

Kenworthy, Lane; Pontusson, Jonas

Working Paper

Rising inequality and the politics of redistribution in affluent countries

LIS Working Paper Series, No. 400

Provided in Cooperation with:

Luxembourg Income Study (LIS)

Suggested Citation: Kenworthy, Lane; Pontusson, Jonas (2005) : Rising inequality and the politics of redistribution in affluent countries, LIS Working Paper Series, No. 400, Luxembourg Income Study (LIS), Luxembourg

This Version is available at:

<https://hdl.handle.net/10419/95499>

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Lane Kenworthy and Jonas Pontusson

January 2005



Luxembourg Income Study (LIS), asbl

Rising Inequality and the Politics of Redistribution in Affluent Countries

Lane Kenworthy and Jonas Pontusson

University of Arizona and Cornell University
E-mail: lane.kenworthy@arizona.edu, jgp2@cornell.edu

January 27, 2005

Forthcoming in *Perspectives on Politics*, 2005

Earlier versions were presented at the Conference of Europeanists (March 2002), a workshop on the Comparative Political Economy of Inequality at Cornell University (April 2002), the annual meeting of the Society for the Advancement of Socio-Economics (June 2002), and a seminar at the Center for European Studies, Harvard University (December 2003). We are grateful for criticisms and suggestions by Richard Freeman, Janet Gornick, Alex Hicks, Torben Iversen, Larry Kahn, Tomas Larsson, Jim Mosher, Nirmala Ravishankar, David Rueda, Tim Smeeding, John Stephens, Michael Wallerstein, Christopher Way, Erik Wright, and the *Perspectives on Politics* reviewers.

Rising Inequality and the Politics of Redistribution in Affluent Countries

Inequality has been an increasingly prominent object of study among comparativists. We use data from the Luxembourg Income Study to examine household market inequality, redistribution, and the relationship between market inequality and redistribution in affluent OECD countries in the 1980s and 1990s. We observe sizeable increases in market household inequality in most countries. This development appears to have been driven largely, though not exclusively, by changes in employment: in countries with better employment performance, low-earning households benefited relative to high-earning ones; in nations with poor employment performance, low-earning households fared worse. In contrast to widespread rhetoric about the decline of the welfare state, redistribution increased in most countries during this period, as existing social-welfare programs compensated for the rise in market inequality. They did so in proportion to the degree of increase in inequality, producing a very strong positive association between changes in market inequality and changes in redistribution. We discuss the relevance of Meltzer and Richard's median-voter theory and power resources theory for understanding cross-country differences and over-time changes in the extent of compensatory redistribution.

Inequality has emerged as a major theme in the comparative study of advanced capitalist political economies over the last decade. The comparative political economy literature of the 1970s and 1980s focused on explaining cross-national variation in macroeconomic management, incomes policy, industrial policy, and macroeconomic outcomes such as growth, unemployment, and inflation. The parallel comparative welfare state literature focused on understanding cross-country differences in public social expenditures, institutional arrangements, and principles of eligibility. Neither literature paid much attention to distributive outcomes. As Bradley et al. (2003:195-196) suggest, this was due largely to lack of good, comparable data on the distribution of earnings and incomes. In addition to the availability of better data, the new comparative literature on inequality reflects a growing recognition of the need to integrate the study of welfare states with the study of labor markets. Perhaps most importantly, this literature seems to be informed by a widespread sense that rising inequality represents a common trend across the affluent OECD countries since the 1980s, with important implications for politics and for the social fabric of these countries.

Somewhat curiously, the view that rising inequality is the big story, and that this trend derives from the changing dynamics of labor markets, persists despite

the fact that the available data indicate that earnings differentials have remained stable or even declined in many countries. In this paper, we review existing literature and present new data on inequality trends in the affluent OECD countries. Our data derive from the Luxembourg Income Study (LIS) and refer to income inequality among working-age households. Largely descriptive and conceptual, the paper makes three contributions to the comparative study of inequality.

Our first contribution is simply to map trends in the distribution of gross market income, i.e., the distribution of income before taxes and government transfers. In contrast to the data on the distribution of earnings among employed individuals, this measure of inequality takes into account the distribution of employment across households. Using income data for working-age households rather than earnings data for individuals, we do indeed observe a significant increase in inequality in most OECD countries. Moreover, the pattern of cross-national variation is different from what one might have expected. Contrary to conventional wisdom, the United States does not stand out as having experienced exceptionally rapid growth of market inequality. Equally striking, we observe comparatively large increases in household inequality in the Nordic countries, traditional paragons of egalitarianism. We argue that these observations point to the crucial importance of (differential) access to employment as a source of income inequality.

Our second contribution concerns changes in the redistributive effects of taxation and income transfers to households. The extensive literature on "welfare state retrenchment" that has emerged over the last decade would seem to imply that welfare states have become less redistributive. To the contrary, our data show that most welfare states became *more* redistributive in the course of the 1980s and 1990s. Welfare states have not compensated completely for the rise in inequality of market income among working-age households, but most have done so to some degree. By and large, welfare states have worked the way they were supposed to work. It is markets, not politics, that have become more inegalitarian.

Third, we seek to contribute to the ongoing debate about the relationship between market inequality and redistribution, specifically the debate about the utility of the median-voter theorem proposed by Meltzer and Richard (1981). Positing that the median voter's preference for redistributive policy is a function of the distance between the median voter's income and the average income, the Meltzer-Richard model predicts that as market inequality increases so too does redistribution. Most of the recent comparative literature on the politics of redistribution argues that the opposite is in fact the case. The data presented below do not completely vindicate the Meltzer-Richard model, but they do show that countries that have experienced greater increases in market inequality also exhibit larger increases in redistribution. More speculatively, we point to voter turnout as an important variable affecting the extent of redistributive compensation and suggest a

potential synthesis of median-voter theory and power-resource theory. The key to the synthesis we have in mind is the proposition that the median-voter approach to the politics of redistribution works to the extent that unions, Left parties, or other actors mobilize low-income workers to participate in the political process.

The presentation of our main findings is divided into three sections, corresponding to the three contributions outlined above: we look first at trends in market inequality, then at trends in redistribution, and finally at the relationship between market inequality and redistribution. In addition, the paper includes a long appendix that explains and justifies how we measure inequality and redistribution and also provides data based on alternative measures. The measurement issues involved in the study of inequality and redistribution simply cannot be ignored, yet make for rather tedious reading. Our solution to this problem is to relegate the more technical discussion of measurement issues to the appendix.

One measurement issue deserves merits discussion at the outset: the question of whether change in inequality should be measured in absolute terms or in percentage terms—in other words, relative to initial levels. This question arises when we compare changes in market inequality over time and also when we compare redistribution, i.e., changes in inequality brought about by taxation and transfer programs, at any given point in time. Throughout this paper we adopt an "absolutist" approach to measuring change in inequality. Our main findings are similar with change measured in percentage terms, but in one instance (noted below) the association between different variables is more pronounced with change measured in absolute terms.

As we elaborate in the appendix, absolute measures of change are easier to interpret than relative measures and also more consistent with the logic of standard regression analysis, which estimates the change in the value of Y produced by (or associated with) a one-unit increase of X . Suppose that we have two countries in which market inequality, measured by decile ratios or Gini coefficients, increases by the same amount from one point in time to another. When change is measured in percentage terms, we observe a larger increase of inequality in the more egalitarian of the two countries, but the difference between the two countries conveyed by this measure pertains to initial levels rather than the extent of change. Similarly, and perhaps more tellingly, suppose that taxation and transfers reduces inequality by the same amount in two countries with different distributions of market income. Do we really want to say that the welfare state in the country with the more egalitarian distribution of market income is more redistributive? These problems with relative measures of change are compounded when we compare changes in redistribution over time, since the relative measure now becomes "percentage change in percentage change." It is surely more straightforward to measure redistribution as the absolute difference between inequality before and after taxes and transfers and to measure change in redistribution as the difference in this amount between two points in time. If we believe

that initial levels of inequality or redistribution matter in a causal sense, they ought to be included in the analysis as independent variables rather than being incorporated into our measurement of the outcome to be explained.

It should also be noted at the outset that the question of the relative salience of household income versus individual income for the politics of inequality lies beyond the purview of this paper.¹ Our motive for shifting attention from individual earnings to household income is to capture the distributive effects of employment (or non-employment) rather than to affirm the primacy of households over individuals. For our present purposes, it is sufficient to suppose that households constitute an important reference point if and when voters think about their relative position in the income distribution. This strikes us as a very plausible premise.

Trends in Market Inequality

Almost all of the recent literature by political scientists dealing with market inequality, either as a dependent or an independent variable, relies on an unpublished, continuously updated, OECD dataset on gross (pre-tax) earnings from employment for individuals who are employed on a full-time basis (OECD n.d.). Figure 1 summarizes trends in earnings inequality over the 1980s and 1990s in all countries for which the OECD reports comparable earnings data. The OECD dataset only enables us to measure inequality by decile ratios. As in most of the existing literature, the measure of inequality presented in Figure 1 is the 90/10 ratio, i.e., the ratio of the earnings of someone in the 90th percentile to the earnings of someone in the 10th percentile of the earnings distribution. The countries are ordered according to the absolute amount of change in inequality, measured as the most recent observation minus the earliest observation.

– Figure 1 –

As Figure 1 indicates, the OECD data on relative earnings cover different time periods for different countries. In particular, it should be noted that the Danish time series ends in 1990, the Belgian time series in 1993, and the Canadian time series in 1994, and the Belgian, Danish, Italian, and Swiss data cover periods of ten years or less. Comparing countries in terms of total change in earnings inequality over time periods of different duration is obviously questionable. However, the country rankings based on average annual change in 90/10 earnings

¹ A recent paper by Iversen and Rosenbluth (2004) argues that households have become less relevant to political preference formation as marital instability has increased in the affluent countries.

ratios are very similar to those in Figure 1, and the correlation between total change and average annual change is .94 (see appendix). Keeping in mind the limits of some of the country data, Figure 1 indicates that earnings inequality increased in nine out of fifteen countries in the 1980s and 1990s, but it held steady or even declined somewhat in the other six countries.

Consistent with conventional wisdom, Figure 1 suggests that rising earnings inequality is first and foremost a characteristic of "liberal market economies" as conceptualized by the "varieties of capitalism" school (Soskice 1999; Hall and Soskice 2001): the United States, New Zealand, the United Kingdom, Australia, and Canada. Though the extent of inegalitarian trends varies considerably among them, all liberal market economies have experienced significant increases in earnings inequality. The United States stands out as the country in which earnings inequality has grown most dramatically in absolute terms. (Relative to initial levels, the increase of earnings inequality in New Zealand from 1984 to 1997 was nearly as large as the increase in the U.S. from 1979 to 2000.) We also observe rising earnings inequality in the Netherlands, Sweden, Italy, and Germany, but, generally speaking, inegalitarian trends appear to have been more muted in Europe's "social market economies" than in the liberal (Anglo-American) market economies. This also holds for Japan.²

An extensive literature speaks to the reasons for cross-national variation in earnings inequality trends since the 1970s. Labor economists typically attribute the rise in earnings inequality to changes in relative supply and demand for more or less skilled labor, but concede that such factors do not adequately explain the observed cross-national variation (e.g., Freeman and Katz 1994, 1995; Blau and Kahn 1996, 2002). Recent contributions to this literature by students of comparative political economy explore the role of labor market institutions in a more systematic fashion. While some authors emphasize that more centralized or coordinated forms of wage bargaining generate wage compression (Wallerstein 1999; Beramendi and Cusack 2004), others point to the bargaining power of unions, measured by union density, as the key variable (Rueda and Pontusson 2000; Pontusson, Rueda, and Way 2002; Bradley et al. 2003). Rueda and Pontusson (2000) also show that countries with large public sectors tend to have more egalitarian earnings distributions.³

² Estevez-Abe, Iversen, and Soskice (2001) treat stable wage distributions as a coordinate of the distinctive skill profiles of "coordinated market economies."

³ The main issue of contention in this literature concerns the effects of government partisanship under different institutional arrangements. While Pontusson, Rueda, and Way (2002) argue that centralized bargaining renders government partisanship less salient to the relative fortunes of low-wage workers, Beramendi and Cusack (2004) suggest that centralization accentuates the impact of government partisanship.

The aforementioned literature might be read as suggesting that market forces have been the source of a common trend for earnings inequality to rise across the affluent OECD countries but centralized wage bargaining, strong unions, and large public sectors have muted the impact of market forces in some countries. Alternatively, changes in institutions might be seen as a source of rising earnings inequality. In particular, union decline and public-sector retrenchment (or restructuring) are rather consistently associated with changes in earnings inequality on a cross-national basis (Pontusson 2005, ch.3).⁴

Our goal here is not to contribute to the existing literature on the determinants of earnings inequality, but rather to point out that the individual earnings data presented in Figure 1 capture only one dimension of labor market trends and do not provide the basis for a comprehensive assessment of the extent to which inequality has increased in different OECD countries. Most important for our present purposes, these data fail to capture the distributive effects of unemployment, under-employment, and labor force exit. The analytical problem that unemployment (or "non-employment") poses in this context is not simply that earnings-based measures of inequality exclude the unemployed segment of the labor force. The problem goes deeper because job losses during economic downturns are not distributed equally across the wage distribution. All available theory and evidence indicate that employers are more likely to fire unskilled (low-paid) than skilled (high-paid) workers during cyclical downturns. In essence, employers will be reluctant to fire skilled workers because it will be difficult and costly for them to reacquire the skills that such workers embody when demand picks up again. Since low-wage workers disproportionately drop out of the employed labor force, increased unemployment tends to reduce earnings inequality among employed workers during economic downturns. Surely we ought not interpret this to mean that unemployment promotes equality.⁵

In addition, the underlying data used to calculate the 90/10 earnings ratios presented in Figure 1 are, except in the case of Norway, restricted to workers employed on a full-time basis. The available evidence indicates that part-time workers earn considerably less, on an hourly basis, than full-time workers in all

⁴ By contrast, existing measures of centralization (or coordination) of wage bargaining do not show any secular trends that might be invoked to explain rising earnings inequality (see, e.g., Golden and Wallerstein 1999).

⁵ With 90/10 earnings ratios as the dependent variable, Rueda and Pontusson (2000) report a negative (but not statistically significant) coefficient for the current-year rate of unemployment. By contrast, Pontusson, Rueda, and Way (2002) report a positive (and significant) coefficient for the average rate of unemployment over the preceding five years. The latter result suggests that persistently high levels of unemployment undermine the relative bargaining power of low-wage (unskilled) workers.

OECD countries, but they tend to do better relative to full-time workers in countries where wages among full-time workers are more compressed (OECD 1999, 24; Pontusson 2005, ch.3). Including part-time workers in our measures of earnings inequality should not matter very much to a comparative assessment of earnings inequality at any point in time, but it is likely to matter a great deal to a comparative assessment of over-time changes in earnings inequality because there is substantial variation in the growth of part-time employment across countries. Measured as the percentage of the employed labor force working fewer than 30 hours per week in the main job, the incidence of part-time employment declined from 1990 to 2003 in the United States, Denmark, Norway, and Sweden, but increased by more than 5 percentage points in Australia, Germany, Ireland, Japan, and the Netherlands (OECD 2004, 310-11). Assuming that part-time/full-time pay differentials remained unchanged, the 90/10 earnings ratios presented in Figure 1 might be said, from the perspective of cross-national comparison, to overstate the growth of earnings inequality in the former group of countries and understate the growth of earnings inequality in the latter group.

For eleven OECD countries, data from the Luxembourg Income Study data enable us to trace the evolution of Gini coefficients for gross market income among working-age households over the 1980s and 1990s, with "working-age households" defined as households headed by individuals aged 25-59. Figure 2 shows the earliest and most recent available Gini coefficients, with countries ordered by the magnitude of absolute change from the earliest to the most recent observation. Again, the calculations presented in Figure 2 refer to country-specific time periods. In particular, note that the figures for Finland, Australia, Denmark, and Switzerland refer to shorter time periods—and, in the cases of Australia and Switzerland, to earlier time periods—than the figures for the other seven countries. Arguably, measuring change on average annual basis would render the numbers more directly comparable, but we should be wary of extrapolating beyond the specific time periods covered by the data presented in Figure 2. For instance, the increase of household inequality that we observe in Finland from 1987 to 2000 reflects the deep economic crisis that Finland underwent in the 1990s and there is every reason to believe that Finland did not experience a similar increase of household inequality in the 1980s. As a practical matter, the correlation between total change and annual average change is again quite close (.93) and annualizing change does not significantly affect the country rankings shown in Figure 2 (see appendix).

– Figure 2 –

The picture conveyed by Figure 2 is strikingly different from that conveyed by Figure 1. To begin with, the data on household income show an OECD-wide rise in inequality. The Netherlands is the only exception to this general trend. Equally notable, Figure 2 casts new light on the American experience of the

1980s and 1990s. Whereas the dramatic growth of earnings inequality in the United States over the last two decades appears to be exceptional, the United States does not stand out when it comes to trends in market inequality among working-age households. More generally, Figure 2 provides no support for the proposition that the growth of inequality has been more pronounced in liberal market economies than in social market economies. Quite the contrary, Sweden, Finland, and Norway hold three of the top six positions when the affluent OECD countries are ranked by change in household inequality over this period.

Finland and the Netherlands illustrate the divergence between trends in individual earnings inequality and household income inequality most starkly. In Finland, earnings inequality among full-time employees declined marginally from 1980 to 2001, but household inequality increased sharply from 1987 to 2000. In the Netherlands, by contrast, earnings inequality increased quite substantially from 1979 to 1999, but household inequality declined over roughly the same period (1983-99).

As we demonstrate in the appendix, the divergence between trends in individual earnings inequality and household income inequality represents a substantive puzzle rather than an artifact of the different properties of Gini coefficients and 90/10 ratios as measures of inequality. Analyzing patterns of labor force entry and exit provides one possible avenue to resolve this puzzle. In particular, the rise in market income inequality in countries that did not experience much increase in earnings inequality might be due to an increase in the share of households with little or no market income. We might reasonably look first to the youngest and oldest labor force participants. Among those age 50 to 59, increases in early retirement may have contributed, though this form of labor force exit is most prevalent in continental European countries, which were not the countries experiencing the sharpest rise in income inequality (Esping-Andersen and Regini 2000; Ebbinghaus 2000). Expansion of higher education may have had a similar effect among households headed by individuals aged 25-29. It turns out, however, that if we restrict our analysis to households headed by individuals aged 30-49, the picture that emerges is essentially the same as that shown in Figure 2. In each country the magnitude of increase in inequality is similar for this narrower age group, and the cross-country correlation between changes in market inequality for households with heads aged 25-59 and for households with heads aged 30-49 is .99.

Patterns of labor force entry and exit are closely related to employment conditions, and employment performance is surely the key to the contrast between Finland and the Netherlands noted above. Finland and the Netherlands represents opposite ends of the OECD spectrum with respect to employment performance in the 1990s. In Finland, the employment rate declined by 14 percentage points from 1990 to 1994, and the rate of unemployment shot up from 3% to 17%, remaining above 10% through the rest of the decade. By contrast, the Netherlands

outperformed all OECD countries but Ireland in terms employment growth in the 1990s, with its employment rate increasing by 10 percentage points between 1990 and 2000 and its unemployment rate dropping from 6% to 3% (Pontusson 2005, ch.4). While low-income households in the Netherlands appear to have gained employment relative to high-income households over the 1980s and 1990s, offsetting the relative earnings losses experienced by members of low-income households, low-income households in Finland appear to have lost employment relative to high-income households while relative earnings remained more or less unchanged in the 1990s. Unfortunately, the LIS data do not allow us to investigate changes in the distribution of employment in any systematic fashion, but we can report that the share of households in the bottom earnings quartile that had no employed person decreased by 31 percentage points in the Netherlands while it increased by 7 percentage points in Finland from the earliest to the most recent LIS observation. Data presented by Mishel, Bernstein, and Boushey (2003, 100) suggest that low-income households in the United States, as in the Netherlands, have compensated for rising earnings inequality by working more. For married couples with children, these authors estimate that the average number of hours worked per year by families in the bottom quintile increased by 16% from 1979 to 2000 while the average number of hours worked by families in the top quintile remained constant over the same period.

Other factors must also be considered as we grapple with the differences between the inequality trends shown in Figures 1 and 2. As commonly recognized, rising household inequality across the affluent OECD countries is partly a result of changes in demographics and household structure. In particular, the growing incidence of single-adult households has clearly been an important source of rising household inequality (Bradley et al. 2003; Esping-Andersen 2004; Kenworthy 2004, 2005). The same is true of marital homogamy: increasingly, men with high (low) incomes tend to be married to or cohabit with women with high (low) incomes (Burtless 1998; Esping-Andersen 2004; Kenworthy 2004, 2005). In addition, the data on household inequality in Figure 2 encompass sources of income other than dependent employment. Income from real estate and financial assets appears to be of secondary importance in this context (see appendix), but patterns of self-employment may account for some of the differences between trends in individual earnings inequality and household income inequality.

To decompose changes in household inequality along these lines is a complicated task, well beyond the scope of this paper. Suffice it to say that, aside from employment opportunities for low-income households, marital instability and its concomitant, single-headed households, constitutes the most obvious factor that might explain the cross-national variation in inequality trajectories shown in Figure 2. The Nordic countries are distinguished by high divorce rates (Iversen and Rosenbluth 2004). From the point of view of timing, however, the employment crisis experienced by the Nordic countries, especially Sweden and Finland, in the

come inequality among working-age households has grown more in some countries than in others. The standardized coefficients are $-.82$ for change in employment rates and $.42$ for change in earnings inequality, suggesting that employment is the more important variable. In a similar vein, Kenworthy (2004, 30) shows that from the mid-1980s to the mid-1990s the effects of changes in employment and, to a lesser extent, earnings inequality were larger and more consistent than the effects of changes in the incidence of single-adult households.

Employment and family structure need not be construed as competing explanations of rising household inequality. Arguably, the significance of single-headed households is precisely that the ability of such households to compensate for rising earnings inequality by increasing their employment is more constrained. As Visser and Hemerijck (1997, 29-35) show, much of the Dutch "jobs miracle" in the 1980s and 1990s involved an increase in part-time employment among married women.

The implication of the evidence presented above is that employment contractions disproportionately hurt the employment opportunities and hence the income of low-income households while, conversely, employment growth disproportionately benefits low-income households. Again, low-income households in the Netherlands and, to a lesser extent, the United States and other liberal market economies appear to have compensated for falling relative earnings by increasing their employment, in terms of the number of working household members and perhaps also the number of hours worked by employed household members. Low-income households appear to have been less able — or perhaps less willing — to engage in this type of compensatory behavior in those countries for which we observe little or no increase in individual earnings inequality but a significant increase in household inequality (Finland, Norway, Denmark, and Switzerland) or, as in the Swedish case, a larger increase in household inequality than in earnings inequality.

The existing literature points to two reasons why the mechanism of "compensatory employment" might operate in some countries and not others. On the demand side, a combination of wage compression through centralized wage bargaining and high payroll taxes may weaken relative demand for low-wage workers in the more egalitarian social market economies of northern Europe.⁷ On the supply side, continued real wage growth for low-wage workers and the public

⁷ Note that this is an argument about relative demand for different kinds of labor rather than overall demand. Kenworthy (2003, 2004) reports some employment effects of earnings compression, but finds that other labor market institutions and policies matter as much or more to cross-country variation in employment performance. See also Blau and Kahn (2002); Iversen and Wren (1998); Nickell and Layard (1999); Pontusson (2005); and Scharpf (2000).

provision of relatively generous income support for unemployed workers may have reduced the need for low-income households in these countries to engage in compensatory employment (see Beramendi 2001). Further analysis, beyond the purview of this paper, is required to parse between these effects and to determine their relative significance.

Trends in Redistribution

The LIS database enables us not only to generate a more complete and accurate picture of trends in market inequality, but also to examine the redistributive effects of taxation and transfer payments by governments. At the end of the day, what matters to people is not market income, but rather disposable income, i.e., income after taxes and transfers. Some analysts measure redistribution as the difference between Gini coefficients computed for disposable household income from Gini coefficients computed for gross market household income expressed in percent of Gini coefficients computed for gross market household income (Bradley et al. 2003; Mahler and Jesuit 2004; Mitchell 1991). For reasons articulated earlier, we believe that the absolute difference between disposable-income and market-income Gini coefficients represents a better, more easily interpretable measure of redistribution (but we also report percentage measures of redistribution in the appendix).

Organized in the same manner as Figures 1 and 2, Figure 4 provides data on the reduction in Gini coefficients brought about by taxes and transfers in our eleven countries in the early 1980s (later for Denmark and Finland) and the late 1990s (earlier for Switzerland and Australia). As with Figure 2, the data in Figure 4 are restricted to working-age households. The largest government transfer program, pensions, is thus excluded from consideration. Also, it is important to note that this analysis does not take into account the redistributive effects of the public provision of services, such as education and health care. As Huber and Stephens (2001) and others have emphasized, services are a critical component of the welfare states of many affluent countries. Services do not alter the distribution of income per se, but to the extent they are provided at low or no cost and are universally available, services are equivalent to a flat-rate benefit given to each household, which reduces the degree of consumption inequality. Unfortunately, the LIS data do not include information on the value of such services (see Garfinkel, Rainwater, and Smeeding 2004). In terms of cross-national comparison, the data presented in Figure 4 understate the degree of redistribution in more service-intensive welfare states, most notably the Nordic ones.

– Figure 4 –

Our main interest here concerns trends in redistribution. As in Figures 1 and 2, the countries in Figure 4 are ordered by change over time (from larger to

smaller increases in redistribution). The most striking feature of Figure 4 is that almost all welfare states became more redistributive in the course of the 1980s and 1990s. As with the data on market inequality, the Netherlands stands out as the major exception to the general trend. Not only is the Netherlands the only country in which we observe any reduction in the redistributive effect of taxes and transfers; the reduction that we observe in the Dutch case is remarkably large.

Pooling LIS observations for working-age households for fourteen countries (for a total of 59 observations) and controlling for the size of the welfare state, Bradley et al. (2003) present multivariate regression results that show that the share of cabinet portfolios held by Left parties had a significant positive effect on levels of redistribution, measured as the percentage reduction in Gini coefficients brought about by taxes and transfers. Substituting union density for leftist cabinet shares as their measure of working-class mobilization, Bradley et al. find that this variable also has a strong positive effect on levels of redistribution. Bradley et al.'s cabinet share measure is a cumulative one, based on all years from 1946 to the year for which redistribution is observed. Thus their results for government partisanship should be taken to mean that countries in which Left parties have participated in government over extended periods of time tend to have more redistributive tax and transfer systems. Though Bradley et al.'s analysis is persuasive, government partisanship does not seem to explain the general tendency for redistributive effects to increase that we observe in Figure 4.⁸ In a number of the countries included in Figure 4, Left parties gained control of government (or increased their representation in government) in the second half of the 1990s, but the trends in redistribution shown in Figure 4 pre-date this turn to the Left. Generalizing across the rich OECD countries, the participation of Left parties in government declined in the 1980s (see Garrett 1998, 60). Also, several of the countries for which we observe the largest increases in redistribution over the 1980s and 1990s—Germany, the United Kingdom, and Australia—do not seem to be distinguished by a history of Left-party dominance or, alternatively, by significant political advances by Left parties.

⁸ The fact that redistribution is measured relative to market inequality poses a potential problem for Bradley et al.'s analysis or, at least, for the aforementioned interpretation of their results. Lower levels of market inequality are, by definition, associated with higher levels of redistribution when redistribution is measured in this manner. Thus the observed (positive) effect of leftist cabinet shares on redistribution could be due to a (negative) association between leftist cabinet shares and market inequality. This issue is even more relevant to the effects of unionization on market inequality. It should also be noted Bradley et al.'s analysis includes Belgium, France and Italy. The LIS dataset only allows us to compute household inequality for "net market income" (i.e., income after taxes), not "gross market income," for these countries; therefore they are not included in our analysis.

The evidence presented in Figure 4 provides support for Pierson's (1996, 2001) emphasis on the resilience of welfare states in the face of globalization or fiscal and demographic pressures and calls into question the common notion that recent tax and social policy reforms in the affluent countries have been uniformly and extensively regressive. This said, it should be noted that increases in redistribution that we observe in the LIS data are almost entirely attributable to the effects of transfer payments. In most countries, the contribution of taxation to redistribution declined over this period (calculations available upon request). Also, when we look at the benefits provided by various social programs we do indeed observe significant cutbacks in many countries (Hicks 1999; Huber and Stephens 2001; Swank 2002; Pontusson 2005). Of particular note, given that our analysis focuses on income inequality among working-age households, Allan and Scruggs (2004) document significant cuts in net income replacement provided by unemployment insurance and sick pay insurance in most of the countries included in Figure 4 (see also Korpi and Palme 2003).

How can we reconcile such evidence of welfare state cutbacks with the data in Figure 4 on trends in redistribution? The obvious explanation for this puzzle is that labor market developments—rising joblessness among unskilled workers and rising earnings inequality—have rendered more households eligible for unemployment compensation and other transfer programs, and that increasing claims on these programs by low-income households and the individuals in them have rendered government spending more redistributive, even as eligibility criteria have been tightened and benefit levels have been reduced.⁹ In both Sweden and Finland, for instance, the number of unemployment benefit recipients increased more than fivefold between the mid-1980s and the mid-1990s, and the number of social assistance recipients nearly doubled (Ploug 1999, 83, 95; see also Marklund and Nordlund 1999, 29). The share of working-age households receiving unemployment compensation jumped from 12% to 25% in Sweden and from 10% to 32% in Finland (our calculations from LIS data).

The bottom line here is that there are two different paths to increased redistribution. One path involves new policy initiatives or policy changes aimed at redistributing income, such as easing eligibility restrictions or increasing replacement rates. The second path involves a more or less automatic compensatory response by existing welfare states to rising market inequality. In the 1980s and 1990s, most affluent OECD countries seem to have been on the second path.

⁹ Indeed, it seems quite clear, especially with respect to unemployment insurance, that benefit cuts have been driven partly by increases in eligible recipients (Huber and Stephens 2001).

The Effect of Market Inequality on Redistribution

The median-voter model elaborated by Meltzer and Richard (1981) informs much recent discussion of the relationship between market inequality and redistribution (e.g., Alesina and Glaeser 2004, 57-60). The Meltzer-Richard model assumes that government spending funds a certain amount of consumption for all individuals (the same amount for each individual) and that this spending is financed by a proportional income tax (so that the tax amount paid by individuals rises with market income). The basic intuition is that low-income earners have more to gain and less to lose from increasing government spending than do high-income earners. Assuming a one-dimensional model of voting, Meltzer and Richard argue that support for government spending is a function of the distance between the income of the median voter and the average income of all voters. As market inequality rises, the distance between median and mean income increases and support for government spending consequently increases as well (see also Romer 1975).

One obvious implication of the Meltzer-Richard model is that countries with more unequal distributions of market income should exhibit higher levels of redistributive spending than countries with less unequal distributions of market income. As commonly noted, this prediction is not borne out by the data for the OECD countries. As shown in Figure 5, plotting levels of total government spending on social transfers and services against levels of earnings inequality among full-time employees, we observe a pattern of association that is the opposite of what the Meltzer-Richard model leads us to expect: countries with more egalitarian earnings distributions tend to have larger welfare states than countries with more inegalitarian wage structures. Iversen and Soskice (2004) refer to this pattern as the "paradox of redistribution."

– Figure 5 –

Does Figure 5 invalidate the Meltzer-Richard model? As we have seen already seen, it is problematic to use individual earnings inequality as a proxy for market inequality. Also, Meltzer and Richard present their model an explanation of the size of government, but their model is really meant to explain redistribution. Meltzer and Richard in effect assume that all government spending takes the form of transfers to individuals or households and that all spending is (equally) redistributive. For the purpose of testing their model empirically, it would be more appropriate to examine redistribution rather than spending. As we shall see, the LIS data on market income inequality and redistribution among working-age households are more consistent with the predictions of the Meltzer-Richard model than the data presented in Figure 5, but let us consider some objections to and extensions of the Meltzer-Richard model before we turn to the LIS data.

Clearly, the Meltzer-Richard model rests on a very simple, perhaps simple-minded, view of politics. To begin with, the model assumes that elections determine redistributive policy and electoral politics are only about redistributive policy. Voters are assumed to have well-defined, single-peaked preferences over redistribution that derive from their income relative to the mean income. Voters are also assumed to be fully informed about the policy choices before them. The "real world" of politics rarely, if ever, conforms to these assumptions. A second objection to the Meltzer-Richard model concerns its Downsian view of political parties as motivated simply by the desire to win elections. The extensive literature demonstrating that the partisan composition of governments affects the extent and character of the public provision of social welfare calls into question this view of political parties.¹⁰ Third, the median-voter logic may not apply as well in multi-party proportional representation electoral systems as in two-party winner-take-all systems. Finally, perhaps the most problematic aspect of median-voter models such as that proposed by Meltzer and Richard is the assumption that all income earners are more or less equally represented in the political process, i.e., that voting provides them with more or less equal influence over the extent of redistribution (see Schwabish et al. 2003).

It goes without saying, we think, that the core propositions of the Meltzer-Richard model alone do not provide an adequate basis for understanding the politics of redistribution. The more interesting question is whether these propositions shed some light on the politics of redistribution, in the context of other relevant considerations. There is no reason why the Meltzer-Richard model should be treated as a complete and self-contained theory of redistribution.

It should also be noted that the Meltzer-Richard model can easily accommodate inequality of political influence insofar as such inequality derives from the fact that low-income earners are less likely to vote than high-income earners. As Nelson (1999) points out, the income of the median voter should not be confused with the median income. For the United States, the ratio of the median household income to the mean household income averaged .82 in the 1970s and 1980s. With household income weighted by the number of adults in each household, however, the ratio of the household income of the median voter to the mean household income averaged 1.02 (Nelson 1999, 189). These figures reflect the comparatively low rate of the voter turnout in American elections. By definition, the discrepancy between the median income and the income of the median voter

¹⁰Recent work demonstrating the persistence of partisan effects in the 1980s and 1990s includes Allan and Scruggs (2004), Korpi and Palme (2003), and Kwon and Pontusson (2004).

will diminish as voter turnout approaches 100%. As voter turnout increases, the median voter typically becomes poorer relative to mean income.¹¹

With regard to the motivations of political parties, the observation that parties cater to the distributive interests of their core constituencies and possibly also have ideological commitments to certain policies surely does not mean that they do not care about winning elections. Median-voter logic and partisanship need not be construed as mutually exclusive. In Garrett's (1998) formulation, we should expect governing parties of different political persuasions to pursue distinctive distributive policies so long as their pursuit of such policies does not threaten their prospects of re-election (see also Strom 1990). Also, median-voter logic does not necessarily require voters to be fully informed. As Moene and Wallerstein (2003, 489) put it, "voters may know little or nothing about the policy choices facing legislators, but if voters vote retrospectively, rewarding the incumbent government if their welfare has increased and punishing the incumbent otherwise, the parties in government have a strong electoral incentive to adopt policies that raise the welfare of a majority of voters."

Proceeding from the same basic assumptions as Meltzer and Richard, Moene and Wallerstein (2001, 2003) attempt to resolve the "paradox of redistribution" by pointing out that government spending not only redistributes income but also provides insurance. The core proposition of Moene and Wallerstein's extension of the Meltzer-Richard model is that demand for insurance increases with income, holding risk (e.g., the threat of unemployment or disability) constant.¹² People with higher incomes will choose to buy more insurance against income loss than people with lower incomes. From this follows a prediction concerning the relationship between inequality and welfare spending opposite to that proposed by Meltzer and Richard. Assuming that the mean income remains unchanged, the income of the median voter declines as inequality rises and, consequently, the median voter's demand for social insurance declines as well. Moene and Wallerstein (2003) argue further that the contradictory logics of insurance and redistribution play themselves out differently for different types of social spending programs. For policies that target those who have lost income due to lay-offs, sickness, or accidents, the demand for insurance dominates the demand for redistribution. Empirically, Moene and Wallerstein show that market inequality, measured by OECD earnings ratios for full-time employees, has a negative

¹¹Quite appropriately, quantitative comparative political economy literature commonly invokes the Meltzer-Richard model to justify the hypothesis that voter turnout has a positive effect on redistributive government spending (e.g., Iversen and Cusack 2000; Franzese 2002).

¹²Iversen and Soskice (2001) develop a similar insurance model of demand for public welfare provision, emphasizing that risk exposure varies depending on skill specificity.

effect on spending on these types of policies. However, for health insurance and other policies that provide benefits for all workers, including employed workers, the reduction in demand for insurance and the increase in demand for redistribution associated with rising market inequality essentially cancel each other out.

The power resources approach advanced by Stephens (1979) and Bradley et al. (2003) represents an obvious alternative solution to the "paradox of redistribution." In the power resources view, the negative association between earnings inequality and welfare spending across countries derives from the influence of working-class mobilization on both. Strong unions and Left parties compress the wage distribution and also boost redistributive social spending. In other words, there is no direct causal relationship between market inequality and welfare spending.

As indicated above, our main goal here is to recast the empirical basis of this debate by measuring inequality on a household basis—thus incorporating the effects of differential access to employment—and by focusing directly on the redistributive effects of public policy (tax policy as well as spending policy). To be consistent with our previous discussion and to side-step the "distortion" of redistributive effects created by generous public pensions (see appendix), our analysis remains restricted to households headed by people of working age. Excluding the retired population is obviously problematic from the point of view of testing median-voter theory, since retired people do vote (often more than working-age people do). Suffice it to say that this is a problem shared by those who use individual earnings inequality as a proxy for market inequality (Moene and Wallerstein 2001, 2003; Bradley et al. 2003).

Based on the most recent LIS observations available for eleven countries, Figure 6 plots redistribution, measured as the (absolute) difference between Gini coefficients for gross market income and for disposable income, against levels of market inequality, measured by Gini coefficients for gross market income. We observe some indication of a positive association between market inequality and redistribution among the Nordic and continental European countries, but, overall, Figure 6 clearly does not support the Meltzer-Richard model. On the other hand, we no longer observe a pattern of association that runs counter to the Meltzer-Richard model. The "paradox of redistribution" effectively disappears when we measure market inequality and redistribution in the fashion proposed here.

– Figure 6 –

More importantly, Figure 7 plots changes in redistribution against changes in household market inequality over the 1980s and 1990s. Based on Figures 2 and 4, Figure 7 again uses the earliest available 1980ish observation and the most recent available observation for each country. Here we do observe the pattern of association that the Meltzer-Richard model predicts: in general, redistribution increased more in countries that experienced larger increases in market inequality

in the 1980s and 1990s.¹³ The exceptional nature of the Dutch experience again stands out, and clearly influences the fit between increases in market inequality and redistribution. The American experience also appears to be exceptional. The United States stands out as the one country in which increased market inequality did not produce any increase in redistribution. Even if we disregard the Dutch and US data points, Figure 7 still shows a reasonably consistent positive association between rising market inequality and increasing redistribution. This poses a challenge for power resources theory to the extent that this approach contends that trends in market inequality and redistribution are both attributable to changes in the distribution of power between labor and capital. (As the evidence presented in Figures 6 and 7 pertains strictly to the redistributive effects of taxation and transfers, these figures do not bear directly on the insurance model of the welfare state proposed by Moene and Wallerstein).

– Figure 7 –

It would be a mistake, we think, to interpret Figure 7 as evidence for the political process posited by the Meltzer-Richard model. It would surely be a stretch to say that rising market inequality led median voters in the affluent countries to opt for more redistributive parties and policies in the 1980s and 1990s. As suggested above, the increases in redistribution that we observe should be seen mainly as a more-or-less automatic response to inegalitarian labor market developments by existing welfare states. This said, we would caution against an overly path-dependent view of compensatory redistribution. In many countries, income taxation became less progressive and various social transfer programs were in fact scaled back over this period. But neo-liberal politicians often advocated more extensive tax reforms and cutbacks than were in fact undertaken. It seems quite reasonable to suggest, in the spirit of Meltzer-Richard, that in the context of rising market inequality the policy preferences of median voters constrained this neo-liberal offensive.

Taken together, Figures 6 and 7 suggest that the logic of the Meltzer-Richard model captures a dynamic that liberal democracies have in common, but also that there are important cross-national differences in "tastes for equality" or beliefs about the proper role of government (see Schwabish et al. 2003) that cannot be explained in terms of the effects of income distribution on the policy preferences of the median voter. Figure 8 further illustrates both of these points. The LIS database provides at least four different observations for ten countries, and includes observations from the 1970s for some of these countries. For each of these ten

¹³This association is weaker, though still consistently positive, if change in inequality and change in redistribution are measured in percentage, rather than absolute, terms. The percentage-change data are shown in the appendix.

countries, Figure 8 presents a scatterplot of the over-time relationship between household market income inequality and redistribution. It also shows the coefficient (b) obtained by regressing redistribution on market inequality.¹⁴

– Figure 8 –

With the exception of the United States, we observe a relatively strong positive association between market inequality and redistribution in every country. But the slope of the regression line differs markedly across countries. For the United States, the sign of the coefficient is positive, but the line is nearly flat. Followed by Germany, the Netherlands stands out as the welfare state that has been most responsive to—in other words, compensated most fully for—increases (and reductions) in market inequality. Contrary to what the comparative welfare-state literature (e.g., Esping-Andersen 1990; Hicks 1999; Huber and Stephens 2001) might lead us to expect, the Nordic welfare states do not, as a group, stand out as particularly responsive to market inequality, though we again emphasize that these data do not take into account the redistributive effects of publicly-provided services.

What accounts for the "redistribution elasticities" shown in Figure 8? Why are some welfare states more responsive to market inequality than others? From the perspective of the Meltzer-Richard approach, voter turnout would seem to be the most obvious determinant of cross-national variation in compensatory redistribution. As Korpi (1983) argues, voter turnout can be seen at least partly as a measure of the capacity of unions and labor-affiliated parties to mobilize workers politically. Voter turnout thus turns out to be an issue on which median-voter theories and power-resource theories converge. Against this backdrop, Figure 9 plots the regression coefficients presented in Figure 8 against average turnout in general elections over the country-specific periods covered by our LIS data. This figure provides some tentative support for the proposition that high turnout produces institutionalized policy commitments that in turn produce greater responsiveness to increases in market inequality, but the fit between the variables is not terribly good. Perhaps the most important point to take away from Figure 9 is that low turnout offers a potentially compelling explanation why the American welfare state has been so much less responsive to rising market inequality than other welfare states.

– Figure 9 –

¹⁴As above, the data are restricted to working-age households and redistribution is measured as the difference between Gini coefficients for gross market income and disposable income.

The implication of Figure 9 is that voter turnout, treated here as a proxy for the electoral mobilization of low-income workers, conditions the responsiveness of government policy to market income inequality trends. Alternatively, voter turnout and market inequality might be seen as variables that affect redistribution independently. Pooling all available LIS observations, we regressed redistribution on market inequality and voter turnout (in the election immediately preceding each LIS observation).¹⁵ The results of this exercise are quite promising:

$$\begin{aligned} \text{Redistribution} = & -0.1406 + 0.3753 \text{ market inequality} + 0.0014 \text{ voter turnout} \\ & (3.40) \qquad \qquad \qquad (3.90) \\ N = 60, R^2 = & .41 \end{aligned}$$

Market inequality and voter turnout both appear to be associated with higher levels of redistribution. Needless to say, more systematic analysis (controlling for other variables that might affect redistribution) is needed to confirm these results. For our present purposes, suffice it to say that our preliminary analysis suggests that the Meltzer-Richard model accurately identifies the distribution of market income and voter turnout as key variables in the politics of redistribution, as distinct from the politics of social insurance. At the same time, our discussion points to a potential synthesis of median-voter and power-resource theories: arguably, the median-voter theorem helps us to understand changes in redistribution to the extent that unions, Left parties, or other actors mobilize low-income workers to participate in the political process.

Conclusion

We have used Luxembourg Income Study data to examine trends in market income inequality, redistribution, and the effect of market inequality on redistribution in affluent OECD countries in the 1980s and 1990s. Unlike for earnings inequality among full-time employed individuals, for pretax-pretransfer income among households we observe sizeable increases over time in most countries. This development appears to have been driven to an important extent by changes in employment. In countries with better employment performance, low-earning households benefited relative to high-earning ones; in nations with poor em-

¹⁵The regression model addresses the problem of heteroskedasticity by means of a technique called "robust cluster" (see Bradley et al. 2003). Since there is no single year in common to all countries, the standard (Beck-Katz) procedure for estimating panel-corrected standards could not be used. In addition to the observations shown in Figure 8, the regression includes two LIS observations for Switzerland and one observation for Belgium.

ployment performance, low-earning households fared worse. In contrast to widespread rhetoric about the decline of the welfare state, redistribution tended to increase in response to the rise in household market inequality. And it did so in proportion to the degree of increase in inequality, producing a strong positive association between changes in market inequality and changes in redistribution.

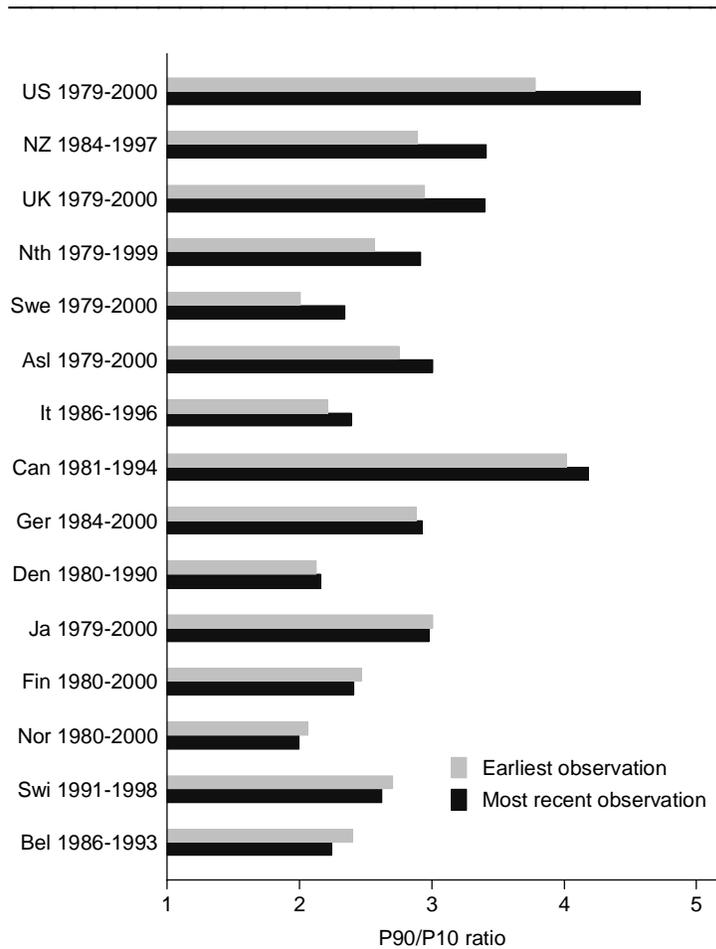
We noted earlier that at the end of the day what people care about is their disposable income, rather than their market income. Figure 10 shows Gini coefficients for disposable income for the eleven countries that appear in Figure 2, again with an observation around 1980 and an observation for the most recent available LIS year. The chart indicates that, even though redistribution increased in the Nordic countries during the eighties and nineties, they nevertheless experienced rising inequality of disposable income. Had it not been for the increase in redistribution in the Nordic countries, inequality of disposable income presumably would have risen even more.

– Figure 10 –

The charts in Figure 8 indicate that the Nordic and continental European welfare states tend to be comparatively responsive to increased market inequality — certainly much more so than their American and British counterparts. But what would happen if European countries were to continue to experience employment difficulties? A long-term decline in employment could potentially pose a threat to the generosity of welfare states even in countries with relatively egalitarian preferences and institutions. The redistributive burden—the tax burden necessary to sustain generous transfer programs—in a country with continuously-declining employment might eventually become unsustainable, at least in the public mind, which could lead to significant cutbacks in such programs. This in turn could cause such a country to shift to a higher "equilibrium" level of disposable income inequality.

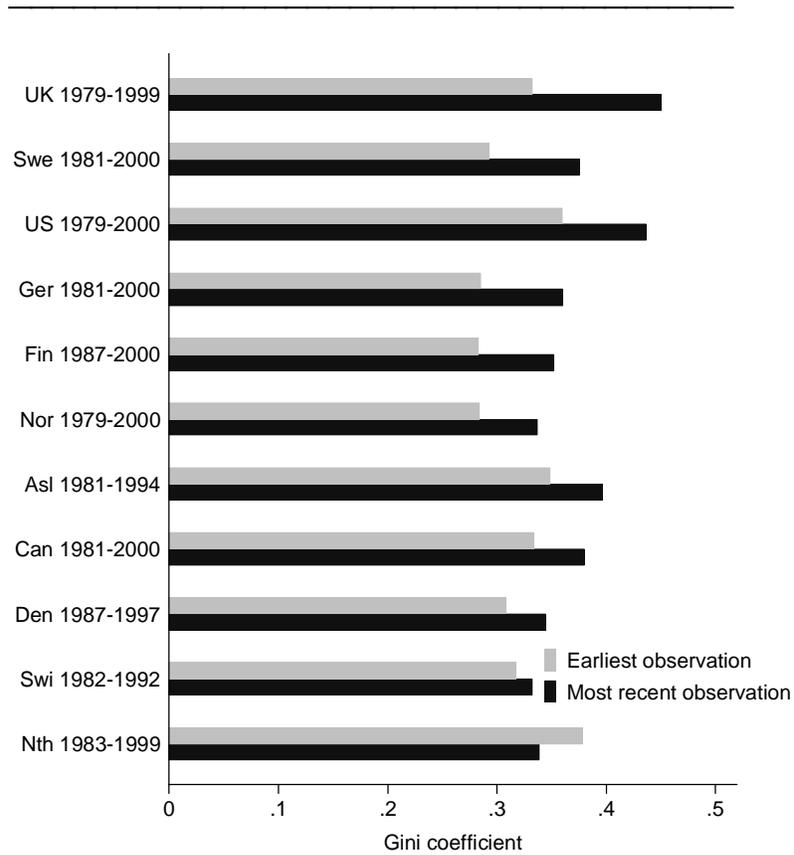
While this scenario is not out of the realm of possibility, it has not played out thus far. Although almost all European countries introduced some reductions in the generosity of various transfer programs in the 1980s and 1990s, in most instances those reductions were relatively limited. Moreover, employment rates in the more egalitarian countries have increased in recent years, in some cases quite substantially. Cross-national diversity in welfare state generosity and inequality of disposable household income is likely to persist and to remain an important subject for research and debate among students of comparative political economy.

Figure 1
 P90/P10 Ratios for Earnings among Full-Time Employed Individuals,
 1979-2000



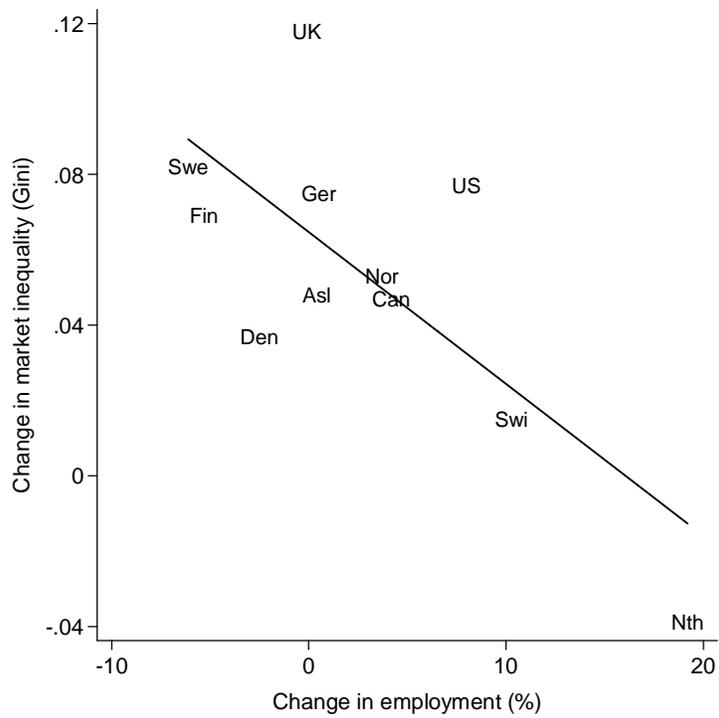
Note: Countries are ordered by change in inequality (most recent observation minus earliest observation). Data for Norway include part-time employees. Source: OECD (n.d.).

Figure 2
Gini Coefficients for Market Income among Working-Age Households,
1979-2000



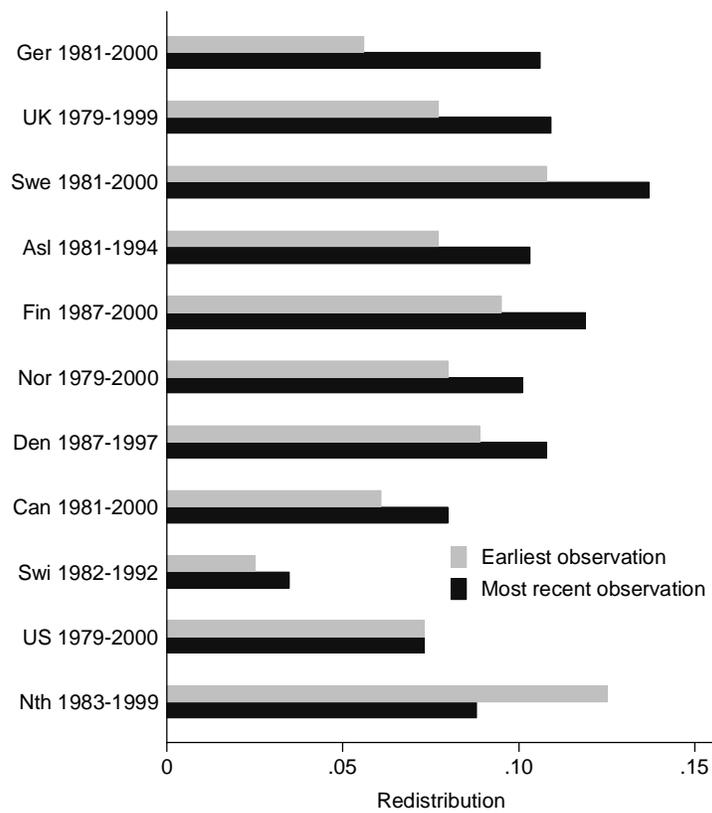
Note: Countries are ordered by change in inequality (most recent observation minus earliest observation). Source: Authors' calculations from Luxembourg Income Study data.

Figure 3
Change in Market Income inequality by Change in Employment Rates,
Working-Age Households, 1979-2000



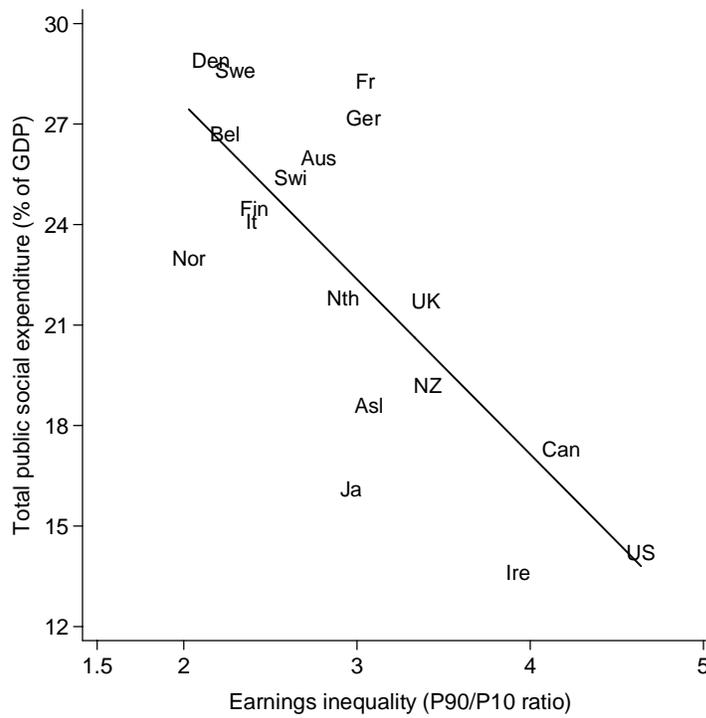
Note: Change is measured as most recent observation minus earliest observation. Years covered are as per Figure 2. $r = -.73$. Source: Authors' calculations from Luxembourg Income Study data and data in OECD (2005).

Figure 4
 Redistribution: Gini Coefficients for Market Income Minus Gini Coefficients
 for Disposable Income, Working-Age Households, 1979-2000



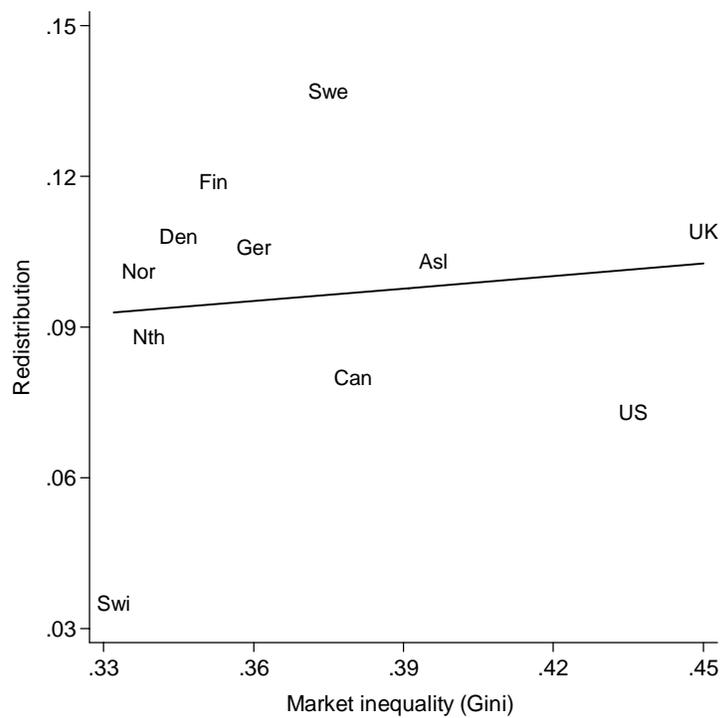
Note: Countries are ordered by change in redistribution (most recent observation minus earliest observation). Source: Authors' calculations from Luxembourg Income Study data.

Figure 5
Total Public Social Expenditures in Percent of GDP in 2000 by Most Recent
Observation of Earnings Inequality among Full-Time Employed Individuals



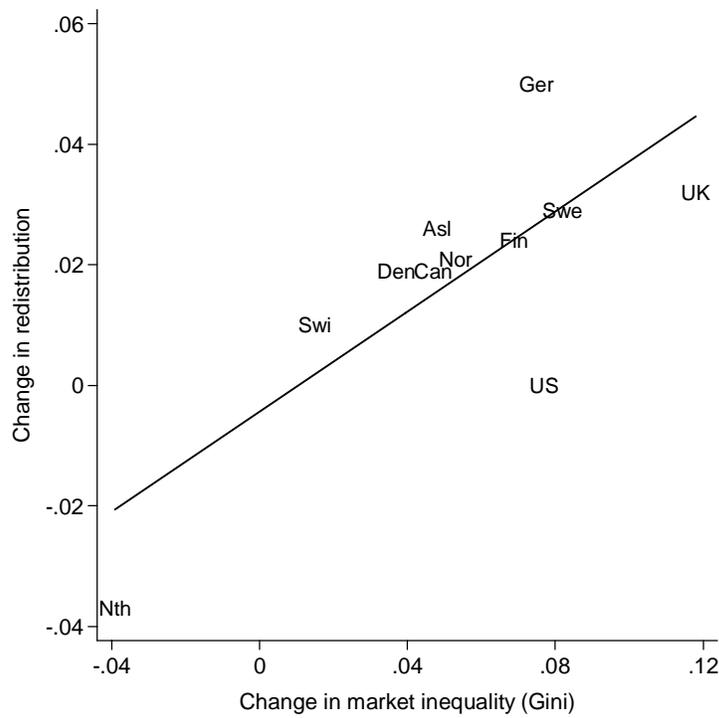
Note: $r = -.71$. Source: OECD (2004, n.d.).

Figure 6
Redistribution by Market Income Inequality, Working-Age Households, Most Recent LIS Observations



Note: Redistribution is calculated as the difference between gross market (pretax-pretransfer) income inequality and disposable (posttax-posttransfer) income inequality. Years covered are as per Figures 2 and 4. $r = .12$. Source: Authors' calculations from Luxembourg Income Study data.

Figure 7
Change in Redistribution by Change in Market Income Inequality, Working-Age Households, 1979-2000



Note: Redistribution is calculated as the difference between gross market (pretax-pretransfer) income inequality and disposable (posttax-posttransfer) income inequality. Change is measured as most recent observation minus earliest observation. Years covered are as per Figures 2 and 4. $r = .77$. Source: Authors' calculations from Luxembourg Income Study data.

Figure 8
 Redistribution by Market Income Inequality, Working-Age Households, 1970-2000

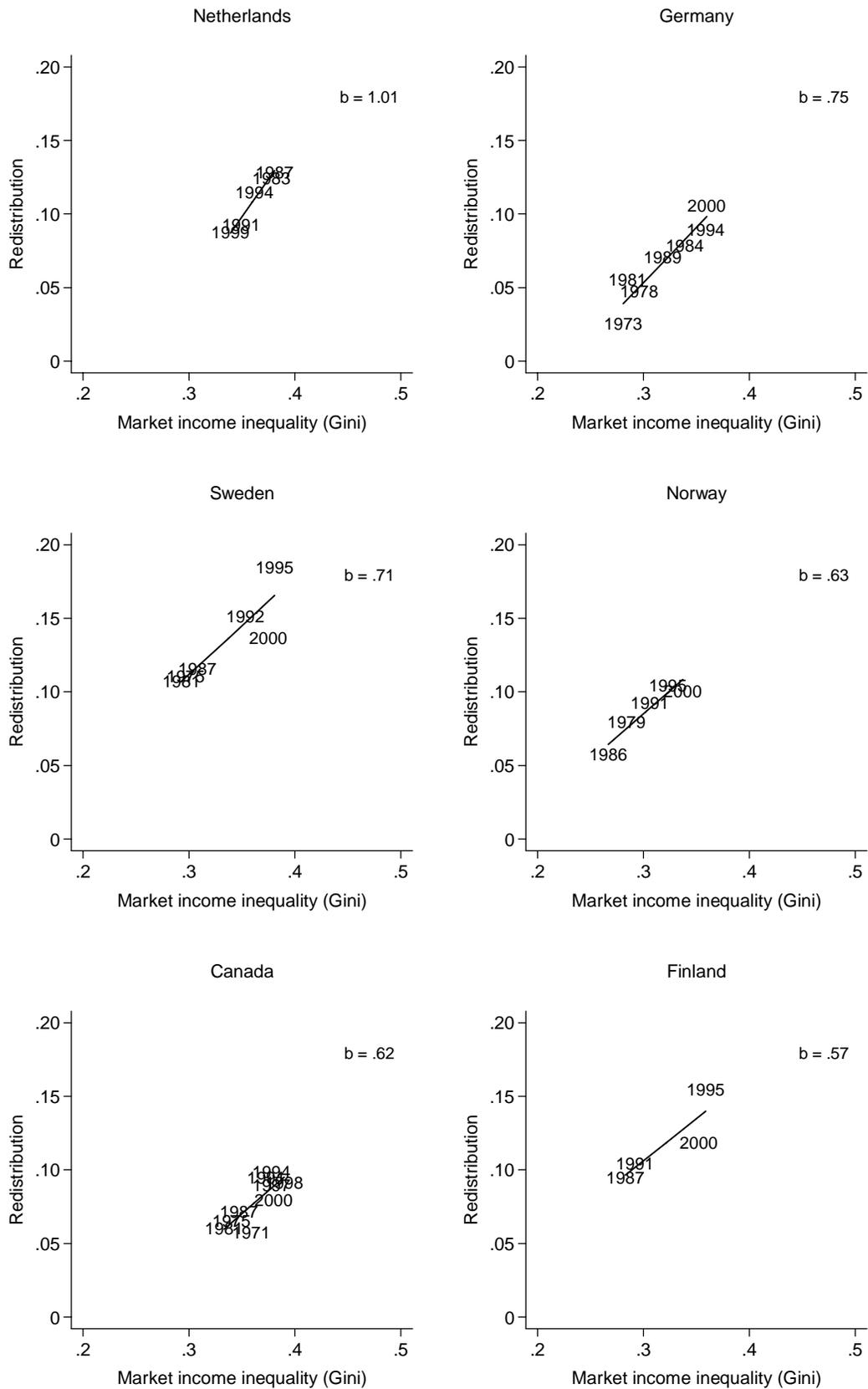
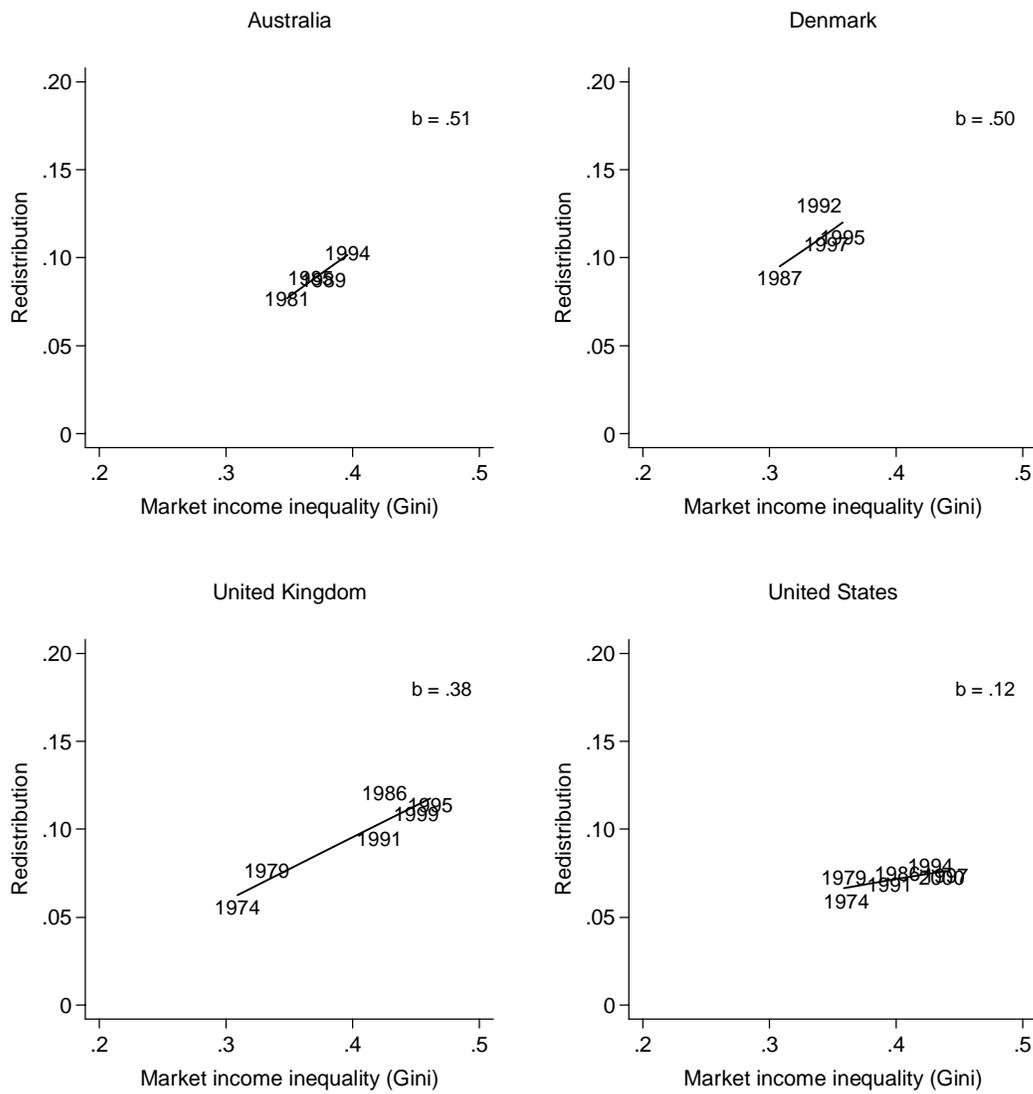
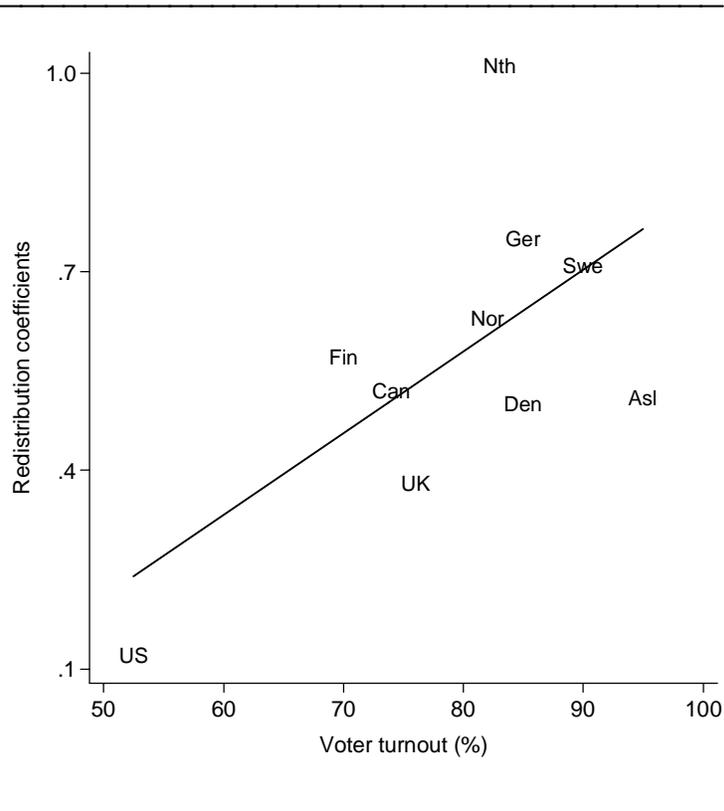


Figure 8 continued



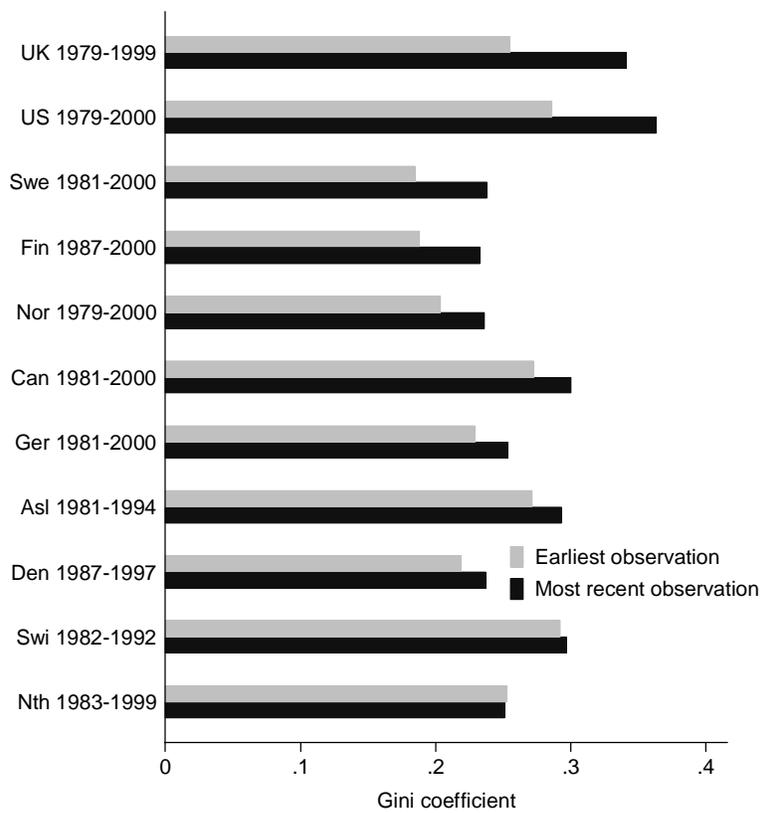
Note: Source: Authors' calculations from Luxembourg Income Study data.

Figure 9
 Redistribution Coefficients by Average Voter Turnout



Note: Turnout data refer to the time period covered by the LIS data for each country (see Figure 4). Presidential elections for the United States; general parliamentary elections for the other countries. Redistribution data are for working-age households only. $r = .63$. Source: Redistribution coefficients are from Figure 8; voter turnout data are from www.idea.int.

Figure 10
Gini Coefficients for Disposable Income among Working-Age Households,
1979-2000



Note: Countries are ordered by change in inequality (most recent observation minus earliest observation). Source: Authors' calculations from Luxembourg Income Study data.

Appendix: Data and Measurements

Inequality

Our data for individual earnings inequality are from an unpublished OECD data set (OECD n.d.). This is, to our knowledge, the only source of comparative time-series data for individual earnings. Our data for household income inequality come from the Luxembourg Income Study (LIS) database (www.lisproject.org). These data are the best available for cross-country comparison of incomes and income inequality (Atkinson and Brandolini 2001).

Consistent with our focus on labor-market developments as a source of inequality (and following Gornick 1999; Bradley et al. 2003; Kenworthy 2004, 2005; Schwabish, Smeeding, and Osberg 2003), we restrict our analysis of households to those with working-age "heads," i.e., households headed by someone aged 25 to 59. This not only renders our description of over-time trends more comparable to those derived from the OECD data on individual earnings, but also provides a more accurate basis for comparing levels of inequality and redistribution across countries. As Huber and Stephens (2001, 375) point out, generous public pensions reduce the incentive for people to save for their retirements. As a result, many retirees have little or no pre-transfer income in countries that provide generous public pensions. Studies of redistribution that include the retired population (e.g., Mitchell 1991) thus yield very high levels of market inequality and, in a sense, exaggerate the redistributive effects of public spending in these countries. In our view, it is not very meaningful to say that the average retired Swede is brought out of poverty by government transfers.

For households, we focus on inequality of gross market income (Figures 2-4 and 6-8). Gross market income ("market income") refers to all household income prior to taxes and transfers. It includes earnings from dependent employment and income from self-employment, investments, and gifts. Earnings account for 86-99% of total market income across all LIS observations for the eleven countries in Figure 2, and inequality of earnings is very closely correlated with inequality of market income among working-age households in the LIS data. Across all LIS observations for those eleven countries ($N = 61$), the correlation between Gini coefficients for gross earnings and Gini coefficients for market income is .98. Based on other data sources, Beramendi and Cusack (2004) report national averages for earnings from dependent employment as a percent of total market income over the period 1965-95: their figures range from 55% to 79%.

Following conventional practice in studies of the income distribution, we adjust for household size by using an equivalence scale of .5 (Atkinson, Rainwater, and Smeeding 1995; Bradley et al. 2003; Kenworthy 2004). This means that total household income is divided by the square root of the number of persons in the household before we calculate income inequality across households.

The basic intuition motivating this procedure is that the costs per household member of maintaining a certain standard of living decline with household size: a smaller household needs more income per household member to maintain the same standard of living as a larger household.

Respondents to surveys may overestimate or underestimate their earnings and/or income. To minimize the effect of this, it is standard practice in analyses using the LIS data to top-code and bottom-code the country data sets in calculating household income levels and income inequality. That is, an upper and lower limit for incomes is set based on some multiple and fraction of the median or mean. Any reported incomes above or below these figures are recoded as the limit figures. We follow the official LIS practice (see www.lisproject.org) of top-coding at 10 times the unequivalized median household income and bottom-coding at 1% of the equivalized mean. Households reporting a disposable income of zero are dropped.

We use P90/P10 ratios to measure inequality of individual earnings (Figures 1 and 5) and Gini coefficients as our measure income inequality across households (Figures 2-4, 6-8, and 10). Ranging from zero to one, the Gini coefficient represents the proportion of total income that would have to be redistributed to achieve perfect equality (higher numbers thus signify greater inequality). Our aim is not to provide a direct comparison of the degree of change in individual earnings inequality versus household income inequality. Nevertheless, it would be helpful to have a common metric. While it is not possible to calculate Gini coefficients from the data in the OECD database on individual earnings, it is possible to calculate P90/P10 ratios for household income from the LIS data. However, P90/P10 ratios are dramatically higher when the tenth percentile of the income distribution includes households without any employed adult: for market income, P90/P10 ratios normally range between 0 and 15 (the U.S. figure for 1997 was 12), but the ratio was 61 for Australia in 1994 and 184 for the Netherlands in 1983. The most useful common metric available to us with these data sources is P75/P25 ratios. This measure is strongly correlated both with P90/P10s ratios for individual earnings ($r = .98$) and with Gini coefficients for households ($r = .92$). The data are shown in Tables A1 and A2 below. Switching to P75/P25 ratios does not significantly alter the country ranking for over-time trends in either individual earnings inequality or household market income inequality. The common-metric data presented Tables A1 and A2 below confirm that household market inequality tends to be greater and has increased more rapidly than individual earnings inequality.

Redistribution

As indicated in the text, we measure redistribution (Figures 4 and 6-8) by subtracting the Gini coefficient for household gross market (income before taxes and transfers) from the Gini coefficient for household disposable income (income

after taxes and transfers). Many studies of redistribution divide this figure by the Gini coefficient for gross market income, which yields a percentage measure of redistribution (Bradley et al. 2003; Mahler and Jesuit 2004; Mitchell 1991). Our use of an "absolute" measure serves to remove "level effects"—the impact of the level of market inequality on the measure of redistribution—from the analysis. Disregarding level effects is particularly appropriate given that we are primarily interested in exploring changes in redistribution over time.

To illustrate this point, consider the Swedish case. From 1981 to 2000, the Gini coefficient for market income among working-age households increased .293 in 1981 to .375 in 2000 while the difference between market-income and disposable-income Gini coefficients increased from .108 to .137. Expressed as a percentage of market-income Gini coefficients, redistribution fell from 36.9% to 36.5%, but it seems misleading to infer that the Swedish welfare state was less redistributive in 2000 than in 1981. It is more accurate, we think, to say that the Swedish welfare state became more redistributive, but that the increase in redistribution was not sufficient to offset the increase in market inequality. The same logic applies to cross-national comparison. Consider the data for Denmark and the United Kingdom shown in Figure 4. In the late 1990s, the absolute effect of taxes and transfers was nearly identical for these two countries: a .108 reduction of the Gini coefficient for Denmark and a .109 reduction for the United Kingdom. Because the distribution of market income was less unequal in Denmark than in the U.K., a percentage measure of redistribution suggests that there was more redistribution achieved in the Danish case (31%) than in the British case (24%). Leaving aside the question of "second-order effects" of taxes and transfers (Beramendi 2001), it seems unfair to "penalize" the welfare state for the high level of market inequality in the United Kingdom.

Measuring Change Over Time

We believe that it is more informative to measure change in inequality in absolute terms (the ending value minus the beginning value) rather than in percentage terms (absolute change divided by the beginning value). Consider, for example, an election in which one party increases its share of the vote from 30% to 40% while another party increases its share of the vote from 3% to 4%. We might say that both parties gained 33%, but we would typically say that one party gained 10 percentage while the other gained one percentage point, and we do so because the latter statement is more meaningful. By the same logic, we prefer to say that an increase in the Gini coefficient from .300 to .400 is equivalent to an increase from .200 to .300 rather than saying that it is equivalent to an increase from .200 to .267. Measuring change in absolute terms is particularly appropriate when we seek to gauge the impact of changes in employment on changes in household market income inequality (Figure 3) or the impact of changes in household market income inequality on changes in redistribution (Figure 7). In the language of

regression analysis, we have no reason to believe that the effect of a one-unit increase in employment on household inequality (or of household inequality on redistribution) is contingent on the initial level of employment. As noted in the text, the association shown in Figure 7 is weaker with percentage measures of change, but switching to percentage measure would not significantly change any of the other scatterplots presented in this paper. To enable readers to explore this issue further, we present percentage measures of change in inequality and redistribution in Tables A1, A2, and A3.

A secondary problem pertaining to measuring change over time has to do with the fact that the OECD data on individual earnings inequality and the LIS data on household income inequality and redistribution cover different time periods for different countries. As noted in the text, cross-national comparability might be enhanced by calculating annualized figures for change in inequality and in redistribution (either by dividing the absolute change by the number of years or by calculating an average annual rate of change measure), but we ought to be wary of extrapolating beyond the years for which we have data. Tables A1, A2, and A3 include annualized figures for absolute change in earnings inequality, household income inequality, and redistribution. As noted earlier, these figures are closely correlated with the figures for total change that appear in the text. Also, it should again be noted that both variables in our bivariate plots refer to the same (country-specific) time periods.

Table A1
Individual Earnings Inequality Data Using Alternative Measures

	Years	Number of years	P90/P10 ratio				P75/P25 ratio			
			Earliest observation	Most recent observation	Total absolute change	Average annual absolute change	Total percentage change	Earliest observation	Most recent observation	Total absolute change
Nordic countries										
Denmark	1980-1990	10	2.13	2.16	.038	.00308	1.48	1.43	1.44	.018
Finland	1980-2000	20	2.47	2.41	-.069	-.00299	-2.49	1.59	1.54	-.0510
Norway	1980-2000	20	2.07	2.00	-.0710	-.003510	-3.411			
Sweden	1979-2000	21	2.01	2.35	.344	.01624	16.92	1.40	1.49	.094
Continental countries										
Germany	1984-2000	16	2.88	2.93	.057	.00317	1.77	1.67	1.70	.037
Netherlands	1980-1999	19	2.57	2.92	.353	.01753	13.64	1.58	1.67	.094
Switzerland	1991-1998	7	2.71	2.62	-.0911	-.012911	-3.310	1.60	1.59	-.019
Anglo countries										
Australia	1979-2000	21	2.75	3.01	.265	.01245	9.55	1.59	1.80	.212
Canada	1981-1994	13	4.02	4.18	.166	.01236	4.06	1.92	1.96	.046
United Kingdom	1979-2000	21	2.95	3.40	.452	.02142	15.33	1.78	1.94	.163
United States	1979-2000	21	3.78	4.58	.801	.03811	21.21	2.03	2.30	.271

Note: First number in each cell is the raw data; second number is the country ranking. Total absolute change is calculated as the most recent observation minus the earliest observation; this is the measure used in Figure 1. Average annual absolute change is calculated as the total absolute change divided by the number of years. Total percentage change is calculated as the total absolute change divided by the earliest observation. P75/P25 data are interpolated for some countries and not available for Norway. Within groups, countries are listed in alphabetical order.

Table A2
Household Market Income Inequality Data Using Alternative Measures

	Years	Number of years	Gini coefficient				P75/P25 ratio			
			Earliest observation	Most recent observation	Total absolute change	Average annual absolute change	Total percentage change	Earliest observation	Most recent observation	Total absolute change
Nordic countries										
Denmark	1987-1997	10	.308	.345	.037 9	.0037 5	12.0 9	1.96	2.20	.24 8
Finland	1987-2000	13	.283	.352	.069 5	.0053 2	24.4 4	1.93	2.28	.35 6
Norway	1979-2000	21	.284	.337	.053 6	.0025 8	18.7 6	1.86	1.99	.13 9
Sweden	1981-2000	19	.293	.375	.082 2	.0044 3	28.0 2	1.94	2.37	.43 3
Continental countries										
Germany	1981-2000	19	.285	.360	.075 4	.0039 4	26.3 3	1.91	2.32	.41 5
Netherlands	1983-1999	16	.378	.339	-.039 11	-.0024 11	-10.3 11	2.18	2.10	-.08 11
Switzerland	1982-1992	10	.317	.332	.015 10	.0015 10	4.73 10	1.84	1.97	.13 9
Anglo countries										
Australia	1981-1994	13	.348	.396	.048 7	.0037 5	13.8 8	2.28	2.79	.51 2
Canada	1981-2000	19	.333	.380	.047 8	.0025 8	14.1 7	2.23	2.54	.31 7
United Kingdom	1979-1999	20	.332	.450	.118 1	.0059 1	35.5 1	2.15	3.33	1.18 1
United States	1979-2000	21	.359	.436	.077 3	.0037 5	21.5 5	2.42	2.85	.43 3

Note: Working-age households only. First number in each cell is the raw data; second number is the country ranking. Total absolute change is calculated as the most recent observation minus the earliest observation; this is the measure used in Figures 2, 4, and 7. Average annual absolute change is calculated as the total absolute change divided by the number of years. Total percentage change is calculated as the total absolute change divided by the earliest observation. Within groups, countries are listed in alphabetical order.

Table A3
Redistribution Data Using Alternative Measures

	Years	Number of years	Absolute redistribution				Percentage redistribution			
			Earliest observation	Most recent observation	Total absolute change	Average annual absolute change	Total percentage change	Earliest observation	Most recent observation	Total absolute change
Nordic countries										
Denmark	1987-1997	10	.089	.108	.019 7	.0019 2	21.3 9	28.9	31.3	2.4 5
Finland	1987-2000	13	.095	.119	.024 5	.0018 4	25.3 8	33.6	33.8	0.2 8
Norway	1979-2000	21	.080	.101	.021 6	.0010 7	26.3 7	28.2	30.0	1.8 6
Sweden	1981-2000	19	.108	.137	.029 3	.0015 6	26.9 6	36.9	36.5	-0.4 9
Continental countries										
Germany	1981-2000	19	.056	.106	.050 1	.0026 1	89.3 1	19.6	29.4	9.8 1
Netherlands	1983-1999	16	.125	.088	-.037 11	-.0023 11	-29.6 11	33.1	26.0	-7.1 11
Switzerland	1982-1992	10	.025	.035	.010 9	.0010 7	40.0 3	7.9	10.5	2.6 4
Anglo countries										
Australia	1981-1994	13	.077	.103	.026 4	.0020 2	33.8 4	22.1	26.0	3.9 2
Canada	1981-2000	19	.061	.080	.019 7	.0010 7	31.1 5	18.3	21.1	2.8 3
United Kingdom	1979-1999	20	.077	.109	.032 2	.0016 5	41.6 2	23.2	24.2	1.0 7
United States	1979-2000	21	.073	.073	.000 10	.0000 10	0.0 10	20.3	16.7	-3.6 10

Note: Working-age households only. First number in each cell is the raw data; second number is the country ranking. Absolute redistribution is calculated as disposable income Gini minus market income Gini. Percentage redistribution is calculated as absolute redistribution divided by market income Gini. Total absolute change is calculated as the most recent observation minus the earliest observation; this is the measure used in Figures 4 and 7. Average annual absolute change is calculated as the total absolute change divided by the number of years. Total percentage change is calculated as the total absolute change divided by the earliest observation. Within groups, countries are listed in alphabetical order.

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