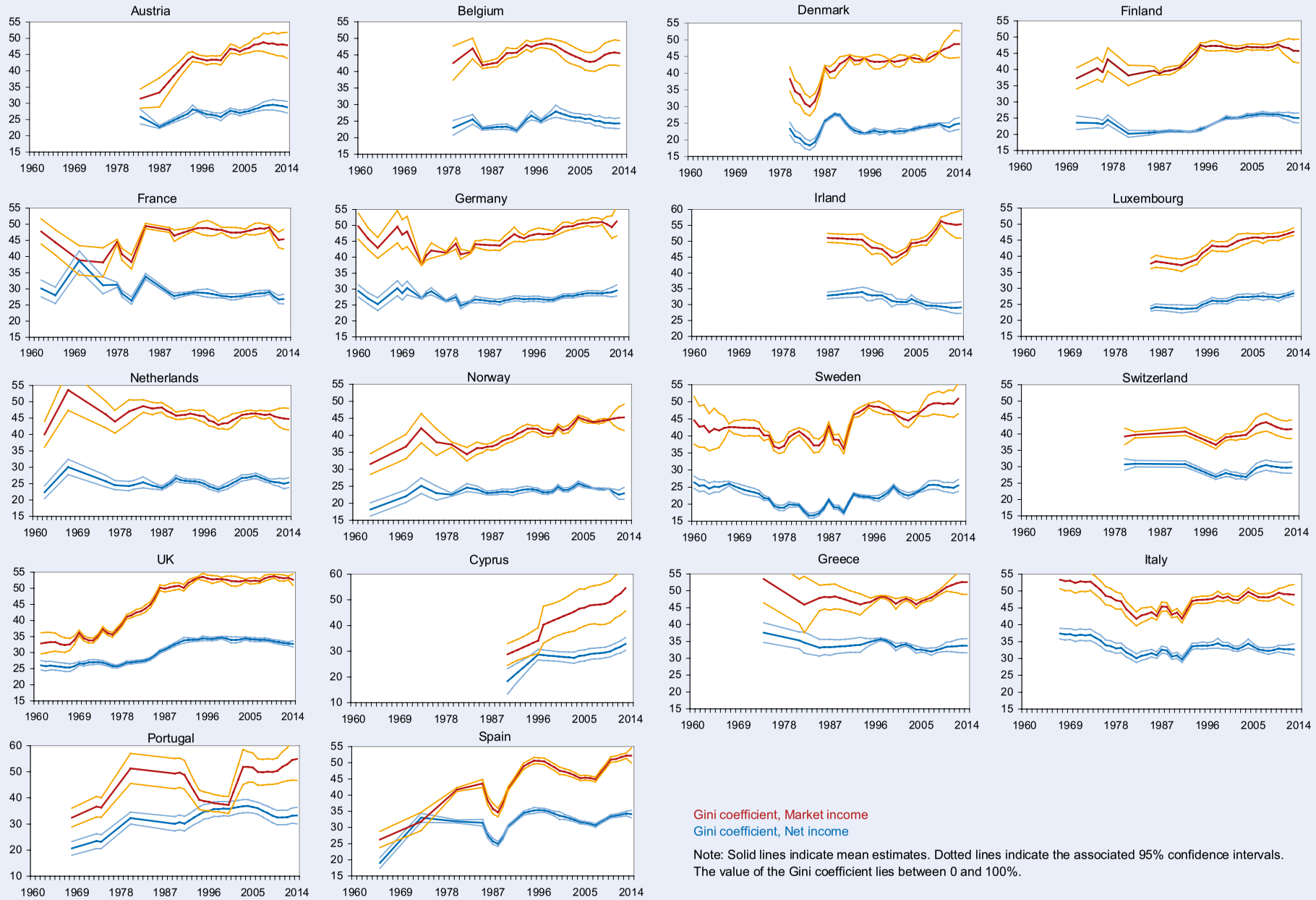
[7] Such combined databases may also suffer in reliability and comparability due to different compilers of the included datasets.

[8] Nevertheless, many country-year observations for earlier years, as well as for more recent years are not available in SWIID v5.1, too.

[9] The SWIID employs a custom missing-data algorithm that minimizes reliance on problematic assumptions, by using as much information as possible from proximate years within the same country, to estimate inequality statistics for the missing country-years in the Luxembourg Income Study. The additional data is drawn from regional collections, national statistical offices, and academic studies (see Solt 2016). In the earlier SWIID versions, Solt (2009) only used the World Income Inequality Database (WIID) as a source for the imputations; in his fifth version, two other sources are incorporated: the University of Texas Inequality Project (UTIP), as reported by UNIDO (see Galbraith 2009), and the World Wealth and Income Database (WID) by Alvaredo et al. (2016).

[10] An additional advantage of Solt (2016) is the provision of estimates of uncertainty and the data of 100 multiple Monte Carlo simulations for his imputation estimates, which allows users to do additional robustness tests on the dataset.

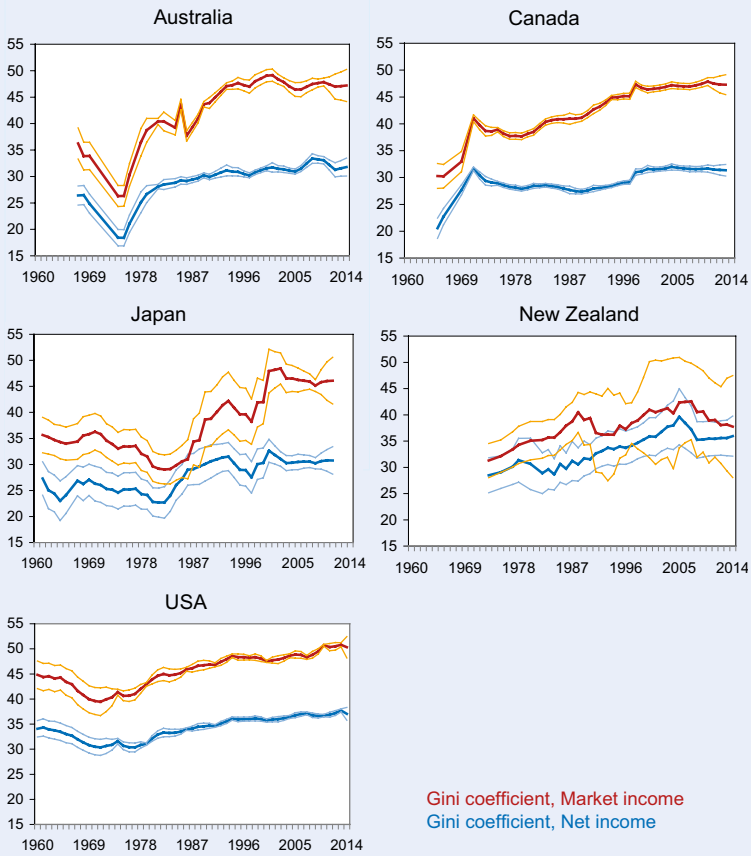
Trends in income inequality in Western and Southern European countries



Note: Solid lines indicate mean estimates. Dotted lines indicate the associated 95% confidence intervals. The value of the Gini coefficient lies between 0 and 100%.

Source: Standardized World Income Inequality Database, SWIID v5.1 (Solt 2016); author's calculation.

B) Trends in income inequality in advanced economies outside Europe



Note: Solid lines indicate mean estimates. Dotted lines indicate the associated 95% confidence intervals.
The value of the Gini coefficient lies between 0 and 100%.
Source: Standardized World Income Inequality Database, SWIID v5.1 (Solt 2016); author's calculations.

dynamically or has even remained at the same level. Thus, the European welfare states still seem to have the ability to compensate the overall market trend of rising income inequality. In France and Norway, for example, net income inequality is at the same level as it was 35 years ago and market income inequality has even declined in France in recent years – after remaining fairly constant previously. In the Netherlands, both, market and net income inequality have remained constant around the same Gini coefficient level for the last 35 years respectively. While market and net income inequality soared in the UK and Ireland in the 1980s, net inequality has started to decline slightly in recent years.

In some generous welfare states like Denmark, Finland or Sweden, the Gini net income inequality index is around 0.25 nowadays and, thus, higher than the Gini index points of around or below 0.20 seen in these countries in the 1980s. Market income inequality has also increased substantially in these countries since the 1980s. Nevertheless, the Scandinavian countries are still among the most equal societies around the world. In Germany and Austria, net income inequality has been fairly constant at around or below a Gini coefficient of 0.26 between 1980 and 2000, but net inequality subsequently increased to its present level of 0.29.

Southern European countries like Italy, Greece, Portugal and Spain have seen volatile trends in market and net income inequality. However, net income inequality increased in Italy, Portugal and Spain during the 1990s, and decreased slightly afterwards. Overall, net income inequality in Southern Europe in the years prior to the financial crisis was relatively at the same level as in the 1980s. Since the financial crisis, income inequality has risen in Greece and Spain. In Portugal, however, only disparities in market outcomes have risen in recent years.

Similar trends to those in Europe can be observed in other advanced economies and welfare states (see Figures B). In Australia and the United States, income inequality decreased up until the 1970s. Since then, market and net income inequality have risen in both countries. While the pace of growth in inequality has slowed down in Australia since the 1990s, it has remained unchanged in the United States. In Canada and New Zealand no more growth in income inequality has been detected in recent years. In Canada, income inequality decreased in the 1970s and rose in the 1990s, and has remained relatively constant ever since. In New Zealand, income inequality rose between 1980 and 2005, but even declined in the following years. In Japan, the Gini coefficients decreased until 1980, then increased enormously until the early 2000s, and have remained relatively constant ever since.

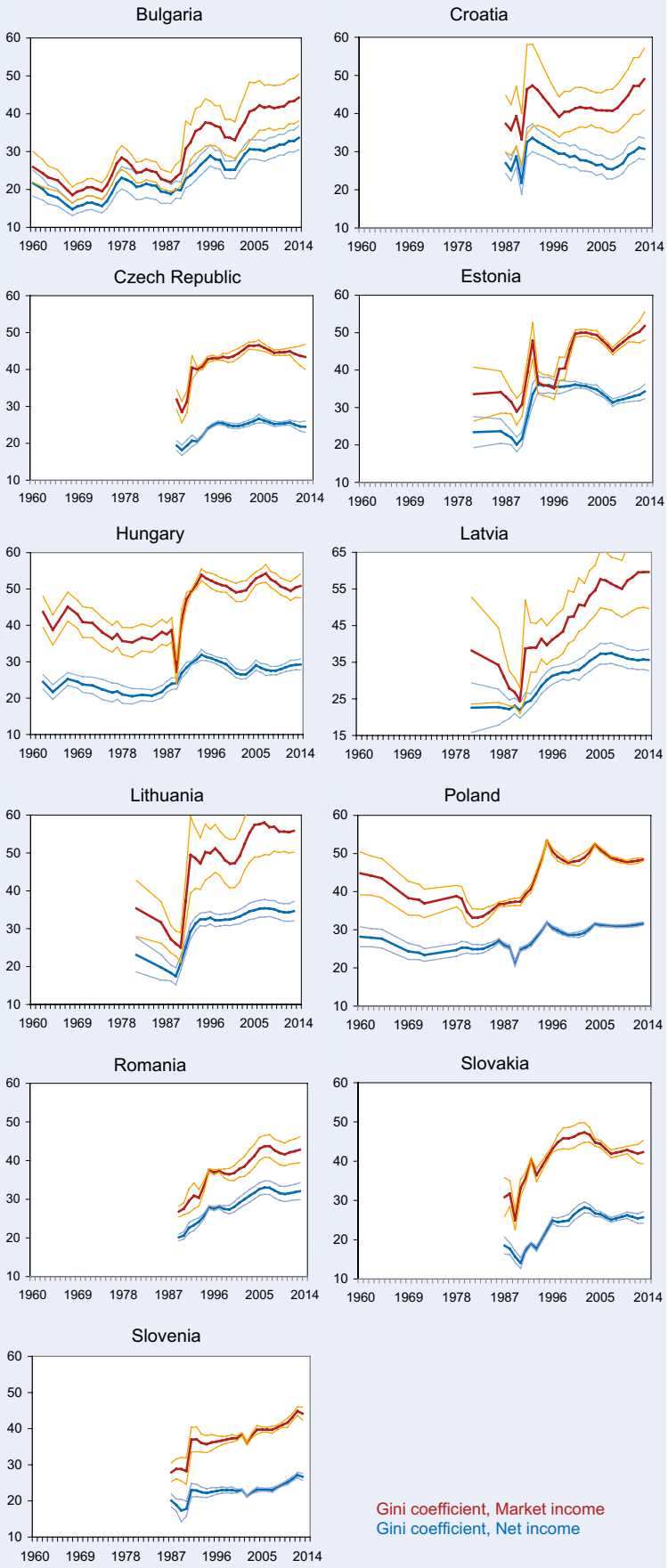
Figures C show the Gini income inequality trends in Eastern European transition countries. The countries had relatively low levels of income inequality during

their communist eras. After the fall of the Berlin wall and the start of the economic and democratic transformation income inequality soared. The inequality jump, however, was merely a level effect in most of the transition countries. After reaching its new level, income inequality remained relatively constant or even declined in almost all Eastern European transition countries. In Bulgaria, Croatia, Estonia, and Slovenia, by contrast, (net) income inequality has risen again in recent years.

Figures D describe the trends in the BRIC countries and Turkey. Like the other Eastern European transition countries, Russia experienced a jump in income inequality during its transition era in the early 1990s. Since 2000, however, market and net income inequality has declined in Russia. In China, within-country income inequality decreased until the mid-1980s and subsequently increased dramatically in the course of the country's enormous economic growth until the 2000s. However, while income inequality within China increased, global income inequality decreased due to the rise of China (see i.a. Milanovic 2013; Lakner and Milanovic 2015; Lahoti, Jayadev and Reddy 2015). In India, Gini inequality coefficients have increased, especially since 2000. As in China, that may primarily be due to the onset of massive economic growth. In Brazil and Turkey, however, income inequality has tended to decline over the course of their economic catching up process spanning the last 35 years.

The results show that there is no overall global trend towards higher income inequality within countries. However, the Ginis

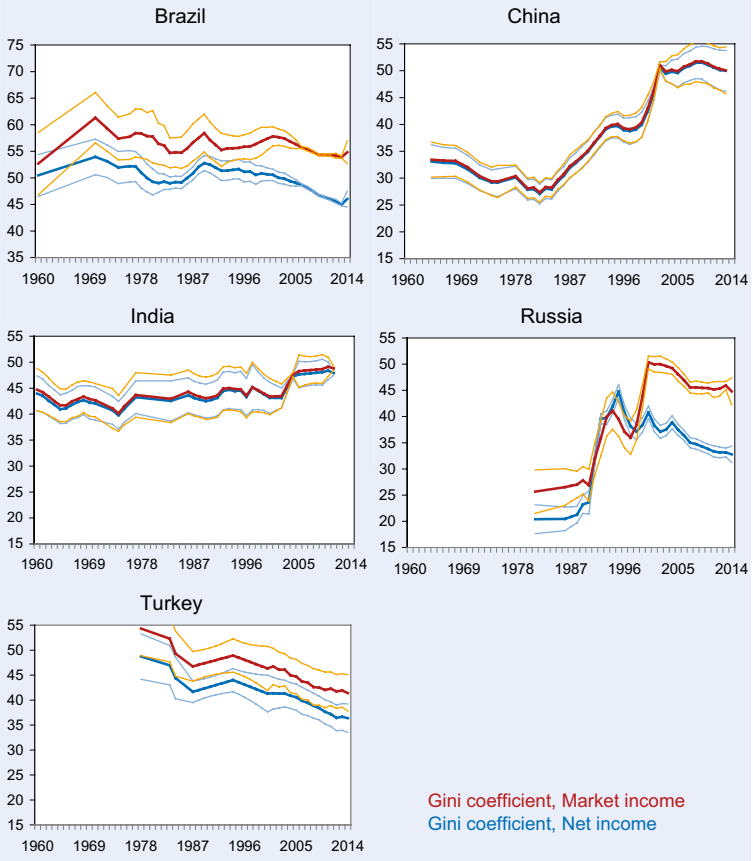
C) Trends in income inequality in Eastern Europen countries



Note: Solid lines indicate mean estimates. Dotted lines indicate the associated 95% confidence intervals.
The value of the Gini coefficient lies between 0 and 100%.

Source: Standardized World Income Inequality Database, SWIID v5.1 (Solt 2016); author's calculations.

D) Trends in income inequality in emerging countries



Note: Solid lines indicate mean estimates. Dotted lines indicate the associated 95% confidence intervals.
The value of the Gini coefficient lies between 0 and 100%.
Source: Standardized World Income Inequality Database, SWIID v5.1 (Solt 2016); author's calculations.

increased substantially in many highly-developed countries between 1980 and 2000, but have followed heterogeneous trends in these countries ever since. In Eastern European transition countries, as well as China and India, income inequality increased enormously during their transition processes or after opening up to the world market. However, income inequality has remained relatively constant or even decreased in many transition countries during the 2000s. Other emerging countries, such as Turkey and Brazil, have even experienced an overall decline in income inequality in recent decades. The same is true of Latin America in general (see Tsounta and Osueke 2014).

Concluding remarks

Several cross-national income inequality databases are available for research. This article describes the different concepts underlying such databases. In general, there is a trade-off between the coverage of countries and years on the one hand, and the comparability of the results between countries and years on the other. Authors should be aware of potential pitfalls in using and interpreting inequality datasets.

This article uses Gini indices of market and net income inequality to describe inequality trends within selected countries. Gini is widely used to present income inequality trends within countries and comparisons across countries. However, Gini indices also have some shortcomings: firstly, the data for the Gini calculations are often based on household surveys, which do not always represent incomes correctly. For example, it is assumed that in surveys, the rich do not report their actual income or do not respond at all.[11] Moreover, changes in the Gini index can either come from the top end of distribution or from the bottom (see Voitchovsky 2005). The same Gini value may result from different distribution curves. Trends in Ginis make it hard to understand which part of the income distribution is changing and who really gains or loses. Other measures of inequality, for example income shares by income groups, may be helpful for interpreting changes in income inequality. Furthermore, the underlying demographic structure should be taken into account. Inequality changes can be driven by shifts in the demographic structure within a society, for example different fertility, mortality and migration patterns among different income groups. Changes in the share of old or young dependents due to an aging population or a baby boom may also cause changes in income inequality, even if the real income distribution among adults of a working age remains constant. Scholars and politicians should be aware of these relationships when they are drawing policy implications from income inequality trends.

[11] Income inequality could therefore be underestimated, if data compilers do not correct such a biased response behaviour in the data.

Inequality increases per se should not basically be denied. Income inequality can have positive and negative consequences, depending on its causes and the inequality level within a society. In some growth and redistribution scenarios, for instance, income inequality may be a precondition for everyone being better off in real terms. Political decision makers are, indeed, faced with an equality-efficiency trade off (Okun 1975). However, the level of inequality in opportunities and social mobility is closely linked to the perception of fairness and social justice within a society. In this context, politicians should focus more on inequalities in opportunities to achieve incomes, than solely on the outcomes themselves.

References

Acemoglu, D. (1998), "Why Do New Technologies Complement Skills? Directed Technical Change and Wage Inequality", *Quaterly Journal of Economics* 113 (4), 1055–89.

Akerlof, G. and J. Yellen (1990), "The Fair Wage-Effort Hypothesis and Unemployment", *Quaterly Journal of Economics* 105 (2), 255–83.

Alesina, A. and D. Rodrik (1994), "Distributive Politics and Economic Growth", *Quaterly Journal of Economics* 109 (2), 465–90.

Alesina, A. and R. Perotti (1996), "Income Distribution, Political Instability and Investment", *European Economic Review* 40 (6), 1203–28.

Alvaredo, F., A. Atkinson, T. Piketty, E. Saez and G. Zucman (2016), The World Wealth and Income Database, http://www.wid.world (accessed 5 December 2016).

Aghion, P., E. Caroli and C. Garcia-Penalosa (1999), "Inequality and Economic Growth: The Perspective of the New Growth Theories", *Journal of Economic Literature* 37 (4), 1615–60.

Atkinson, A., L. Rainwater and T. Smeeding (1995), "Income Distribution in OECD Countries", *OECD Social Policy Studies* No. 18.

Atkinson, A. and F. Bourguignon (2000), "Introduction: Income Distribution and Economics", in A. Atkinson and F. Bourguignon (eds.), *Handbook of Income Distribution*, Volume 1, Elsevier, Amsterdam.

Atkinson, A. and A. Brandolini (2001), "Promise and Pitfalls in the Use of 'Secondary' Data-Sets: Income Inequality in OECD Countries as a Case Study", *Journal of Economic Literature* 39 (3), 771–99.

Atkinson, A. and A. Brandolini (2009), "On Data: A Case Study of the Evolution of Income Inequality across Time and across Countries", *Cambridge Journal of Economics* 33 (3), 381–404.

Babones, S. and M. Alvarez-Rivadulla (2007), "Standardized Income Inequality Data for Use in Cross-National Research", *Sociological Inquiry* 77 (1), 3–22.

Barro, R. (2000), "Inequality and Growth in a Panel of Countries", *Journal of Economic Growth* 5 (1), 5–32.

Battisti, M., G. Felbermayr and S. Lehwald (2016), "Inequality in Germany: Myths, Facts, and Policy Implications", *Ifo Working Paper* No. 217.

Baumol, W. (2007), "On Income Distribution and Growth", *Journal of Policy Modeling* 29 (4), 545–8.

Bertola, G. (1993), "Factor Shares and Savings in Endogenous Growth", *American Economic Review* 83 (5), 1184–98.

Bourguignon, F. (1981), "Pareto Superiority of Unegalitarian Equilibria in Stiglitz' Model of Wealth Distribution with Convex Saving Function", *Econometrica* 49 (6), 1469–75.

Card, D. and J. DiNardo (2002), "Skill Biased Technological Change and Rising Wage Inequality: Some Problems and Puzzles", *NBER Working Paper* No. 8769.

Chen, B.–L. (2003), "An Inverted-U Relationship between Inequality and Long-run Growth", *Economics Letters* 78 (2), 205–12.

Cingano, F. (2014), "Trends in Income Inequality and its Impact on Economic Growth", *OECD Social, Employment and Migration Working Papers* No. 163.

Claessens, S. and E. Perotti (2007), "Finance and Inequality: Channels and Evidence", *Journal of Comparative Economics* 35 (4), 748–73.

Cohn, A., E. Fehr and L. Goette (2014), "Fair Wages and Effort Provision: Combining Evidence from a Choice Experiment and a Field Experiment", *Managament Science,* Article in Advance, 1–18.

Dabla-Norris, E., K. Kochhar, N. Suphaphiphat, F. Ricka and E. Tsounta (2015), "Causes and Consequences of Income Inequality: A Global Perspective", *IMF Staff Discussion Note* No. 15/13.

Deaton, A. and S. Zaidi (2002), "Guidelines for Constructing Consumption Aggregates for Welfare Analysis", *LSMS Working Paper* No. 135.

Deininger, K. and L. Squire (1996), "A New Data Set Measuring Income Inequality", *World Bank Economic Review* 10 (3), 565–91.

Dynan, K., J. Skinner and S. Zeldes (2004), "Do the Rich Save More?", *Journal of Political Economy* 112 (21), 397–444.

Feenstra, R. and G. Hanson (1996), "Globalization, Outsourcing, and Wage Inequality", *American Economic Review* 86 (2), 240–5.

Feenstra, R. and G. Hanson (1999), "The Impact of Outsourcing and High-Technology Capital on Wages: Estimates for the United States, 1979–1990", *Quaterly Journal of Economics* 114 (3), 907–40.

Ferreira, F., N. Lustig and D. Teles (2015), "Appraising Cross-National Income Databases: An Introduction", *Journal of Economic Inequality* 13 (4), 497–526.

Galor, O. and J. Zeira (1993), "Income Distribution and Macroeconomics", *Review of Economic Studies* 60 (1), 35–52.

Galor, O. and O. Moav (2004), "From Physical to Human Capital Accumulation: Inequality and the Process of Development", *Review of Economic Studies* 71 (4), 1001–26.

Galbraith, J. (2009), "Inequality, Unemployment and Growth: New Measures for Old Controversies", *Journal of Economic Inequality* 7 (2), 189–206.

Gini, C. (1921), "Measurement of Inequality of Incomes", *Economic Journal* 31 (121), 124–6.

Halter, D., M. Oechslin and J. Zweimüller (2014), "Inequality and Growth: The Neglected Time Dimension", *Journal of Economic Growth* 19 (1), 81–104.

Jenkins, S. (2015), "World Income Inequality Databases: an Assessment of WIID and SWIID.", *Journal of Economic Inequality* 13 (4), 629–71.

Kaldor, N. (1955), "Alternative Theories of Distribution", *Review of Economic Studies* 23 (2), 83–100.

Kolev, G. and J. Niehues (2016), "The Inequality-Growth Relationship: An Empirical Reassessment", *IW-Report* 7/2016.

Lahoti, R., A. Jayadev and S. G. Reddy (2015), "The Global Consumption and Income Project (GCIP): An Introduction and Preliminary Findings", *UN/DESA Working Paper* No. 140.

Lakner, C. and B. Milanovic (2015), "Global Income Distribution: From the Fall of the Berlin Wall to the Great Recession", *World Bank Economic Review*, 1–30.

Lazear, E. and S. Rosen (1981), "Rank-Order Tournaments as Optimum Labor Contracts", *Journal of Political Economy* 89 (5), 841–64.

Milanovic, B. (2005), *Worlds Apart: Measuring International and Global Inequality*, Princeton University Press, Princeton.

Milanovic, B. (2013), "Global Income Inequality by the Numbers: in History and Now", *Global Policy* 4 (2), 198–208.

Milanovic, B. (2014), *Description of 'All the Ginis' Dataset,* World Bank, Research Department, New York, http://econ.worldbank.org/projects/inequality (accessed 5 December 2016).

OECD (2011), *Divided We Stand: Why Inequality Keeps Rising*, OECD Publishing, Paris.

OECD (2015), *In It Together: Why Less Inequality Benefits All*, OECD Publishing, Paris.

Okun, A. (1975), *Equality and Efficiency: The Big Tradeoff*, Brookings Institution, Washington D.C..

Ostry, J., A. Berg and C. Tsangarides (2014), "Redistribution, Inequality, and Growth", *IMF Staff Discussion Note* 14/02.

Peichl, A., N. Pestel and H. Schneider (2012), "Does Size Matter? The Impact of Changes in Household Structure on Income Distribution in Germany", *Review of Income and Wealth* 58 (1), 118–41.

Perotti, R. (1996), "Growth, Income Distribution, and Democracy: What the Data Say", *Journal of Economic Growth* 1 (2), 149–87.

Persson, T. and G. Tabellini (1994), "Is Inequality Harmful for Growth?", *American Economic Review* 84 (3), 600–21.

Smeeding, T. and J. Latner (2015), "PovcalNet, WDI and 'All the Ginis': A Critical Review", *Journal of Economic Inequality* 13 (4), 603–28.

Solt, F. (2009), "Standardizing the World Income Inequality Database", *Social Science Quaterly* 90 (2), 231–42.

Solt, F. (2015), "On the Assessment and Use of Cross-National Income Inequality Datasets", *Journal of Economic Inequality* 13 (4), 683–91.

Solt, F. (2016), "The Standardized World Income Inequality Database", *Social Science Quarterly* 97(5), 1267–81.

Stiglitz, J. (2012), *The Price of Inequality: How Today's Divided Society Endangers Our Future,* W.W. Norton, New York.

Stolper, W. and P. Samuelson (1941), "Protection and Real Wages", *Review of Economic Studies* 9 (1), 58–73.

Tsounta, E. and A. Osueke (2014), "What is Behind Latin America's Declining Income Inequality?", *IMF Working Paper* 14/124.

Voitchovsky, S. (2005), "Does the Profile of Income Inequality Matter for Economic Growth? Distinguishing between the Effects of Inequality in Different Parts of the Income Distribution", *Journal of Economic Growth* 10 (3), 273–96.

Wittenberg, M. (2015), "Problems with SWIID: the Case of South Africa", *Journal of Economic Inequality* 13 (4), 673–7.

Yitzhaki, S. (1998), "More than a Dozen Alternative Ways of Spelling Gini", *Economic Inequality* 8, 13–30.