CENTRE FOR HOUSEHOLD, INCOME, LABOUR AND DEMOGRAPHIC ECONOMICS

Working Papers

Inequality Patterns in Western-Type Democracies:

Cross-Country Differences and Time Changes

A. Brandolini and T. M. Smeeding

ChilD n. 08/2007

e-mail: de-child@unito.it
Web site: http://www.child-centre.it

Inequality Patterns in Western-Type Democracies: Cross-Country Differences and Time Changes*

Andrea Brandolini
(Banca d'Italia, Economic Research Department)

and

Timothy M. Smeeding
(Maxwell Professor of Public Policy, Syracuse University)

April 17, 2007

Abstract

This paper compares levels and trends in income inequality in industrialized nations. In the mid-1990s, the United States had the highest overall level of inequality of any rich OECD nation, while Northern and Central European countries had the lowest levels. Using a variety of national sources, no common trend is observed in the last quarter of a century. The inequality of disposable incomes increased in the United States and the United Kingdom in the 1980s, and in Sweden and Finland in the 1990s; it rose somewhat in the late 1990s in Canada and the Federal Republic of Germany, but it showed no persistently upward trend in the Netherlands, France and Italy. The paper shows the importance of public redistribution in determining the inequality of disposable income.

JEL classification: D31.
Keywords: income distribution, inequality trends.

* Revised version of a paper presented at the Conference on "Democracy, Inequality and Representation: Europe in Comparative Perspective", May 6-7, 2005, Maxwell School, Syracuse University. Part of this chapter draws on our article "Inequality (international evidence)" prepared for S. N. Durlauf and L. E. Blume, *The New Palgrave Dictionary of Economics*, forthcoming, Palgrave Macmillan. Smeeding would like to thank the Ford, Russell Sage and Sloan Foundations for their support; along with Kati Foley, Karen Cimilluca, Kim Desmond, Mary Santy, Jeff Thompson, and Coady Wing for their assistance. We thank Wim Bos of the Dutch Central Bureau of Statistics and Pascal Chevalier of INSEE for providing us with the Dutch and French income statistics, respectively. The statistical information on historical trends draws heavily on joint work of one of us (AB) with Tony Atkinson. The views expressed here are solely those of the authors; in particular, they do not necessarily reflect those of the Bank of Italy or any of our sponsors.

1. Introduction

There is some intuitive appeal in the idea that democracy is associated with a more equal distribution of income. By allowing for a better representation of the interest of the poorest classes in the society, democratic institutions may be instrumental in the adoption of progressive redistributive policies. Thus, in his celebrated model of an inverted-U relationship between income inequality and economic development, Kuznets explained the falling part of this relationship by observing that: "*In democratic societies* the growing political power of the urban lower-income groups led to a variety of protective and supporting legislation, much of it aimed to counteract the worst effects of rapid industrialization and urbanization and to support the claims of the broad masses for more adequate shares of the growing income of the country" (1955, p. 17; italics added). Half a century later, Persson and Tabellini (1994) argued that income inequality is harmful for economic growth because it ultimately leads to higher taxation and, hence, to a larger distortion of agents' investment decisions. This result relies on the existence of a democratic political process, whereby redistribution and taxation are set at the levels favored by the median voter.[1] In political science, a strand of research pioneered by Lenski (1966) also takes political democracy as leading to greater equality, although the distribution of political power within the society, and not structural economic change like in Kuznets, is seen as the driving force (see Shanahan and Tuma, 1994, p. 748).

But the causal link may work in the opposite direction. Low inequality in the distribution of income can be seen as a pre-requisite for the working of a democracy, as extreme concentration of resources limits the ability of poor persons to exercise their political rights and may eventually lead to political instability. This view was echoed in the United

[1] Benabou (1996, pp. 25-9) discusses how the political regime may affect the relationship between inequality and growth.

States, for instance, in the 1994 *Economic Report of the President*, where it was stated that: "This Administration sees the combination of stagnating average incomes and rising inequality as a threat to the social fabric that has long bound Americans together and made ours a society with minimal class distinctions" (U.S. Council of Economic Advisers, 1994, p. 26). The idea is developed by Boix in *Democracy and Redistribution* by means of a model which predicts that "… increasing levels of economic equality bolster the chances of democracy" (2003, p. 10): lower inequality weakens the redistributive pressures from the poorest social classes, while it pushes the cost of taxation that the rich have to bear in a democratic regime below the cost of repression they should incur in an authoritarian regime. In their recent book, *Economic Origins of Dictatorship and Democracy*, Acemoglu and Robinson (2006) investigate how the conflict between the rich elites and the mass of poor people drives the emergence of democracy and suggest that the middle class can play an important role in both the emergence and the consolidation of democracy by operating as a buffer between the rich and the poor.

These hypotheses on the link between democracy and inequality (and related variants) have been empirically tested in a cross-national environment in both political science and economics (see Castles, 1996, for a survey of the former).But comparability problems are formidable. Indeed, Boix argues that the failure to convincingly show the empirical validity of such a link is due to "the lack of broad and reliable data sets of income inequality until very recently" (2003, p. 11). But even then, what is 'reliable'? Recent compilations like the one by Deininger and Squire (1996), used by Boix, are also not without problems, as discussed for instance by Atkinson and Brandolini (2001). Indeed, there is a need to be sensitive to the nuances of underlying data in the estimation of the relationship between democracy and (in)equality. At the same time, whatever the supposed direction of causality in this

relationship, any theory must account for the basic fact that inequality levels and trends vary widely both across democratic countries and, within each country.

With these considerations in mind, the purpose of this chapter is to set the stage for the analysis of the link between democracy and inequality in the following chapters by reviewing the cross-national pattern and the within-country trends in economic inequality. In Section 2, we compare levels of inequality in nominal and real incomes in 32 countries, which can be all seen as having a western-type democratic system. We also provide some evidence on the impact of public redistribution, the pivotal variable in the relationship between democracy and inequality in all theories mentioned earlier. In Section 3, we discuss the trends in inequality and redistribution over a period of four decades in nine rich countries. We draw some conclusions in Section 4.

2. Cross-National Differences in Income Inequality

Relative differences

We begin with the widest cross-national comparison of income inequality which we can present. Figure 1 compares the distribution of *equivalent disposable money income across persons* in 32 nations for various years around the turn of the century, or for the most recent year available. Figures are computed from the Luxembourg Income Study (LIS) database (http://www.lisproject.org), which provides the best source of internationally comparable data on household incomes (Smeeding 2002; 2004; 2005). These figures are integrated with estimates from the European Community Household Panel database (Waves 1-8, December 2003) for Portugal, and with statistics for Japan computed according to the same methodology as all other figures by Tsuneo Ishikawa (1996) (see Gottschalk and Smeeding 2000).

Following World Bank (2005) categorization, countries are separated into high-income and middle-income economies according to their per capita gross national income in 2004.

Disposable money income is given by the sum of all cash incomes earned by the household (wages, salaries, earnings from self-employment, cash receipts from property, unemployment compensation, welfare benefits, public and private pensions, child and family allowances, alimony), net of income taxes and social security contributions. However broad, this definition excludes capital gains, imputed rents, other unrealized types of capital income, home production, and in-kind income. These items may account for an important share of the economic resources at the household disposal, and their inclusion in the income definition may affect measured inequality, as discussed below for public benefits for health care, education, and housing. To account for the economies of scale stemming from cohabitation, total household income is adjusted by a simple equivalence scale, the square root of the household size: for instance, the equivalent income of a household of four is obtained by dividing total household income by two. This value is then attributed to each person in the household to derive the distribution among persons.[2]

There is a wide range of income inequality among the nations of Figure 1. The United States is an outlier among rich nations, and only Russia and Mexico, two middle-income economies, have higher levels of inequality. A low-income American at the 10th percentile has an income that is only 37 percent of the median income (P10). By contrast, in most countries of central, northern and eastern Europe the income of the poor exceeds 50 percent of the income of middle-income person; in the other English-speaking nations and in the southern

[2] To minimize the impact of outliers all records with zero income are dropped, and observations are bottom-coded at 1 percent of the mean of equivalent disposable income and top-coded at 10 times the median of unadjusted disposable income. Different definitions and computational assumptions affect measured inequality and hence international comparisons. See, for instance, Atkinson, Rainwater and Smeeding (1995), Gottschalk and Smeeding (1997, 2000), Atkinson and Brandolini (2001).

European countries, plus Israel, it is above 40 percent. Only in Russia and Mexico do the poor fare relatively worse than in the United States. In Greece, Portugal, Spain, Israel as well as the United States and the United Kingdom the rich persons, those at the 90th percentile, earn more than twice the national median incomes (P90). In poorer countries the 90th percentile can also be very high in relative terms: e.g., Mexico, Russia, and Estonia.

The countries in Figure 1 fall into some distinctive clusters. Inequality, as measured by the decile ratio (the ratio between P90 and P10), is least in Nordic countries, the Netherlands and the Czech and Slovak Republics with values of 3 or less. The two other Benelux countries (Belgium and Luxembourg), Central Europe (France, Switzerland, Germany,[3] Austria, Slovenia) and three other Eastern European countries (Hungary, Poland, Romania) come next at 3.2-3.6. These precede the four English-speaking nations (Canada, Australia, Ireland and the United Kingdom), which have decile ratios comprised between 3.9 and 4.6, and the southern European countries (Italy, Spain, Greece and Portugal) and Israel, whose ratios fall between 4.5 and 5.0. Only the United States, Estonia, Mexico and Russia have values in excess of 5. With decile ratios around 4, the two Asian countries, Taiwan and Japan, are in an intermediate position. Inequality differs much more across middle-income than high-income economies. While Estonia, Russia and Mexico show a very unequal distribution of income, the other five countries, all from eastern Europe, exhibit moderate or low levels of inequality. The shape of the income distribution was noticeably different across these formerly planned economies already in the mid-1980s, before they turned into western-type democracies, with Czechoslovakia showing the least inequality and the Soviet Union the highest (Atkinson and Micklewright, 1992).

[3] Throughout the paper Germany refers to the Federal Republic of Germany after re-unification in 1991, while West Germany refers to the Federal Republic of Germany until 1990 and to the Western Länder thereafter.

In Figure 1 countries are arranged, within the two categories of high-income and middle-income, by the decile ratio, from lowest to highest. More importantly, the country rank order does not coincide with that based on other statistics reported in the same figure: P10, P90 and the Gini index. For instance, Sweden shows the second highest P10 but the seventh lowest Gini index. This follows from the fact that the Swedish at the 90th percentile is less closer to the middle than the equivalent person in Denmark, Finland or the Slovak Republic. While these differences may be small and are likely to be within the bounds of sampling error, one should still be aware of that the exact ranking of countries in international comparisons may well depend on which part of the distribution is analyzed. For example, the rankings with a bottom measure, P10, or the top measure, P90, may differ with that given by single observation summary measures of inequality, like the Gini index, or the Theil and Atkinson indices. Different summary measures may lead to different orderings, as they weight differently the top and the bottom of the distribution. In the same vein, also the results of empirical tests are sensitive to the choice of the inequality index, as shown by Voitchovsky (2005) for the relationship between inequality and growth, and by Schwabish, Smeeding, and Osberg (2006) for the relationship between inequality and social spending.

A more robust, if partial, ranking is provided by comparing the entire income distributions through the analysis of Lorenz dominance. Since Atkinson (1970), this technique has been employed for a wide class of inequality measures including most of those commonly used, to show that incomes are distributed less unequally in country *A* than in country *B* if the Lorenz curve of *A* always lies above, that is dominates, that of *B*. If the Lorenz curves intersect, the two distributions cannot be unambiguously ordered and their ranking varies with

the inequality measure.[4] We compare the Lorenz curves at decile points, assuming that two curves are distinct only when their difference at some point exceeds 0.3 percentage points in order to allow, however imperfectly, for sampling variability. The results are reported in Table 1, where the sign "+" indicates that the country in the column dominates the country in the row, the sign "–" indicates the opposite, and the sign "?" indicates that the Lorenz curves cross, or are not distinguishable at any decile point according to the mentioned criterion. Thus, the two "–" signs in the last row of Table 1 tell us that Mexico and Russia are the only countries where incomes are more unequally distributed than in the United States, while the "?" sign suggests that inequality cannot be unequivocally stated to be higher in Portugal than in the United States, or vice versa, unless an inequality measure is specified. This complex pattern of bilateral comparisons is summarized in the Hasse diagram in Figure 2. Income inequality falls by moving from the top to the bottom: a traceable line downwards from country *A* to country *B* (e.g., Mexico and Estonia) implies that the Lorenz curve for country *A* lies above that for country *B*; when this is not possible, like for Israel and the United Kingdom, countries *A* and *B* are not comparable without ambiguity. The merit of Figure 2 is to make it explicit that many comparisons are indeed ambiguous. At the same time, it confirms the basic pattern of international inequality sketched above: Mexico and Russia are at the top, followed by the English-speaking countries intertwined with the southern European countries; the other continental European nations come next, while the Nordic countries show the lowest level of inequality; Eastern European countries are spread along the entire tree.

[4] The Lorenz curve plots the share of income of the bottom $100x$ percent of the population against the population share x; it is convex to the origin and always lies below the 45 degree line of perfect equality.

Absolute differences

It is often argued that the higher the average standard of living in a particular nation, the better off its citizens. By this argument, the United States resident is, "on average", better off than are residents of Italy or Finland, because the U.S. real Gross Domestic Product (GDP) per capita in 2000 is 34,300 international dollars, compared to 25,300 international dollars in Italy and Finland (International Monetary Fund, 2006). But does this higher average U.S. standard of living extend to all levels of the income distribution ?

In order to answer this question, we must compare *real incomes*, i.e. incomes deflated by a Purchasing Power Parity (PPP) index. This is a standard, but crude, way of measuring the amount of goods and services that a certain income can purchase. On the one side, it is questionable that the same conversion factor should be applied across the entire distribution, although the same concern could be raised for within-country differences in the cost of living. On the other side, real disposable income does not account for goods and services such as education and health care that are provided at different prices and under different financing schemes in different nations. As low-income citizens in some countries need to spend more out of pocket for these goods than do low-income citizens in other countries, their living standard is relatively lower than that measured by PPP-adjusted income (Smeeding and Rainwater 2004). Further complications arise because the PPP indices are available for various aggregates and from different sources,[5] and are computed for national accounts, which are intrinsically different from survey data (Deaton 2005).[6]

---

[5] PPP indices are routinely estimated by various international agencies, such as the Organisation for Economic Co-operation and Development or the World Bank, or international research projects like the Penn World Table (Summers and Heston 1991); moreover, they are computed for various national accounts aggregates, like GDP or household final consumption expenditure. Methods to estimate PPPs also differ, as discussed for instance by Dowrick and Akmal (2005).

[6] This difference shows up in sizeable shortfalls of total survey incomes from GDP aggregates. As these shortfalls vary across countries, comparisons of living standards based on survey means may differ from those

The statistics for real equivalised incomes in 2000 international dollars are reported in Figure 3. Original incomes are adjusted by the national consumer price indices in the case of non-base year observations, and are converted by means of PPP indices for GDP drawn from International Monetary Fund (2006). In each country, the real P10, P90 and median are recomputed as a fraction of the U.S. median real income.

Even if we are mostly considering rich nations, differences in average real living standards are huge. The median person in middle-income economies earns less than a third of the median American, about a tenth in Russia, but variation is considerable also among high-income economies: in Portugal, Slovenia and Greece median real income is below half of the U.S. value, while only in Luxembourg do we find that the median is higher than in the United States. But these differences do not necessarily carry forward to the rest of the income distribution. If the living standard of the median Belgian or Finnish appears to be between 63 and 72 percent of that of the median American, the living standard of poor Belgian and Finnish is roughly the same as that of their American counterparts, around 37 percent of the U.S. median. Low-income people in Denmark, Norway, Switzerland and, especially, Luxembourg are much better off than elsewhere. In all southern European countries but also, to a lesser extent, in Australia, Ireland and the United Kingdom, the living standards of low-income households are lower than in the United States. Of course, they are a great deal lower in all middle-income economies. At the other extreme, the rich Americans far surpass the rich in any other nation observed, save for the Luxembourgers. For instance, the rich American is 60 percentage points above the rich Canadian and 71 points above the rich British person.

---

based on national accounts, although the correlation between per capita GDP and survey disposable income per person is positive, if less than one. The comparisons of real incomes discussed below would be affected should we align household-level data to aggregate statistics.

The horizontal bars in Figure 3 are proportional to the absolute distance between top and bottom incomes. The absolute gap in the United States is twice as high as in Switzerland, Taiwan and Canada, and is much higher than in any of the remaining countries. The claim that the United States enjoys the world's highest living standard must be evaluated alongside the equally valid claim that the United States enjoys the greatest absolute inequality between the rich and the poor among developed countries. While the rich in America are truly well off by any measure of living standards, many poor Americans at the same time have living standards below those in other nations which are not as rich as the United States

Levels of monetary redistribution

Every nation's tax and benefit system reduces market income inequality, but not all are equally effective in doing so. The efficiency with which nations accomplish this redistribution may vary over time as well as across space. A common measure of the level of redistribution is represented by the difference between the Gini index for market incomes, that is, before public transfers are added and taxes and social security contributions are deducted, and the Gini index for disposable incomes. This difference provides only a first estimate of the actual impact of public redistribution, as it ignores how market income inequality would be different if there were no taxes and benefits. Figure 4 uses the LIS data to compare inequality in market and disposable incomes in 16 nations using the Gini index.

In all nations disposable incomes are more equally distributed than market incomes, suggesting that the tax and benefit system narrows the overall distribution. On average, inequality falls by about a third, from a Gini index of 44 to one of 29 per cent. Cross-country variation in original inequality is wider than after redistribution: the Gini index ranges from 33 to 52 per cent for market incomes, and from 23 to 37 per cent for disposable incomes. The

United States has the highest inequality of disposable incomes, although the dispersion of market incomes is on the high side but not far from most other countries; it is as high as in Germany and Australia and below the values recorded for the United Kingdom, Poland and Israel. The fact is that the percentage reduction in before-tax-and-benefit inequality in the United States is a mere 23 per cent. If we exclude Taiwan, where redistribution has a tiny impact, only Switzerland shows a reduction as low as the United States, but the Swiss start from a much more equal distribution and end with a Gini index below the average.

These percentage reductions are very consistent with the patterns of aggregate public expenditure (see Smeeding 2005 about non-elderly spending). High-spending northern and central European nations have the highest degree of inequality reduction, from 36 to 47 per cent; the Anglo-Saxon (excluding the United States) nations and Israel are next with 28 to 33 per cent reductions; the United States and Switzerland are, as just seen, at the bottom of the scale. The degree of redistribution in southern Europe is lower than in Ireland and the United Kingdom, especially if public pensions are not included among transfers, according to the EUROMOD estimates based on micro-simulations rather than the records of the original micro-data sources (Immervoll et al., 2005). The nations that redistribute the most are not necessarily those with the greatest degree of market income inequality: before-tax-and-benefit incomes in Finland and the Netherlands are far more equally distributed than in the United States. In fact, Schwabish, Smeeding, and Osberg (2006) find almost no correlation between the P10 value for market income and the level of social spending.

Benefits in kind

None of the estimates above include benefits in kind or indirect taxes. How much difference do they make? In their study of the distribution in seven rich countries in the early

1980s, Smeeding et al. (1993) found that including the value of non-cash benefits in household income reinforced the redistributive impact of cash tax-and-transfer mechanisms in all countries, but did not affect markedly the pattern of national differences in income inequality from that which emerged from the analysis of cash income alone. More recent analysis for ten rich countries in the late 1990s by Garfinkel, Rainwater, and Smeeding (2006) confirms the egalitarian impact of non-cash redistribution. After augmenting income to include the value of non-cash benefits for health care and education net of both direct and indirect taxes, the income of the poor turns out to be much closer to the median and the distance between the rich and the poor falls in all countries, except Belgium and Finland. Changes are largest among the English-speaking nations, with the United States showing the greatest drop in the decile ratio. Differences across countries appear to shrink considerably.

Two reasons can account for these results. First, compared to other advanced nations, the English-speaking nations tend to be short on cash and long on in-kind benefits. Thus relatively equal non cash benefits can go a long way toward equalizing command over total resources, including more unequally distributed cash benefits and other incomes. Second, these countries rely less heavily than the big spending national welfare states on indirect taxes and taxation of cash benefits. Together, these two factors explain the big shift when moving from cash disposable income to augmented income.

These results are to be taken with caution, because they depend crucially on the assumptions made to evaluate and impute non-cash benefits. While this caveat has to be borne in mind, it is clear conceptually that these benefits are worth some nontrivial amount to both rich and poor alike. Empirically, health and education transfers are as large as or a much larger part of what the welfare state does for families than are the provision of cash benefits in all

nations. This fact must be taken in consideration in studying the relative effectiveness and generosity of all welfare states, and their effect in inequality.

3. Post-War Inequality Trends in Selected Rich Countries

The previous section has offered a snapshot of income inequality and redistribution around the turn of the century. However, as is well-known, inequality has increased considerably in last decades in several countries, prominently in the United States and the United Kingdom (Gottschalk and Smeeding 2000). It is therefore worth considering the long-run patterns which have emerged in selected rich countries: three Anglo-Saxon nations (Canada, the United States, the United Kingdom), two Nordic nations (Finland, Sweden) and four continental European countries (the Netherlands, West Germany, France, Italy). The evidence at our disposal is summarized in one figure for each country. Before turning to this evidence, we must emphasize that reported series are a selection of those internally consistent for a sufficiently long span of time; they are not necessarily comparable across nations, nor one with the other within the same nation. Furthermore, these statistics are somewhat more uncertain than those in other fields, such as national accounts.[7]

[7] The main sources on income distribution have increasingly become household sample surveys; tax returns and other administrative data are still extensively used, notably in Nordic countries, but often in conjunction with survey information on family characteristics. Generally speaking, basic statistics have become more representative, as they have been extended to cover the whole household population. This fact alone points to being cautious in comparing post-war and pre-war records, as well as the earlier post-war figures with the more recent ones. Another difficulty for temporal comparisons originates in the periodic revisions of statistical procedures to collect and elaborate the data. Moreover, series may differ for: (a) the *measure of income*, namely whether it is before taxes and transfers (market income), after transfers but before taxes (gross income), or after direct taxes and transfers (disposable income), and to what extent it includes capital gains or non-cash items such as perks or in-kind benefits; (b) the *reference unit* (household, family, person or taxpayer); (c) the *weighting unit*, the main alternatives being between weighting on a family-basis, i.e. counting each family or household as one regardless of its size, or a person-basis, i.e. replicating the observation as many times as the members of the family (so called person weights used in Figures 1–3 above); (d) the *allowance for family composition*, that is whether income is adjusted by an equivalence scale to account for differences in needs and economies of scale. Lastly, the Gini index is chosen since it is the single measure most readily available in international statistics, often the only one found in country sources, especially back in time. However, it must

The United States, the United Kingdom, and Canada

In the United States pre-tax inequality exhibits a very sharp fall between 1929 and 1944, according to the Bureau of Economic Analysis (BEA) statistics (Figure 5). This pre-war change in income distribution was judged "... for its magnitude and persistence ... unmatched in the record" by Kuznets (1953, p. xxxvii) – the first to detect it on the basis of his estimates of the income shares of upper income groups – and promptly described by Arthur Burns as "one of the great social revolutions of history" (quoted by Pechman 1958, p. 108). In the following three decades, the Gini index showed some fluctuations around a flattened trend according to the BEA figures, or a moderately declining trend according to the Current Population Survey (CPS) series for families of two or more people.[8] It is in the light of this evidence that we must read Solow's conclusion that the personal distribution of income "... is a facet of economic life which changes slowly when it changes at all" (1960, pp. 109-10), or Aaron's infamous remark that tracking changes in the distribution of income is "like watching the grass grow" (1978, p. 17).

The post-war relative immobility of the distribution lasted until the 1970s, when the United States entered a period of unrelenting increases in income inequality. According to CPS figures (both excluding and including unrelated individuals), the Gini index returned by 1980-81 to the level of thirty years earlier, and further rose in the following decade. An extensive methodological revision led to a major break in the CPS series between 1992 and

---

be kept in mind that not only levels, as seen above, but also changes over time can differ across alternative inequality measures – although the conclusions on long-run trends are unlikely to be seriously affected.

[8] The BEA statistics differ from the CPS series for the more comprehensive income definition and for being based on "synthetic" methods, whereby the distribution is estimated "... from a wide variety of sources, including – besides field surveys such as the CPS – tax returns, other business and governmental administrative records, and the income type aggregates as contained in the National Income Accounts" (Budd and Radner 1975, p. 451).

1993 (hence, the interruptions in the Figure; see Ryscavage 1995). However, the tendency of inequality to rise has continued thereafter, even if at a more moderate pace. The CPS most comprehensive series for disposable income – including capital gains and non-cash benefits – confirms the widening of the distribution since 1980. (The spike in 1986 was most probably driven by capital gains, which reflected the performance of the stock market.). The increase in inequality from 1979 to 2001 is even more pronounced in Congressional Budget Office data, which are adjusted for under-reporting using register data and more accurate measures of capital accumulations by high-income persons (Smeeding 2005).

Also in the United Kingdom income inequality has traced a U-shape in the last sixty years, and the period around the Second World War seems to have been a watershed (Figure 6). According to the *Blue Book* series (BB) relative to tax units, the Gini index fell by over five percentage points for incomes before taxes and seven points for incomes after taxes between 1938 and 1949.[9] The leveling of incomes continued, at a much slower pace and with some minor recrudescence, until the late 1970s, when the trend abruptly reversed. The values of the Gini index in 1984/85, when the series was discontinued, were not too different from those prevailing in the aftermath of the war. The series published in *Economic Trends* (ET) for the distribution of disposable income among households shows a much flatter trend than the corresponding BB series in the period where they overlap. The five years between 1985 and 1990 saw an unprecedented rise of income inequality, as testified by the seven-point increase of the Gini index for equivalent disposable income. Ever since, the concentration of income has shown some changes but no sustained trend, as also confirmed by Jenkins' (2000) estimates based on the British Household Panel Survey. The consistent time series

[9] Note, however, that the Royal Commission on the Distribution of Income and Wealth warns that the figures for 1938 and 1949 "... should not be interpreted as precise comparisons ... but rather as approximate indicators of a significant change in the distribution between these two years" (1979, p. 17).

reconstructed at the Institute for Fiscal Studies (IFS) for Great Britain exhibits basically the same pattern as the ET series. As regards the distribution of market incomes, inequality steadily rose in the 1960s, 1970s, and especially 1980s, and then stabilized in the 1990s.

Two features of distributive changes in the United Kingdom need to be highlighted (Atkinson 2003). The first is the mere size of the upsurge in inequality in the second half of the 1980s – far higher than in the United States. In part, this rise reflects the failure of public redistributive policies to counteract the pressure towards greater inequality generated in the economy. This is clearly illustrated by the comparison between the Gini index for equivalent market income and that for equivalent disposable income: between 1985 and 1990, the former rose by three percentage points, whilst the latter went up by seven points. The reforms of personal income taxation, unemployment benefits and social assistance implemented in that period all went in the direction of widening the distribution of disposable income (e.g., Johnson and Webb 1993; Atkinson and Micklewright 1989; Atkinson 1993). The second feature worth mentioning is that inequality stopped growing during the 1990s. What needs to be explained in the British historical pattern is a single episode of extraordinary intensity leading to a new higher inequality plateau, more than a lasting long-run tendency.

The experience of Canada differs from that of the two other Anglo-Saxon countries (Figure 7). The distribution of pre-tax monetary incomes among families and unrelated individuals has not varied much from 1965 to late 1980s, although we may discern episodes when inequality was virtually stable (1983 to 1989), ascending (1965 to 1971, 1981 to 1983), or descending (second half of the 1970s). The pattern for the Gini index of incomes after taxes was much the same, except perhaps for a slight equalizing tendency over the entire period. This “stasis amid change”, as labeled by Wolfson (1986), is noteworthy when contrasted with the widening of the distribution of market incomes, particularly sharp in the early 1980s. What

distinguishes Canada from the United Kingdom and the United States appears to be the redistributive role of public transfers in offsetting the increasing inequality generated by market mechanisms (Fritzell 1993; Osberg, Erskoy and Phipps 1997).

The 1990s marked a change as inequality begun to rise. From 1989 to 2004, the Gini index for disposable income has steadily gone up by overall four percentage points. Initially, public policies counteracted underlying forces towards a more unequal income distribution: between 1989 and 1996 the Gini index rose by three points for disposable income against six points for market income. This balancing role ceased after the mid-1990s. Frenette, Green, and Picot (2004) explain the change by the reduction of personal tax rates, especially for highest incomes, and the tightening of social benefits such as the unemployment insurance, whose reform in 1996 led to a halving of the ratio of beneficiaries to the unemployed. In short, Canada has experienced some noticeable increase in disposable income inequality in the last decade, after a long period of virtual stability; the worsening has however been much less pronounced than the overall widening in the distribution of market income.

Sweden and Finland

In Sweden the dispersion of equivalent family incomes decreased considerably from 1967 to 1975 and kept falling, more moderately, until 1981-1982 (Figure 8). While both transfers and direct taxes contributed to the narrowing between 1967 and 1975, Gustafsson and Palmer show that in subsequent years "... the development of transfers [was] a major cause of the decrease in inequality ... and was instrumental in offsetting the tendency of direct taxes to work in the direction of increased inequality" (Gustafsson and Palmer 1997, p. 308). The trend reversed in the early 1980s. By 1990 inequality was back to the level of 1975, and it

continued to rise throughout the 1990s.[10] Both the ascending tendency and the greater variability of the last fifteen years reflect the broadening of the income tax base brought about by the tax reform of 1991, which caused a major break in the IDS series. Moreover, the reform introduced incentives to realize capital gains on equities in 1991 and 1994, which being now included in the tax base produced sharp temporary increases of the Gini index (Björklund 1998; Eriksson and Pettersson 2000). Also the peak of inequality in 2000 follows from high capital gains in that year (Statistics Sweden 2004). Excluding capital gains from the income definition smoothes out the movements of inequality and dampens down its tendency to rise, as shown by the comparison of lines (2a) and (2b) in the Figure.

The Finnish distributions of gross and disposable income became substantially less unequal from 1966 to 1976, and then remained fairly stable over the 1980s and early 1990s (Figure 9). This is confirmed by the analysis of Lorenz dominance by Jäntti and Ritakallio (1997). Although part of the fall reflected the compression of the wage distribution brought about by income policies, these dynamics were mainly driven by the steady increase of government transfers (Uusitalo 1989). Their equalizing effect first amplified the decline in the inequality of market incomes from 1966 to 1976, then offset the considerable rise from 1981 to 1994. Redistribution was particularly effective during the severe and prolonged recession of the early 1990s, when the unemployment rate rose from 3.1 percent in 1990 to 16.6 in 1994. These patterns changed dramatically in the last years of the past century, as the redistributive impact of transfers and, to a much lesser extent, direct taxes weakened considerably: between 1994 and 2000 the Gini indices of gross and disposable incomes increased by around five

[10] All three series labeled (1) in the Figure refer to families, which are narrowly defined to include only an adult or a couple and all children below 18. The implication is to assume lower (statistical) income sharing within the household – e.g., children older than 18 living with their parents are treated as a separate family unit, and are not attributed the whole (equivalent) household income. This drives up measured inequality, as shown by the comparison of lines (2a) and (1c) in the Figure.

percentage points and returned to the values recorded in 1971, despite a modest rise in the concentration of market incomes. Inequality indices has flattened out over the first half of the current decade.

The Netherlands, West Germany, France, and Italy

In the last group of countries, all from continental Europe, the evidence is more mixed. In the Netherlands, there was a sharp rise in inequality towards the end of the 1980s, but from 1977 to 1985 and from 1990 onwards there has been little change, once statistical breaks are taken into account (Figure 10). The Gini index for equivalent disposable incomes fell in West Germany by four percentage points between 1962 and 1973, but the tendency reversed in the following quarter of a century, according to the Income and Consumption Survey (EVS, *Einkommens- und Verbrauchsstichproben*; Figure 11). The findings of the Socio-Economic Panel (SOEP), which are broadly in line with the EVS results in overlapping years, suggest that inequality has gone up through 2004, with an overall increase of the Gini index by almost four points between 1983 and 2004. The concentration of market incomes rose markedly from 1973 to 1978 and more moderately until 1988, but remained stable in the 1990s. All in all, the impact of public redistribution in Germany remained high and fairly stable from 1978 to 1998.

In France the Gini index of gross income did not vary from 1956 to 1962, fell considerably until 1990, and then was unchanged between 1990 and 1997; the Gini index of equivalent disposable income decreased until 1997, and then stabilized through 2004 (Figure 12). Thus, income inequality has not shown to date any upward trend in France. Note, however, that these estimates derives from the Tax Revenue Survey (ERF, *Enquête Revenus Fiscaux*) which is based on fiscal records supplemented with imputed social assistance benefits: as undeclared property incomes (i.e. those which are not taxed or are subject to

withholding tax) are not included in the income definition, inequality is understated (Guillemin and Roux 2003, p. 404) and the effect on time variations is uncertain. As regards Italy, a markedly egalitarian phase begun in the 1970s and lasted until the early 1980s; it has followed a period of fluctuations around a stationary or slightly rising trend (Figure 13). Post-tax income inequality rose sharply during the recession of 1992-93, the worst downturn since the Second World War, but remained surprisingly stable afterwards, in a period of many changes for the Italian economy, especially in the labor market (Boeri and Brandolini 2004).

Trends in monetary redistribution

The previous summary has shown how the evolution of inequality may differ whether it is measured for market income or for disposable income. This suggests that the trend in the redistributive impact of tax-and-transfer systems may also vary considerably. This is shown for six countries in Figure 14, again by looking at the absolute difference between the Gini index for market income and that for disposable income. Note that these time series also reflect national practices and so the level of redistribution is not completely comparable across nations. Despite the evidence of a "U-turn" in the US and UK, patterns vary by time period and country (see Alderson and Nielsen 2003; Smeeding 2002).

What emerges is a general pattern suggesting that the redistributive impact of taxes and transfers initially increased and then stabilized or dropped in all countries except for the United States, where it remained quite stable over time (but the series starts only in 1979). The United Kingdom stands out for having the most dramatic switch of regime, as in the early 1980s it apparently shifted from a situation not too different from the two Nordic countries to a model closer to that of the two North American countries. It is not possible to infer from this simple measure whether changes in redistribution are the automatic response of a progressive tax-

and-benefit system to changes in the distribution of market incomes, or are instead the product of explicit policy choices (Atkinson, 2004). Nevertheless, they confirm that a widening of the market income distribution need not result in a drastic increase in the inequality of disposable incomes. Rising levels of redistribution in Finland, Sweden, and to a lesser extent Canada – where policies have been increasingly targeted to the poor – have been more effective in muting increasing market income inequality than have stable but low levels of redistribution in the United States, though periods do matter (see also Mahler and Jesuit 2006, on this topic).

4. Conclusions

In this chapter, we have shown that there are considerable differences in the level of disposable income inequality across rich countries. Mexico and Russia have the most unequal distributions, followed by English-speaking countries intertwined with southern European countries; other continental European nations come next, and the Nordic countries show the lowest level of inequality; most eastern European countries show low to medium levels of inequality, while Taiwan and Japan are in an intermediate position. This clustering owes much to the working of the national tax-and-benefit systems, which have a considerable role in narrowing the original market income distribution. A further egalitarian impact is due to benefits in kind, although the evidence is still limited.

National experiences vary during the last four decades and there is no one overarching common story. There was some tendency for the disposable income distribution to narrow until the mid-1970s. Then, income inequality rose sharply in the United Kingdom in the 1980s and in the United States in the 1980s and 1990s(and still continuing), but more moderately in Canada, Sweden, Finland and West Germany in the 1990s. Moreover, the timing and magnitude of the increase differed widely across nations. Inequality did not show any

persistent tendency to rise in the Netherlands, France and Italy. Commonality seems to be greater for market income inequality: in five of the six countries for which we have data, we observe an increase in the 1980s and early 1990s and a substantial stability afterwards. Changing public monetary redistribution appears to be an important determinant of the time pattern of the inequality of disposable incomes.

Changes in inequality do not exhibit clear trajectories, but rather irregular movements, with more substantial changes often concentrated in rather short lapses of time. Together with the lack of a common international pattern, this suggests to look at explanations based on the joint working of multiple factors which sometimes balance out, sometimes reinforce each other, rather than to focus on explanations centered on a single cause like de-industrialization, skill-biased technological progress, or globalization. Identifying and characterizing episodes and turning points in the dynamics of inequality may reveal more fruitful than searching for overarching general tendencies.

All countries considered in this chapter share what we very loosely defined a western-type democracy. The large cross-country variation in levels and trends of inequality suggests that the specific features of a democratic political system must be taken into account in order to explain its interconnections with income distribution. The electoral system, the division of power between the central and local administrations, the political inclination of running coalitions may all be relevant factors behind observed changes in inequality, that interact with other institutional characteristics and the operation of economic forces. The variable, but always noticeable, effect on inequality that is attributable to public redistribution confirms the importance of understanding how the political system mediates and brings to a realization people's political views. Whatever the link between democracy and inequality, it is unlikely to be a simple one.

References

Aaron, H. J. (1978), *Politics and the Professors*, Washington, D.C., Brookings Institution.

Acemoglu, D., and J. A. Robinson (2006), *Economic Origins of Dictatorship and Democracy*, Cambridge, Cambridge University Press.

Alderson, A. S., and F. Nielsen (2002), "Globalisation and the Great U-Turn: Income Inequality Trends in 16 OECD Countries", *American Journal of Sociology*, vol. 107, pp. 1244-1299.

Atkinson, A. B. (1993), "What is Happening to the Distribution of Income in the UK?", *Proceeding of the British Academy*, vol. 82, pp. 317-351.

Atkinson, A. B. (1970), "On the Measurement of Inequality", *Journal of Economic Theory*, 1970, 2 (3), pp. 244-263.

Atkinson, A. B. (2003), "Income Inequality in OECD Countries: Data and Explanations", *CESifo Economic Studies*, vol. 49, pp. 479–513.

Atkinson, A. B. (2004), "Increased Income Inequality in OECD Countries and the Redistributive Impact of the Government Budget", in G. A. Cornia (eds), *Inequality, Growth, and Poverty in an Era of Liberalization and Globalization*, pp. 220-248, Oxford, Oxford University Press.

Atkinson, A. B., and A. Brandolini (2001), "Promises and Pitfalls in the Use of Secondary Data-Sets: Income Inequality in OECD Countries as a Case Study", *Journal of Economic Literature*, vol. 39, pp. 771-800.

Atkinson, A. B., and J. Micklewright (1989), "Turning the Screw: Benefits for the Unemployed 1979-88", in A. Dilnot and I. Walker (eds), *The Economics of Social Security*, pp. 17-51, Oxford, Oxford University Press.

Atkinson, A. B., and J. Micklewright (1992), *Economic transformation in Eastern Europe and the distribution of income*, Cambridge, Cambridge University Press.

Atkinson, A.B., L. Rainwater and T. M. Smeeding (1995), *Income Distribution in OECD Countries: The Evidence from the Luxembourg Income Study (LIS)*, Paris, Organization for Economic Cooperation and Development.

Becker, I. (1997), "Die Entwicklung von Einkommensverteilung und Einkommensarmut in den alten Bundesländern von 1962 bis 1988", in I. Becker and R. Hauser (eds), *Einkommensverteilung und Armut. Deutschland auf dem Weg zur Vierfünftel-Gesellschaft?*, pp. 43-61, Frankfurt, Campus.

Becker, I., J. R. Frick, M. M. Grabka, R. Hauser, P. Krause and G. G. Wagner (2003), "A Comparison of the Main Household Income Surveys for Germany: EVS and SOEP", in R. Hauser and I. Becker (eds), *Reporting on Income Distribution and Poverty*, pp. 55-90, Berlin-Heidelberg, Springer.

Benabou, R. (1996), "Inequality and Growth", in B. S. Bernanke and J. J. Rotemberg (eds), *NBER Macroeconomics Annual 1996*, pp. 11-74, Cambridge, MA, MIT Press.

Björklund, A. (1998), "Income Distribution in Sweden: What Is the Achievement of the Welfare State?", *Swedish Economic Policy Review*, vol. 5, pp. 39-80.

Bluestone, B., and B. Harrison (1988), *The Great U-Turn. Corporate Restructuring and the Polarizing of America*, New York, Basic Books.

Boeri, T., and A. Brandolini (2004), "The Age of Discontent: Italian Households at the Beginning of the Decade", *Giornale degli economisti e Annali di economia*, vol. 63, pp. 155-193.

Boix, C. (2003), *Democracy and Redistribution*, Cambridge, Cambridge University Press.

Brandolini, A. (1998), "A Bird's-Eye View of Long-Run Changes in Income Inequality", Banca d'Italia, Mimeo.

Brandolini, A. (2004), "Income Inequality and Poverty in Italy: A Statistical Compendium", Banca d'Italia, Mimeo.

Brewer, M., A. Goodman, J. Shaw and L. Sibieta (2006), "Poverty and Inequality in Britain: 2006", *IFS Commentary*, No. 101, London, Institute for Fiscal Studies. Data available at: http://www.ifs.org.uk/bns/bn19figs.zip.

Budd, E. C., and D. B. Radner (1975), "The Bureau of Economic Analysis and Current Population Survey Size Distributions: Some Comparisons for 1964", in J. D. Smith (ed.), *The Personl Distribution of Income and Wealth*, Studies in Income and Wealth, vol. 39, pp. 449-558, New York, Columbia University Press.

Castles, F. G. (1996), "On Income Inequality and Democracy: Theories and Findings in Search of a Viable Data Base", Australian National University, Research School of Social Sciences, Discussion Paper, No. 343, March.

Chevalier, P., Guillemin, O., Lapinte, A., and J.-P. Lorgnet (2006), "Les évolutions de niveau de vie entre 1970 et 2002", in INSEE, *Données sociales – La société française*, pp. 445-454, Paris, INSEE.

Concialdi, P. (1997), "Income Distribution in France: the Mid 1980s Turning Point", in P. Gottschalk, B. Gustafsson and E. Palmer (eds), *Changing Patterns in the Distribution of Economic Welfare. An International Perspective*, pp. 239-264, Cambridge, Cambridge University Press.

Deaton, A. (2005), "Measuring Poverty in a Growing World (Or Measuring Growth in a Poor World)", *Review of Economics and Statistics*, vol. 87, pp. 1-19.

Deininger, K. and L. Squire (1996), "A New Data Set Measuring Income Inequality", *World Bank Economic Review*, vol. 10, pp. 565-591.

Dowrick, S., and M. Akmal (2005), "Contradictory Trends in Global Income Inequality: A Tale of Two Biases", *Review of Income and Wealth*, vol. 51, pp. 201-229.

Eriksson, I., and T. Pettersson (2000), "Income Distribution and Income Mobility – Recent Trends in Sweden", in R. Hauser and I. Becker (eds), *The Personal Distribution of Income in an International Perspective*, pp. 158-175, Berlin, Springer.

Frenette, M., D. Green and G. Picot (2004), "Rising Income Inequality Amid the Economic Recovery of the 1990s: An Exploration of Three Data Sources", Statistics Canada, Analytical Studies Branch Research Paper Series, No. 219, July.

Fritzell, J. (1993), "Income Inequality Trends in the 1980s: A Five-Country Comparison". *Acta Sociologica*, vol. 36, pp. 47-62.

Garfinkel, I., L. Rainwater, and T.M. Smeeding (2006), "A Reexamination of Welfare State and Inequality in Rich Nations: How In-Kind Transfers and Indirect Taxes Change the Story", *Journal of Policy Analysis and Management*, vol. 25, pp. 855-919.

Garfinkel, I., L. Rainwater, T. M. Smeeding (2005), "Equal Opportunities for Children: Social Welfare Expenditures in the English-Speaking Countries and Western Europe", *Focus* vol. 23, pp. 16-25.

Goodman, A., and S. Webb (1994), "For Richer, For Poorer, The Changing Distribution of Income in the United Kingdom 1961-1991", *IFS Commentary*, No. 42, London, Institute for Fiscal Studies.

Gottschalk, P., and T. M. Smeeding (1997), "Cross-National Comparisons of Earnings and Income Inequality", *Journal of Economic Literature*, vol. 35, pp. 633-687.

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*, pp. 261-308.

Guillemin, O., and V. Roux (2003), "Le niveau de vie des ménages de 1970 à 1999", in INSEE, *Données sociales – La société française*, pp. 401-412, Paris, INSEE.

Gustafsson, B., and E. Palmer (1997), "Changes in Swedish Inequality: A Study of Equivalent Income, 1975-1991", in P. Gottschalk, B. Gustafsson and E. Palmer (eds), *Changing Patterns in the Distribution of Economic Welfare. An International Perspective*, pp. 293-325, Cambridge, Cambridge University Press.

Gustafsson, B., and H. Uusitalo (1990), "Income Distribution and Redistribution during Two Decades: Experiences from Finland and Sweden", in I. Persson (ed.), *Generating Equality in the Welfare State. The Swedish Experience*, pp. 73-95, Oslo, Norwegian University Press.

Hauser, R., and I. Becker (2001), *Einkommensverteilung im Querschnitt und im Zeitverlauf 1973 bis 1998*, Bonn, Bundesministeriums für Arbeit und Sozialordnung.

Hourriez, J.-M., and V. Roux (2001), "Vue d'ensemble des inégalités de revenu et de patrimoine", in Conseil D'Analyse Économique, *Inégalités Économiques*, pp. 269-284, Paris, La Documentation Française.

Immervoll, H., H. Levy, C. Lietz, D. Mantovani, C. O'Donoghue, H. Sutherland and G. Verbist (2005), "Household incomes and redistribution in the European Union: quantifying the equalising properties of taxes and benefits". EUROMOD, Working Paper No. EM9/05.

INSEE (2006), *Les revenus et le patrimoine des ménages. Édition 2006*, Paris, INSEE.

International Monetary Fund (2006), *World Economic Outlook*, September 2006 edition, Washington, D.C., International Monetary Fund.

Ishikawa, T. (1996), Data runs conducted by Ministry of Welfare, 26 November.

Jäntti, M., and V.-M. Ritakallio (1997), "Income Inequality and Poverty in Finland in the 1980s", in P. Gottschalk, B. Gustafsson and E. Palmer (eds), *Changing Patterns in the Distribution of Economic Welfare. An International Perspective*, pp. 326-350, Cambridge, Cambridge University Press.

Jenkins, S. P. (2000), "Trends in the UK Income Distribution", in I. Becker (ed.), *The Personal Distribution of Income in an International Perspective*, pp. 129-157, London, Springer.

Jones, F. (2006), "The Effects of Taxes and Benefits on Household Income, 2004/05", Office for National Statistics, available at: http://www.statistics.gov.uk/articles/nojournal/taxes benefits200405/Taxesbenefits200405.pdf.

Johnson, P., and S. Webb (1993), "Explaining the Growth in UK Income Inequality", *Economic Journal*, vol. 103, pp. 429-443.

Kuznets, S. (1953), *Shares of Upper Income Groups in Income and Savings*, New York, National Bureau of Economic Research.

Kuznets, S. (1955), "Economic Growth and Income Inequality", *American Economic Review*, vol. 45, pp. 1-28.

Lenski, G. (1966), *Power and Privilege: A Theory of Social Stratification*, New York, NY, McGraw-Hill.

Mahler, V. A., and D. K. Jesuit, (2006), "Fiscal Redistribution in the Developed Countries: New Insights from the Luxembourg Income Study", *Socio-Economic Review*, vol. 4, pp. 483-511.

Osberg, L., S. Erksoy and S. Phipps (1997), "Unemployment, Unemployment Insurance and the Distribution of Income in Canada in the 1980s", in P. Gottschalk, B. Gustafsson and E. Palmer (eds), *Changing Patterns in the Distribution of Economic Welfare. An International Perspective*, pp. 84-107, Cambridge, Cambridge University Press.

Pechman, J. A. (1958), "Comment", in *An Appraisal of the 1950 Census Income Data*, Studies in Income and Wealth, vol. 23, pp. 107-115, Princeton, Princeton University Press.

Persson, T., and G. Tabellini. (1994). "Is Inequality Harmful for Growth?", *American Economic Review*, vol. 84, pp. 600-621.

Rainwater, L., and T. M. Smeeding (2003), *Poor Kids in a Rich Country*, Russell Sage Foundation.

Royal Commission on the Distribution of Income and Wealth (1979), *Report 7. Fourth Report on the Standing Reference*. London: HMSO.

Ryscavage, P. (1995), "A Surge in Growing Income Inequality?", *Monthly Labor Review*, vol. 118, No. 8, pp. 51-61.

Schwabish, J., T.M. Smeeding, and L. Osberg (2006), "Income Distribution and Social Expenditures: A Cross-National Perspective." In D.B. Papadimitriou (ed.), *The Distributional Effects of Government Spending and Taxation*. Northampton, MA: Edward Elgar Publishing, pp. 247-288.

Shanahan, S. E., and N. B. Tuma (1994), "The Sociology of Distribution and Redistribution", in N. J. Smelser and R. Swedberg (eds), *The Handbook of Economic Sociology*, pp. 733-765, Princeton, NJ, Princeton University Press.

Smeeding, T. M. (2002), "Globalisation, Inequality, and the Rich Countries of the G-20: Evidence from the Luxembourg Income Study (LIS)", in D. Gruen, T. O'Brien, and J. Lawson (eds), *Globalisation, Living Standards, and Inequality, Recent Progress and Continuing Challenges,* Australia: J.S. McMillian Printing Group, pp. 179-206.

Smeeding, T. M. (2004), "Twenty Years of Research on Income Inequality, Poverty, and Redistribution in the Developed World: Introduction and Overview", *Socio-Economic Review*, vol. 2, pp. 149-163.

Smeeding, T. M. (2005), "Public Policy, Economic Inequality, and Poverty: The United States in Comparative Perspective", *Social Science Quarterly*, vol. 86 (supplement), pp. 955-983.

Smeeding, T. M., and L. Rainwater (2004), "Comparing Living Standards across Nations: Real Incomes at the Top, the Bottom, and the Middle", in E. N. Wolff (ed.), *What Has Happened to the Quality of Life in the Advanced Industrialized Nations?*, pp. 153-183, Northampton, MA, Edward Elgar.

Smeeding, T. M., P. Saunders, J. Coder, S. Jenkins, J. Fritzell, A. J. M. Hagenaars, R. Hauser, and M. Wolfson (1993), "Poverty, Inequality, and Family Living Standards Impacts across Seven Nations: The Effect of Noncash Subsidies for Health, Education, and Housing", *Review of Income and Wealth*, vol. 39, pp. 229-256.

SOEP (2006), *SOEP-Monitor. Beobachtungszeitraum: 1984-2005. Analyse-Ebene: Person*, available at: http://www.diw.de/deutsch/sop/service/soepmonitor/soepmonitor_person2005.pdf.

Solow, R. M. (1960), "Income Inequality Since the War", in R. E. Freeman (ed.), *Postwar Economic Trends in the United States*, pp. 91-138, New York, Harper.

Stark, T. (1977), *The Distribution of Income in Eight Countries*, Royal Commission on the Distribution of Income and Wealth, Background Paper No. 4, London, HMSO.

Statistics Canada (1996), *Income after tax, distributions by size in Canada. 1994*, Ottawa, Statistics Canada.

Statistics Canada (2007), *Table 202-0705 - Gini coefficients of market, total and after-tax income, by economic family type, annual (number)*, downloaded on 16 March 2007 from: http://cansim2.statcan.ca/cgi-win/cnsmcgi.pgm?Lang=E&ArrayId=2020705&Array_Pick=1&Detail=1&RootDir=CII/&ResultTemplate=CII\CII___.

Statistics Finland (2006), *Tuloerojen kehitys Suomessa 1966-2004*, available at: http://www.stat.fi/til/tjt/2004/tjt_2004_2006-06-16_tau_001.html.

Statistics Sweden (2004), *Income distribution survey 2002*, available at: http//:www.scb.se/templates/Publikation____90903.asp.

Statistics Sweden (2006a), *The distribution of income 1975-2004*, available at: http://www.scb.se/templates/tableOrChart____163551.asp.

Statistics Sweden (2006b), *Disposable income including capital gains per consumption unit for individuals by deciles*, available at: http://www.scb.se/templates/tableOrChart____163545.asp

Statistics Sweden (2006c), *Disposable income per consumption unit excluding capital gains by deciles*, available at: http://www.scb.se/templates/tableOrChart____163547.asp

Summers, R., and A. Heston (1991), "The Penn World Table (Mark 5): An Expanded Set of International Comparisons, 1950–1988", *Quarterly Journal of Economics*, vol. 106, pp. 327-368.

United Nations (1981), *A Survey of National Sources of Income Distribution Statistics (First Report)*, Statistical Papers, Series M, No. 72, New York, United Nations.

U.S. Census Bureau (2006a), "Historical Income Tables – Families – Table F-4. Gini Ratios for Families, by Race and Hispanic Origin of Householder: 1947 to 2005", available at: http://www.census.gov/hhes/income/histinc/f04.html.

U.S. Census Bureau (2006b), "Historical Income Tables – Households – Table H-4. Gini Ratios for Households, by Race and Hispanic Origin of Householder: 1967 to 2005", available at: http://www.census.gov/hhes/income/histinc/h02ar.html.

U.S. Census Bureau (2006c), "Historical Income Tables: Experimental Measures – Table RDI-5. Index of Income Concentration (Gini Index), by Definition of Income: 1979 to 2003", available at: http://www.census.gov/hhes/income/histinc/rdi5.html.

U.S. Council of Economic Advisers (1994), *Economic Report of the President*, Washington, DC.

Uusitalo, H. (1989), *Income Distribution in Finland. The Effects of the Welfare State and the Structural Changes in Society on Income Distribution in Finland in 1966-1985*, Studies No. 148, Helsinki, Central Statistical Office of Finland.

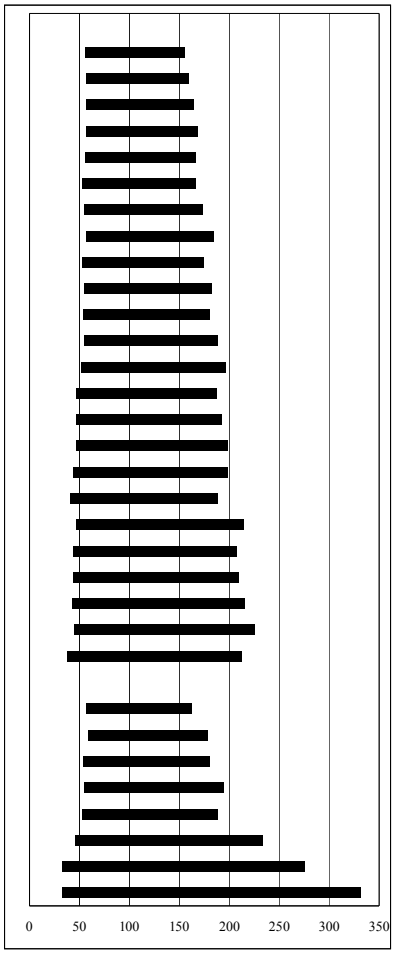
Voitchovsky, S (2005), "Does the Profile of Income Inequality Matter for Economic Growth?", *Journal of Economic Growth*, vol. 10, pp. 273-296.

Wolfson, M. C. (1986), "Stasis Amid Change – Income Inequality in Canada 1965-1983", *Review of Income and Wealth*, vol. 32, pp. 337-369.

World Bank (2005), *World Development Report 2006. Equity and Development*, New York and Oxford, Oxford University Press.

Figure 1. The Distribution of Equivalent Disposable Income in 32 Countries

	P10 (Low income)	Length of bars represents the gap between high and low income individuals	P90 (High income)	P90/P10 (Decile ratio)	Gini index
High-income economies					
Denmark 2000	57		155	2.8	0.225
Norway 2000	57		159	2.8	0.251
Finland 2000	57		164	2.9	0.247
Sweden 2000	57		168	3.0	0.252
Netherlands 1999	56		167	3.0	0.248
Slovenia 1999	53		167	3.2	0.249
Austria 2000	55		173	3.2	0.260
Luxembourg 2000	57		184	3.2	0.260
Belgium 2000	53		174	3.3	0.277
Switzerland 2000	55		182	3.3	0.280
Germany 2000	54		180	3.4	0.275
France 2000	55		188	3.4	0.278
Taiwan 2000	52		196	3.8	0.296
Canada 2000	48		188	3.9	0.302
Japan 1992	46		192	4.2	0.315
Australia 2001	47		199	4.2	0.317
Italy 2000	45		199	4.5	0.333
Ireland 2000	41		189	4.6	0.323
United Kingdom 1999	47		215	4.6	0.343
Greece 2000	43		207	4.8	0.338
Spain 2000	44		209	4.8	0.340
Israel 2001	43		216	5.0	0.346
Portugal 2000	45		226	5.0	0.363
United States 2000	37		212	5.7	0.370
Middle-income economies					
Slovak Republic 1996	56		162	2.9	0.241
Czech Republic 1996	59		179	3.0	0.259
Romania 1997	53		180	3.4	0.277
Hungary 1999	54		194	3.6	0.295
Poland 1999	52		188	3.6	0.293
Estonia 2000	46		234	5.1	0.361
Russia 2000	33		276	8.4	0.434
Mexico 2000	32		331	10.4	0.491



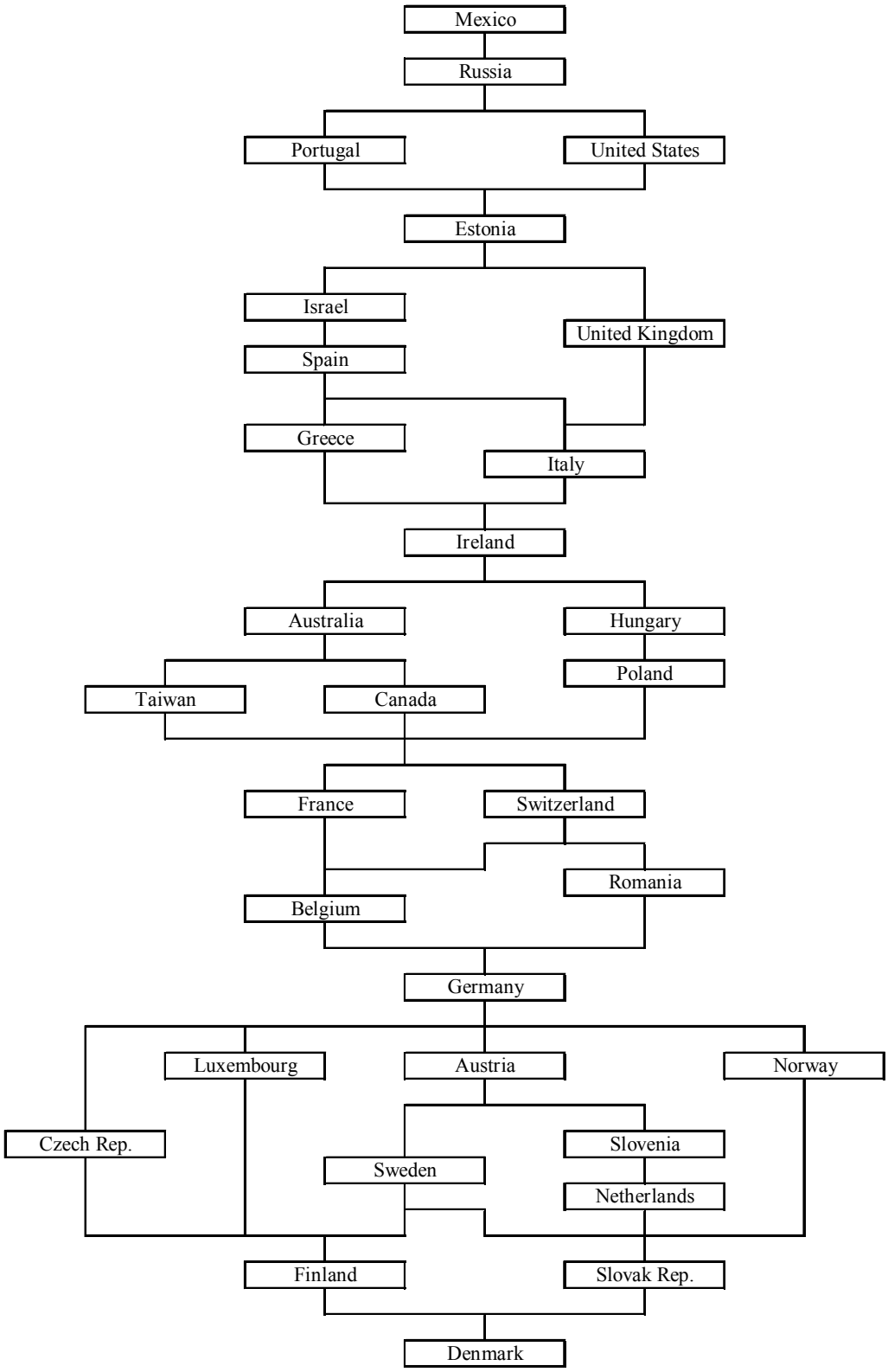
Source: Authors' calculations from the Luxembourg Income Study database, as of 10 March 2007 (figures coincide with those reported in http://www.lisproject.org/keyfigures/ineqtable.htm), and, for Portugal, from the European Community Household Panel database (Waves 1-8, December 2003); statistics for Japan were computed according to the same methodology as all other figures by Ishikawa for Gottschalk and Smeeding (2000). P10 and P90 are the ratios to the median of the 10th and 90th percentiles, respectively. Observations are bottom-coded at 1 percent of the mean of equivalent disposable income and top-coded at 10 times the median of unadjusted disposable income. Incomes are adjusted for household size by the square-root equivalence scale. Economies are classified by the World Bank (2005) according to 2004 per capita gross national income in the following income groups: low-income economies (LIC), $825 or less; lower-middle-income economies (LMC), $826–3,255; upper-middle income economies (UMC), $3,256–10,065; and high-income economies (HIC), $10,066 or more.

Table 1. Lorenz Comparison for the Distribution of Equivalent Disposable Income in 32 Countries

	Australia	Austria	Belgium	Canada	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece	Hungary	Ireland	Israel	Italy	Luxembourg	Mexico	Netherlands	Norway	Poland	Portugal	Romania	Russia	Slovak Republic	Slovenia	Spain	Sweden	Switzerland	Taiwan	United Kingdom
Austria	–																													
Belgium	–	+																												
Canada	–	+	+																											
Czech Republic	–	?	–	–																										
Denmark	–	–	–	–	–																									
Estonia	+	+	+	+	+	+																								
Finland	–	–	–	–	–	+	–																							
France	–	+	+	–	+	+	–	+																						
Germany	–	+	–	–	+	+	–	+	–																					
Greece	+	+	+	+	+	+	–	+	+	+																				
Hungary	?	+	+	?	+	+	–	+	+	+	–																			
Ireland	+	+	+	+	+	+	–	+	+	+	–	+																		
Israel	+	+	+	+	+	+	–	+	+	+	+	+	+																	
Italy	+	+	+	+	+	+	–	+	+	+	?	+	+	–																
Luxembourg	–	?	–	–	?	+	–	+	–	–	–	–	–	–	–															
Mexico	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+														
Netherlands	–	–	–	–	?	+	–	?	–	–	–	–	–	–	–	?	–													
Norway	–	?	–	–	?	+	–	?	–	–	–	–	–	–	–	?	–	?												
Poland	?	+	+	?	+	+	–	+	+	+	–	–	–	–	–	+	–	+	+											
Portugal	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	–	+	+	+										
Romania	–	+	?	–	+	+	–	+	?	+	–	–	–	–	–	+	–	+	+	–	–									
Russia	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	–	+	+	+	+	+								
Slovak Republic	–	–	–	–	?	+	–	?	–	–	–	–	–	–	–	?	–	–	–	–	–	–	–							
Slovenia	–	–	–	–	?	+	–	?	–	–	–	–	–	–	–	?	–	+	?	–	–	–	–	+						
Spain	+	+	+	+	+	+	–	+	+	+	+	+	+	–	+	+	–	+	+	+	–	+	–	+	+					
Sweden	–	–	–	–	?	+	–	+	–	–	–	–	–	–	–	?	–	?	?	–	–	–	–	+	?	–				
Switzerland	–	+	+	–	+	+	–	+	?	+	–	–	–	–	–	+	–	+	+	–	–	+	–	+	+	–	+			
Taiwan	–	+	+	?	+	+	–	+	+	+	–	?	–	–	–	+	–	+	+	?	–	+	–	+	+	–	+	+		
United Kingdom	+	+	+	+	+	+	–	+	+	+	?	+	+	?	+	+	–	+	+	+	–	+	–	+	+	?	+	+	+	
United States	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	–	+	+	+	?	+	–	+	+	+	+	+	+	+

Source: Authors' calculations, as described in source of Figure 1. Comparisons are based on cumulative decile points. A + (–) indicates that the Lorenz curve of the country shown in the row lies below (above) that of the country shown in the column, with a difference exceeding 0.3 percentage point for at least a cumulative decile group; a ? indicates that the Lorenz curves cross.

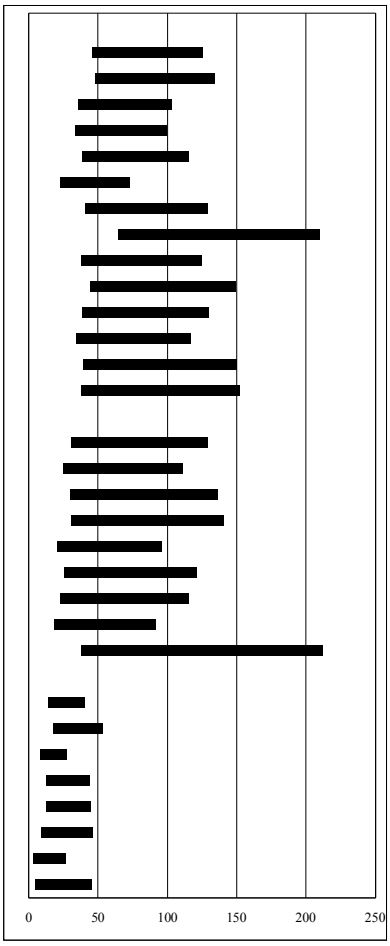
Figure 2. Hasse Diagram for the Distribution of Equivalent Disposable Income in 32 Countries



Source: Authors' calculations on the basis of information contained in Table 1.

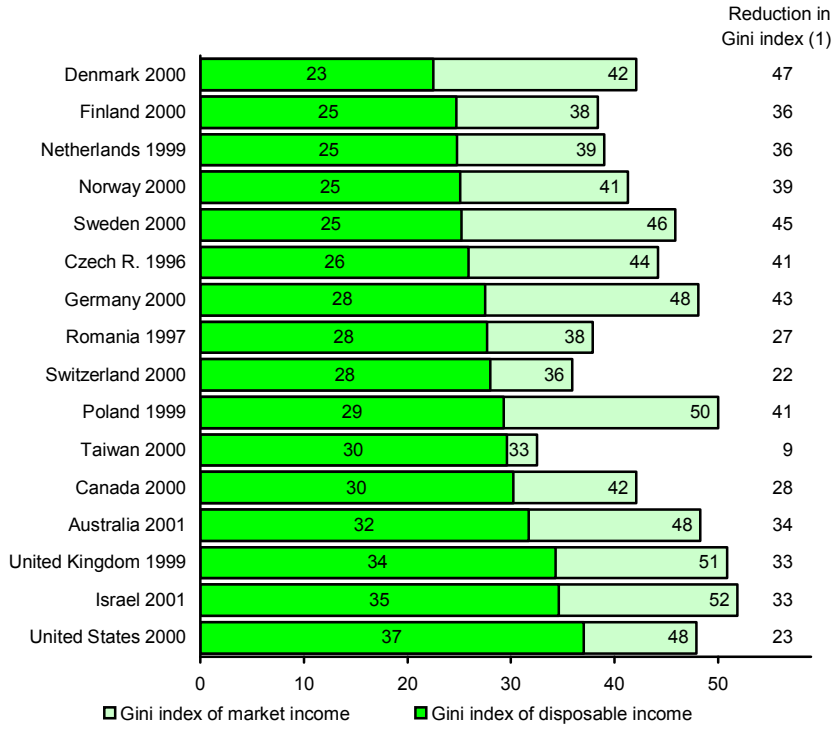
Figure 3. The Distribution of Real Disposable Income in 32 High- and Middle-Income Economies

	Real P10 (Low income)	Length of bars represents the gap between high and low income individuals	Real P90 (High income)	P90/P10 (Decile ratio)	Real median
High-income economies					
Denmark 2000	45		125	2.8	80
Norway 2000	48		134	2.8	84
Finland 2000	36		103	2.9	63
Sweden 2000	34		99	3.0	59
Netherlands 1999	39		116	3.0	69
Slovenia 1999	23		73	3.2	44
Austria 2000	41		129	3.2	75
Luxembourg 2000	65		209	3.2	114
Belgium 2000	38		125	3.3	72
Switzerland 2000	45		150	3.3	82
Germany 2000	39		130	3.4	72
France 2000	34		117	3.4	62
Taiwan 2000	39		150	3.8	76
Canada 2000	39		152	3.9	81
Japan 1992				4.2	
Australia 2001	30		129	4.2	65
Italy 2000	25		111	4.5	56
Ireland 2000	30		136	4.6	72
United Kingdom 1999	31		141	4.6	66
Greece 2000	20		96	4.8	46
Spain 2000	25		121	4.8	58
Israel 2001	23		115	5.0	53
Portugal 2000	18		91	5.0	40
United States 2000	37		212	5.7	100
Middle-income economies					
Slovak Republic 1996	14		40	2.9	25
Czech Republic 1996	18		54	3.0	30
Romania 1997	8		27	3.4	15
Hungary 1999	12		44	3.6	23
Poland 1999	12		45	3.6	24
Estonia 2000	9		47	5.1	20
Russia 2000	3		26	8.4	10
Mexico 2000	4		46	10.4	14



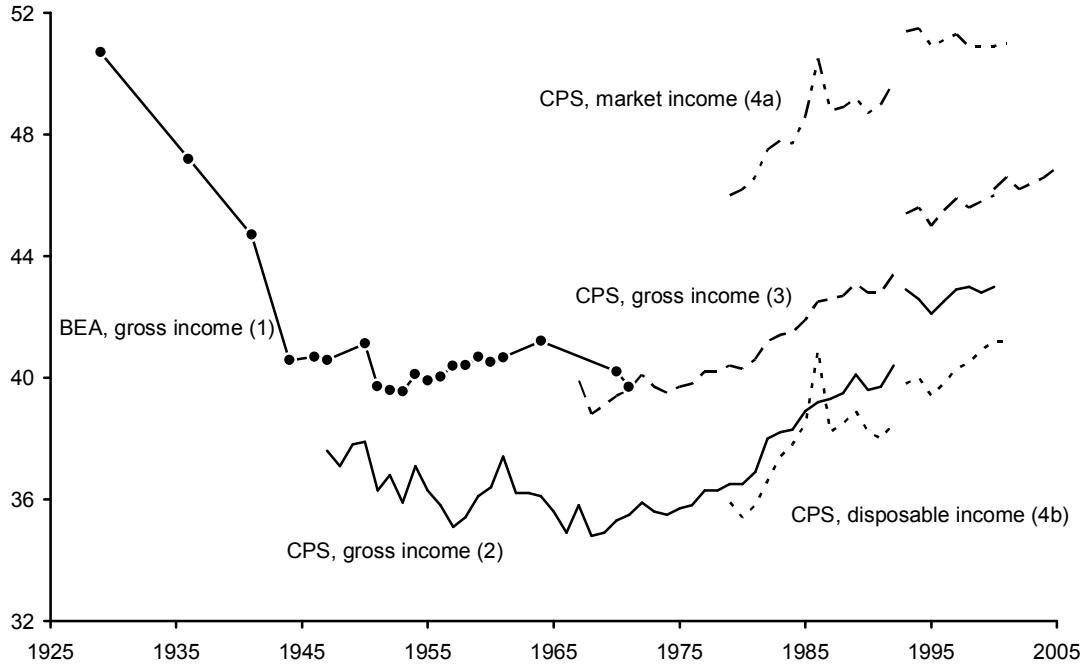
Source: Authors' calculations from the Luxembourg Income Study database, as of 10 March 2007, and, for Portugal, from the European Community Household Panel database (Waves 1-8, December 2003); statistics for Japan were computed according to the same methodology as all other figures by Ishikawa for Gottschalk and Smeeding (2000). Real P10 and P90 are the percentage ratios to the U.S. median of the 10th and 90th percentiles, respectively; real median is expressed as a percentage ratio of the U.S. median. Observations are bottom-coded at 1 percent of the mean of equivalent disposable income and top-coded at 10 times the median of unadjusted disposable income. Incomes are adjusted for household size by the square-root equivalence scale. Consumer price indices and purchasing power parity conversion factors from local currency units to international dollars are from International Monetary Fund (2006).

Figure 4. Gini Indices of Market Income and Disposable Income in 16 OECD Countries (percent)



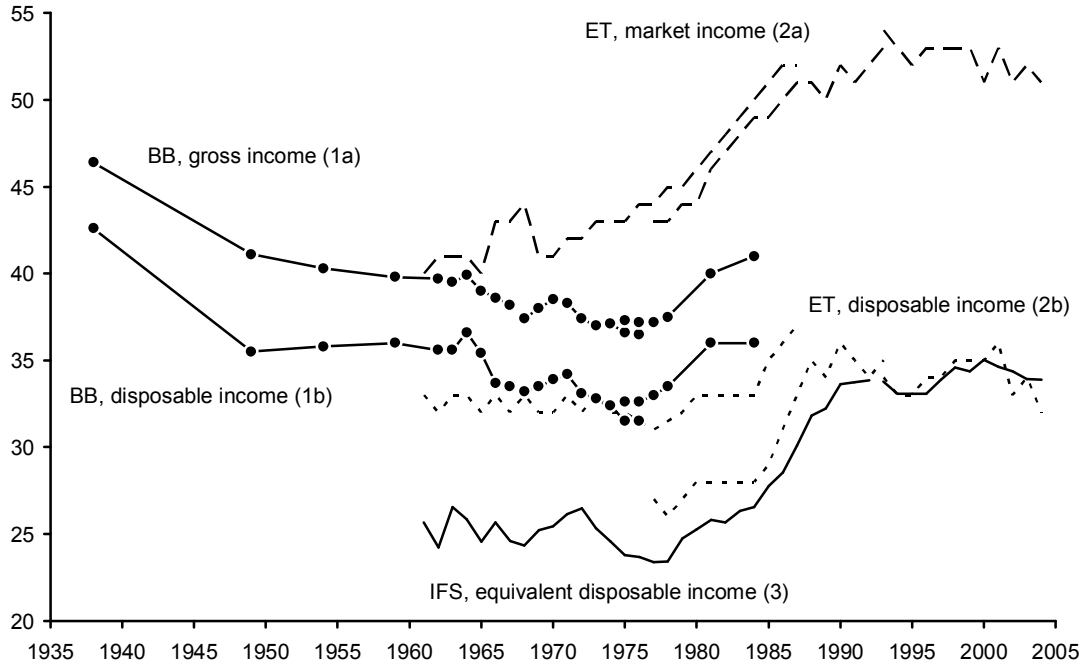
Source: Authors' calculations from the Luxembourg Income Study database, as of 10 March 2007. Observations for disposable income are bottom-coded at 1 per cent of the mean of equivalent disposable income and top-coded at 10 times the median of unadjusted disposable income. Changes in disposable incomes due to bottom- and top-coding are entirely attributed to market incomes. Both market and disposable incomes are adjusted for household size by the square-root equivalence scale. (1) Difference between the Gini index for market income and the Gini index for disposable income, expressed as a percentage of the former.

Figure 5: Gini index in the United States (percent)



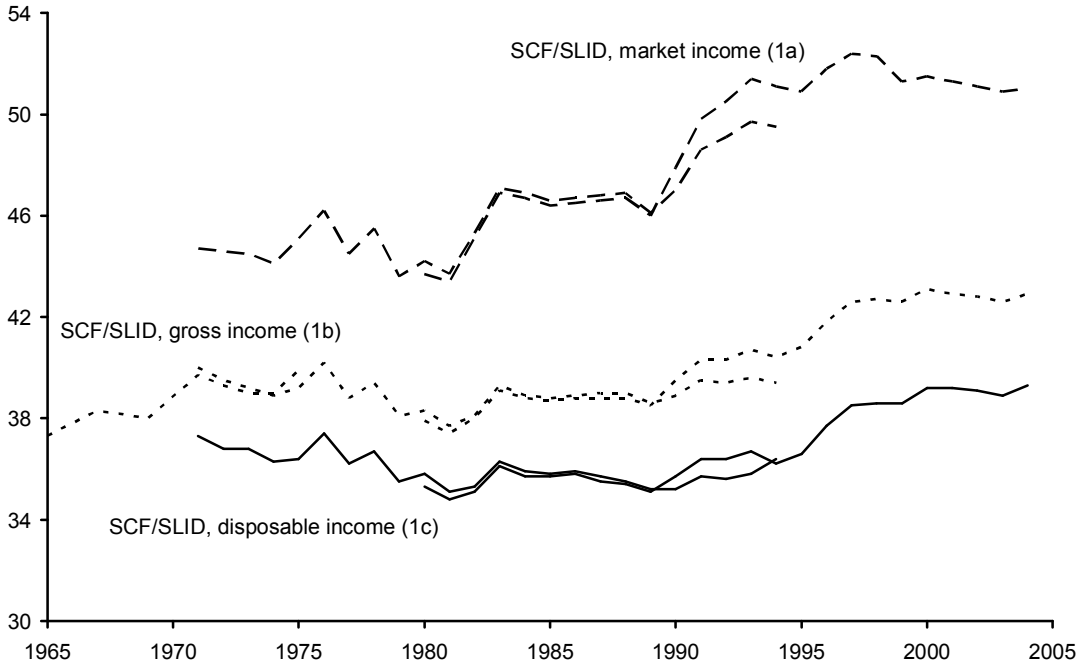
Sources: (1) Brandolini (1998, table A1): estimates from BEA grouped data for gross incomes of households. (2) U.S. Census Bureau (2006a), data from Current Population Survey (CPS): gross money income of families; weighted by family; shown the major discontinuity between 1992 and 1993, but not other minor breaks. (3) U.S. Census Bureau (2006b), data from CPS: gross money income of households (families and unattached individuals); weighted by household; shown the major discontinuity between 1992 and 1993 and the break in 2000 (for which two figures are given), but not other minor breaks. (4) U.S. Census Bureau (2006c), data from CPS: (a) market income including capital gains and health insurance supplements to wage and salary income of households (Definition 4); (b) disposable income including capital gains and health insurance supplements to wage and salary income of households (Definition 15); in both cases, weighted by household; shown the major discontinuity between 1992 and 1993, but not other minor breaks.

Figure 6: Gini index in the United Kingdom (percent)



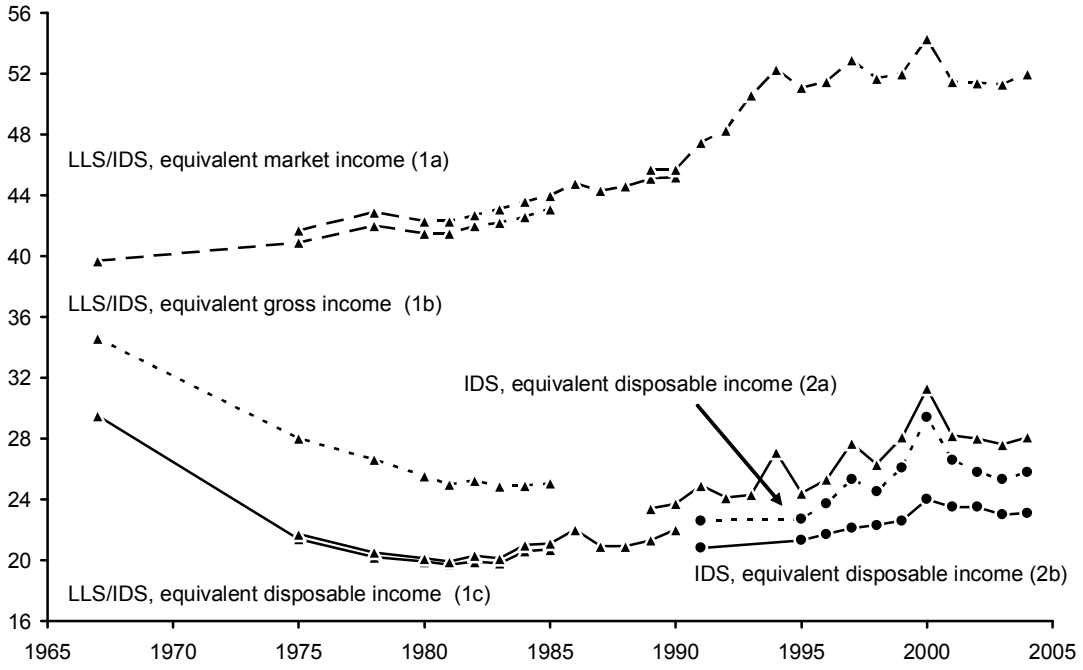
Sources: (1) Official publications of the Royal Commission on the Distribution of Income and Wealth and of the national statistical office as detailed in Brandolini (1998, table A3), data from Blue Book (BB): (a) gross income of tax units; (b) disposable income of tax units; in both cases, weighted by tax unit; the first series is for incomes net of amounts spent on mortgage interest (old basis), while the second is for incomes gross of those amounts (new basis); figures refer to calendar years until 1967 and to financial years afterwards (starting in the year indicated in the figure, e.g. 1968 for 1968/69). (2) Official publications of the Royal Commission on the Distribution of Income and Wealth and of the national statistical office as detailed in Brandolini (1998, table A3) for data prior to 1980; Jones (2006, table 27, p. 39) for 1980-2004/05, data from Family Expenditure Survey (FES) until 2000/01 and Expenditure and Food Survey (EFS) since 2001/02: (a) market income; (b) disposable income; in both cases, weighted by household; the first series refers to unadjusted incomes, the second series to equivalent income; McClements equivalence scale; figures refer to calendar years until 1993 and to financial years afterwards. (3) Brewer et al. (2006), data from FES for 1961-1993/94 and from Family Resources Survey (FRS) for 1994/95-2004/05: equivalent disposable income of households, before housing cost; weighted by person; McClements equivalent scale. Figures refer to Great Britain alone, but in the period 1961-1991 they differ by at most 0.4 percentage point from the corresponding series for the whole United Kingdom computed by Goodman and Webb (1994).

Figure 7: Gini index in Canada (percent)



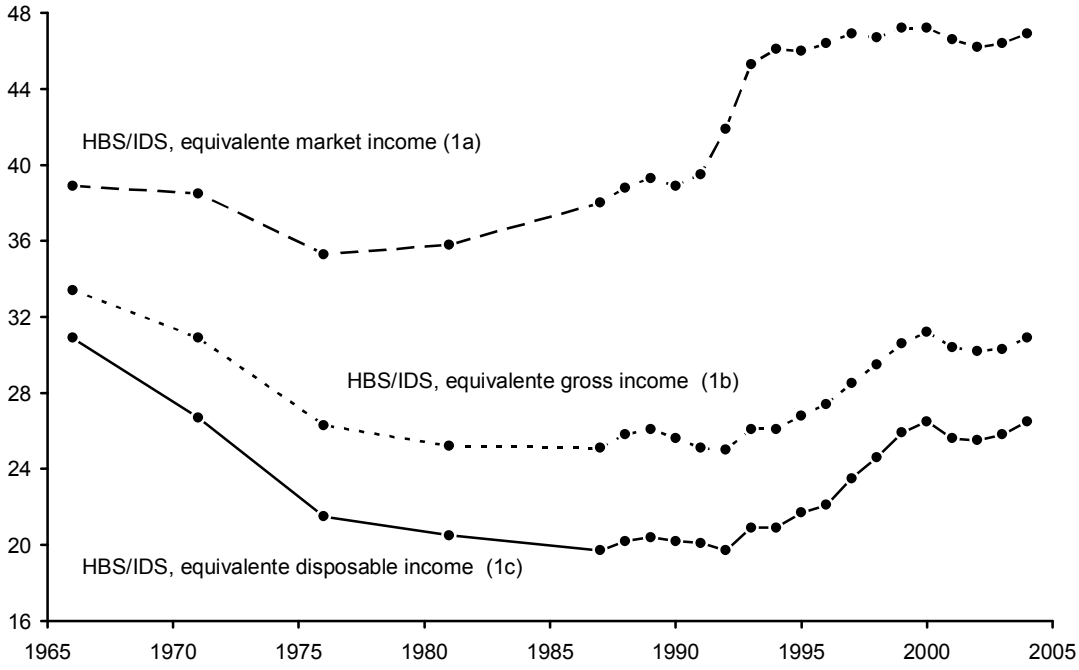
Sources: (1) Stark (1977, table 18, p. 33) for 1965-1975, Statistics Canada (1996, table 6, p. 34) for 1971-1994, and Statistics Canada (2007) for 1980-2004, data from Survey of Consumer Finances (SCF) for 1965-1995 and Survey of Labour and Income Dynamics (SLID) for 1996-2000: (a) market money income of households; (b) gross money income of households; (c) disposable money income of households; weighted by household.

Figure 8: Gini index in Sweden (percent)



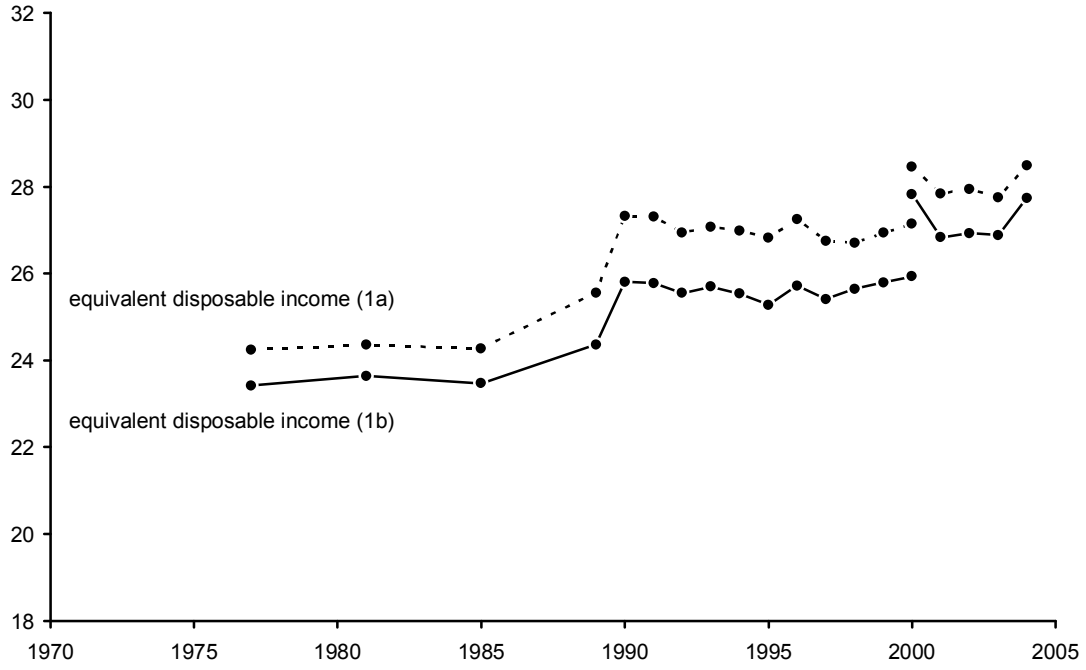
Sources: (1) Gustafsson and Uusitalo (1990, table 2, p. 85, table 3, p. 89, table 4, p. 91) for 1967-1985 and Statistics Sweden (2006a) for 1975-2004, data from Level-of-Living Survey (LLS) for 1967 and Income Distribution Survey (IDS) for 1975-2004: (a) equivalent market income of families; (b) equivalent gross income of families; (c) equivalent disposable income of families; in all cases, weighted by person; social assistance equivalence scale; second and third series differ for the definition of income. (2) Statistics Sweden (2006b,c): (a) equivalent disposable income of households, including capital gains; (b) equivalent disposable income of households, excluding capital gains; in both cases, weighted by person; social assistance equivalence scale.

Figure 9: Gini index in Finland (percent)



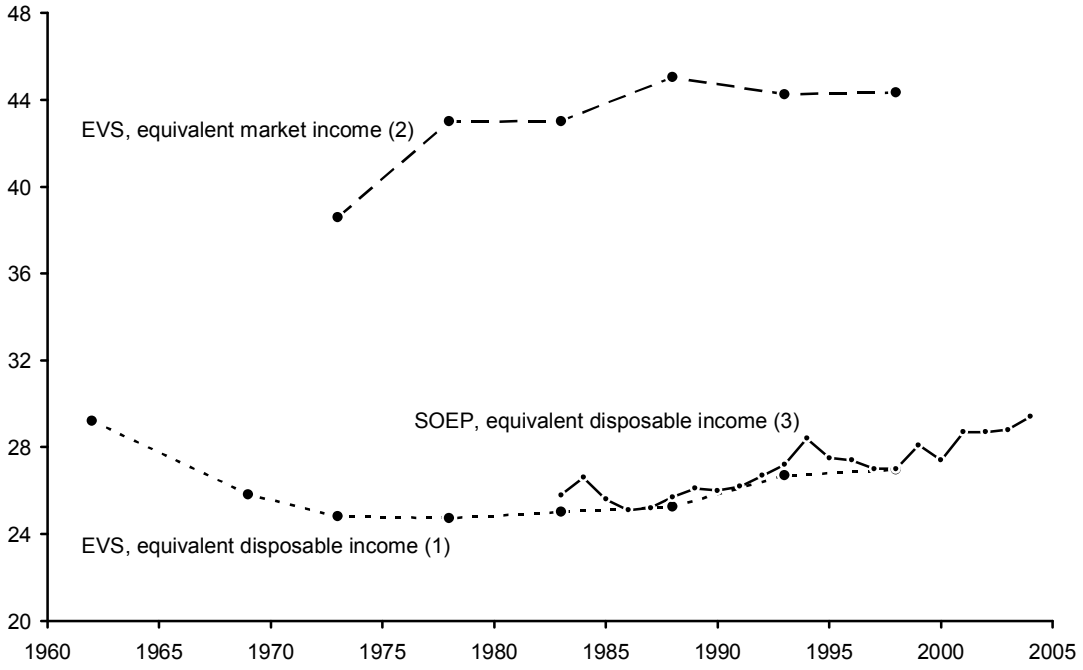
Sources: (1) Statistics Finland (2006), data from Household Budget Survey (HBS) for 1966-1981 and Income Distribution Survey (IDS) for 1987-2004: (a) equivalent market income of households; (b) equivalent gross income of households; (c) equivalent disposable income of households; in all cases, weighted by person; OECD equivalence scale.

Figure 10: Gini index in the Netherlands (percent)



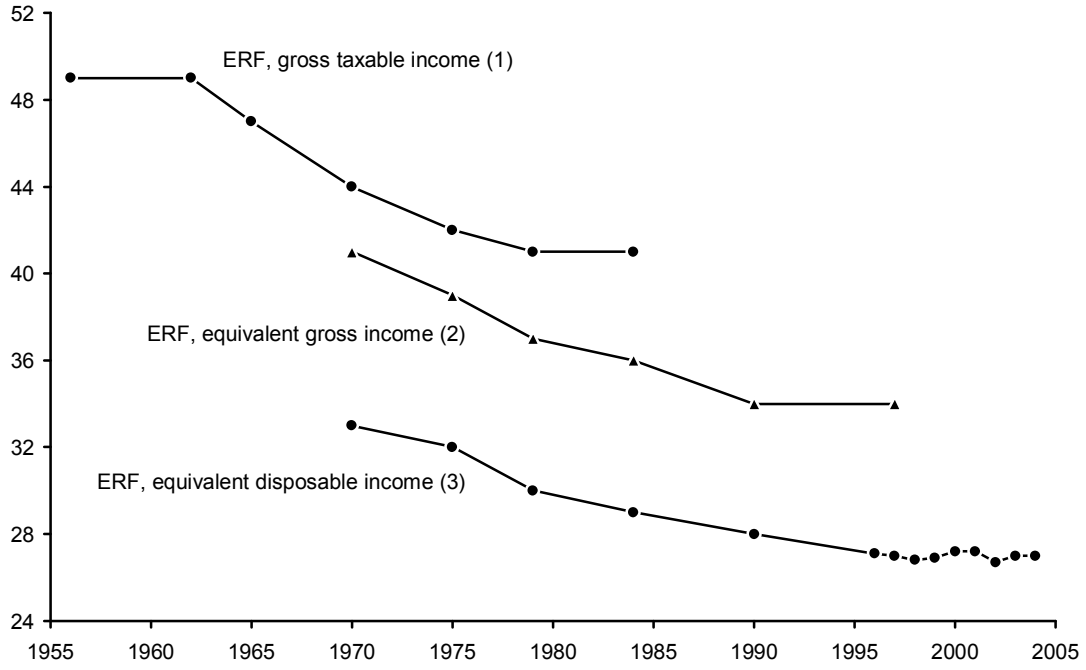
Sources: (1) Personal communication by Wim Bos of the Central Bureau of Statistics, data from Income Distribution Survey for 1977, 1981 and 1985 and form Income Panel Survey for 1989-2004: (a) equivalent disposable income of households; weighted by household; (b) equivalent disposable income of households; weighted by person; in both case, CBS equivalence scale.

Figure 11: Gini index in West Germany (percent)



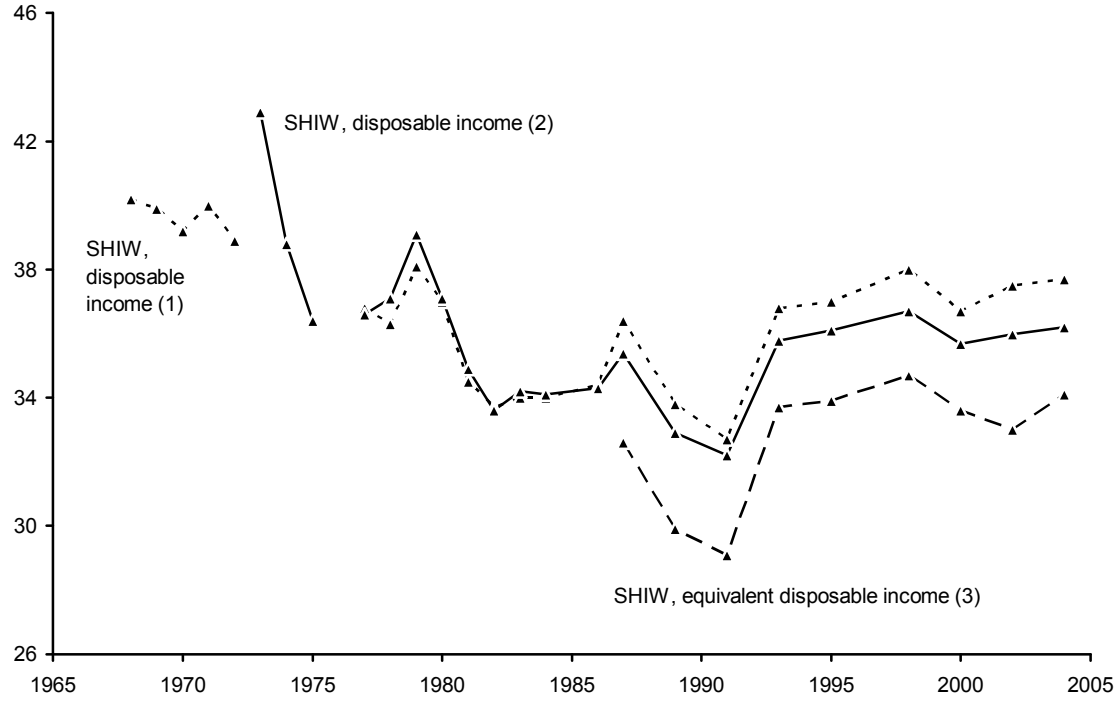
Sources: (1) Becker (1997, table 1, p. 47) for 1962-1988 and Becker et al. (2003, table 3.3, pp. 78-80) for 1983-1998, data from Income and Consumption Survey (EVS): equivalent disposable income of households; weighted by person; OECD equivalence scale; only German population. (2) Hauser and Becker (2001, p. 86) for 1973-1998 and Becker et al. (2003, table 3.1, pp. 73-4) for 1983-1998, EVS data: equivalent market income of households; weighted by person; OECD equivalence scale; only German population. (3) SOEP (2006, pp. 83-4), data from Socio-Economic Panel (SOEP): equivalent disposable income of households, included imputed rent; weighted by person; modified OECD equivalence scale.

Figure 12: Gini index in France (percent)



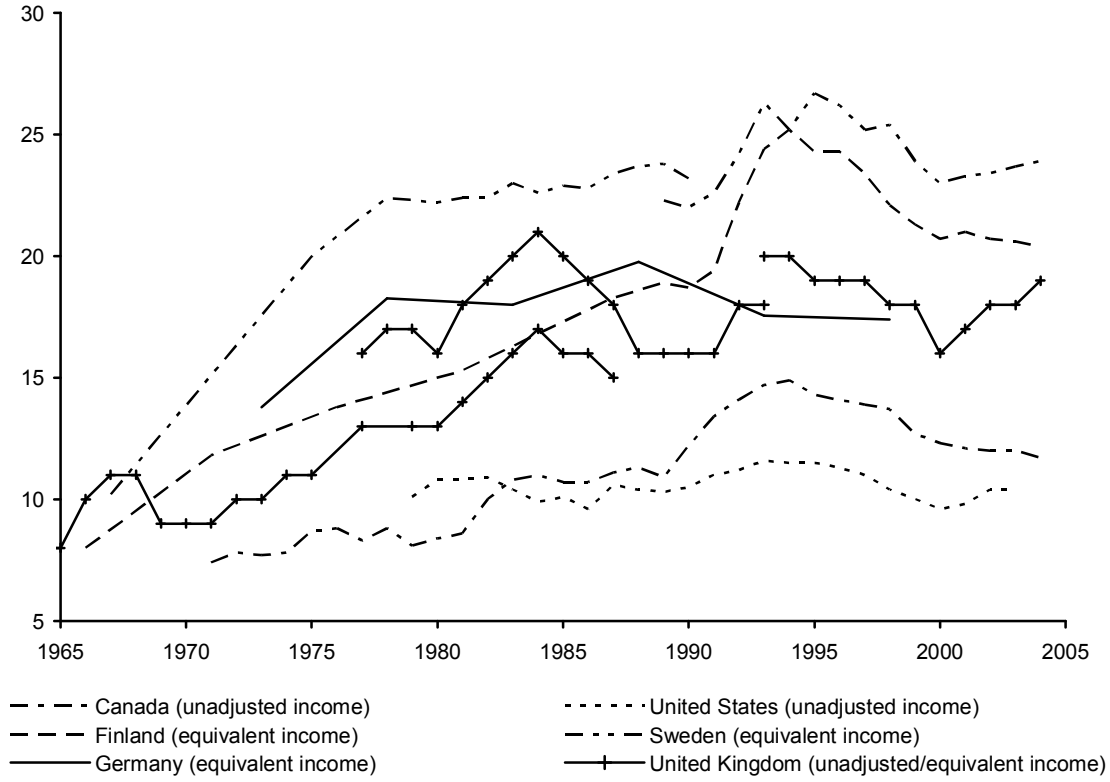
Sources: (1) United Nations (1981, pp. 108 and 110) for 1956-1975 and Concialdi (1997, table 11.11, p. 256) for 1962-1984, data from Tax Revenue Survey (ERF): gross taxable income of households, excluding non-taxable incomes (the majority of social benefits, some property income); weighted by household. (2) Hourriez and Roux (2001, table 1, p. 280), data from ERF: equivalent gross taxable income of households, excluding property income and some social benefits; weighted by household; OECD modified equivalence scale; only households with non-negative taxable income and positive disposable income. (3) Chevalier et al. (2006, figure 4, p. 449; figures provided by Pascal Chevalier) for 1970-2002 and INSEE (2006, table 2, p. 71) for 2003-04, data from ERF: equivalent disposable taxable income of households, excluding property income and some social benefits; weighted by person; OECD modified equivalence scale; only persons in households with non-negative taxable income and positive disposable income.

Figure 13: Gini index in Italy (percent)



Sources: (1) Brandolini (2004, table 1, p. 14, column 4), data from the Bank of Italy's Survey of Household Income and Wealth (SHIW): disposable income of households, excluding imputed rents, interest and dividends; weighted by household; figures for 1968-1972 estimated from grouped data. (2) Brandolini (2004, table 1, p. 14, column 5), data from SHIW: disposable income of households, excluding interest and dividends; weighted by household; figures for 1973-1975 estimated from grouped data. (3) Brandolini (2004, table 1, p. 14, column 8), data from SHIW: equivalent disposable income of households; weighted by person; square root equivalence scale.

Figure 14. Equalizing effect of taxes and transfers (percent)



Source: authors' computation on data derived from the sources listed in previous figures. Absolute difference between the Gini index of market income and the Gini index of disposable income.