DISTRIBUTION AND REDISTRIBUTION IN POSTINDUSTRIAL DEMOCRACIES

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INTRODUCTION

QUESTIONS of the role of government in shaping distribution and redistribution have long been one of the core concerns of political science, from Lasswell's 1936 classic[1] to Page and Simmons's recent work on the United States.[2] In this article we analyze data that shed light on the age-old question of politics: who gets what, when, and how in complex postindustrial democracies? We seek to understand *how* different social strata (*who*) get *what* share of income. Specifically, we investigate the extent to which distribution and redistribution are driven either by demographic and economic variables or by institutional and political variables. In doing so we provide a powerful vindication of the class analytic power resources approach to distributive politics.

Power resources theory[3] has long been considered one of the three main theoretical approaches in the literature on welfare state development, the others being the functionalist logic of industrialism theory[4] and the statecentric institutionalist or bureaucratic initiative approach.[5]

*The authors would like to thank Ben Page and Michael Wallerstein, as well as participants in workshops on the welfare state and on inequality at Northwestern and Cornell Universities, for helpful comments on earlier drafts.

[1] Harold Lasswell, *Politics: Who Gets What, When, How* (New York and London: Hittlesey House and McGraw Hill Book Company, 1936).

[2] Benjamin I. Page and James R. Simmons, *What Government Can Do: Dealing with Poverty and Inequality* (Chicago: University of Chicago Press, 2000).

[3] See, for instance, Gøsta Esping-Andersen and Walter Korpi, "Social Policy as Class Politics in Post-War Capitalism: Scandinavia, Austria, and Germany," in John Goldthorpe, ed., *Order and Conflict in Contemporary Capitalism: Studies in the Political Economy of Western European Nations* (Oxford: Clarendon Press, 1984); Walter Korpi, *The Democratic Class Struggle* (London: Routledge and Kegan Paul, 1983); and John D. Stephens, *The Transition from Capitalism to Socialism* (London: Macmillan, 1979).

[4] See, for instance, Fred Pampel and John Williamson, *Age, Class, Politics and the Welfare State* (New York: Cambridge University Press, 1989); and Harold Wilensky, *The Welfare State and Equality* (Berkeley: University of California Press, 1975).

[5] See, for instance, Hugh Heclo, *Modern Social Politics in Britain and Sweden* (New Haven: Yale University Press, 1974); and Margaret Weir and Theda Skocpol, "State Structures and the Possibilities for Keynesian Responses to the Great Depression in Sweden, Britain, and the United States," in Peter

While some scholars have characterized the power resources approach as the dominant theory,[6] both qualitative and quantitative studies have shown that the other theories have considerable explanatory power. For example, three recent quantitative studies, all pooled time-series analyses of social expenditure by leading proponents of variants of power resources theory[7] find that variables associated with both logic of industrialism (GDP per capita, elderly population) and statecentric theories (constitutional veto points, federalism, electoral institutions) are also powerful predictors of social spending.

Moreover, more recent research has added to the list of competitive theories. Many of the studies that examine gender dimensions of the welfare state argue that variations in women's political mobilization explain variations not only in women-friendly policies[8] but also in traditional spending indicators of welfare state generosity.[9] Iversen and Cusack[10] find that deindustrialization has contributed to the expansion of social spending. Others argue that both employers and workers support the expansion of social insurance because social insurance removes private employer benefits from wage competition[11] or because it encourages workers to invest in industry- and firm-specific skills.[12] Moene and Wallerstein argue that wage inequality spurs different types of social spending.[13] Indeed, this recent work in comparative political economy tends to regard power resources theory as outmoded and simplistic.

Evans, Dietrich Rueschemeyer, and Theda Skocpol, eds., *Bringing the State Back In* (New York: Cambridge University Press, 1985).

[6] Ann Shola Orloff, "Gender and the Social Rights of Citizenship: The Comparative Analysis of Gender Relations and Welfare States," *American Sociological Review* 58, no. 3 (1993).

[7] See Alexander Hicks, *Social Democracy and Welfare Capitalism: A Century of Income Security Policies* (Ithaca, N.Y.: Cornell University Press, 1999); Evelyne Huber and John D. Stephens, *Development and Crisis of the Welfare State: Parties and Policies in Global Markets* (Chicago: University of Chicago Press, 2001); and Duane Swank, *Global Capital, Political Institutions, and Policy Change in Developed Welfare States* (Cambridge: Cambridge University Press, 2002).

[8] Julia S. O'Connor, Ann Shola Orloff, and Sheila Shaver, *States, Markets, Families: Gender, Liberalism and Social Policy in Australia, Canada, Great Britain and the United States* (Cambridge: Cambridge University Press, 1999); Diane Sainsbury, *Gender, Equality, and Welfare States* (Cambridge: Cambridge University Press, 1996); and Dorothy McBride Stetson and Amy G. Mazur, eds., *Comparative State Feminism* (Thousand Oaks, Calif.: Sage, 1995).

[9] Evelyne Huber and John D. Stephens, "Partisan Governance, Women's Employment and the Social Democratic Service State," *American Sociological Review* 65, no. 3 (2000); and Huber and Stephens (fn. 7).

[10] Torben Iversen and Thomas R. Cusack , "The Causes of Welfare State Expansion: Deindustrialization or Globalization?" *World Politics* 52 (April 2000).

[11] Peter Swenson, *Capitalists against Markets: The Making of Labor Markets and Welfare States in the United States and Sweden* (New York: Oxford University Press, 2002).

[12] Torben Iversen and David Soskice, "An Asset Theory of Social Policy Preference," *American Political Science Review* 95, no. 4 (2001).

[13] Karl Ove Moene and Michael Wallerstein, "Inequality, Social Insurance, and Redistribution," *American Political Science Review* 95, no. 4 (2001).

However, to consider this work on welfare state development as tests of power resources theory misses the mark because the theory is really about the causes of distributive outcomes. This is most clear in the works of two of its earliest proponents, Korpi and Stephens.[14] Both argue that different working-class power resources are mobilized at two points in the distributive process: union strength reduces pre–tax and transfer income inequality while leftist government redistributes income by increasing the size and affecting the distributive profile of taxes and transfers.

In this article we use data on distributive outcomes to test these central hypotheses of power resources theory against a number of rival hypotheses. As we note at the beginning of the article, these questions not only concern power resources theory but also have long been one of the core concerns of political science. Given that the degree to which governments redistribute income is arguably one of the most consequential outcomes of the political process for citizens' living conditions, it is surprising that there have been so few studies attempting to explain variation across advanced industrial societies in distributive outcomes and the redistribution process. One might suppose that this topic would figure importantly in the comparative welfare states literature, yet there are only a handful of cross-national studies of the determinants of distributive outcomes, as compared with literally hundreds of studies of social spending. Hardly any studies have attempted to account for variations in the degree to which governments redistribute income. This is odd, given that, as Esping-Andersen observes,[15] governments do not spend money just to spend money but rather do so

[14] See Korpi (fn. 3), esp 184–98; idem, *The Working Class in Welfare Capitalism* (London: Routledge and Kegan Paul, 1978); Stephens, "The Consequences of Social Structural Change for the Development of Socialism in Sweden" (Ph.D. diss., Yale University, 1976); and idem (fn. 3) esp. 105–8, 163–76. In addition to Korpi and Stephens, those most often associated with the power resources explanation of welfare state development are Gøsta Esping-Andersen, *Politics against Markets* (Princeton: Princeton University Press, 1985); and Esping-Andersen and Korpi (fn. 3). In addition to equality, Esping-Andersen (1985) posits reinforcing class solidarity through universalistic policies and decommodification as goals of social democratic social policy (pp. 147–48). Though decommodification takes pride of place in his 1990 book, *The Three Worlds of Welfare Capitalism* (Princeton: Princeton University Press, 1990), the other two goals remain. Other earlier neo-Marxist-influenced contributors to power resources theory include Alexander Hicks, Roger Friedland, and Edwin Johnson, "Class Power and State Policy," *American Sociological Review* 43, no. 3 (1978); and Roger Friedland, "Class Power and the City" (Ph.D. diss., University of Wisconsin, 1977). Forerunners include Andrew Martin, *The Politics of Economic Policy in the United States*, Sage Professional Paper, 01-040 (Beverly Hills: Sage Publications, 1973); and Gerhard E. Lenski, *Power and Privilege: A Theory of Social Stratification* (New York: McGraw-Hill, 1966), esp. 316–25. For a review of the early contribution to power resources theory or the "social democratic model," as the author calls it, see Michael Shalev, "The Social Democratic Model and Beyond: Two Generations of Comparative Research on the Welfare State," *Comparative Social Research* 6 (1983).

[15] Esping-Anderson (fn. 14, 1990).

to effect an outcome—and certainly one of the most important political outcomes is redistribution.

The answer to the paradox of why such important processes have been so little studied is simple: lack of comparable data on an adequate number of cases. For example, the OECD-sponsored study by Sawyer[16] was able to develop only "reasonably comparable" data for ten countries, and, by the standards of the Luxembourg Income Survey (LIS), Sawyer's figures were of questionable comparability. The first wave of LIS studies improved comparability greatly and allowed the researcher to measure much more rigorously than had previously been possible how much of the final distributive outcome resulted from governmental redistribution.[17] However, the number of cases, ten to twelve, was far too small to allow multivariate statistical analyses of the causes of variation in distributive and redistributive processes. Fortunately, the subsequent development of the LIS data archive—expanding of the number of countries covered and the time points for which there are available data—now makes such analyses possible.

In this article we examine the determinants of distributive and redistributive processes in postindustrial democracies using two measures calculated from the LIS data as dependent variables: pretax, pretransfer income distribution and the proportional reduction in inequality from pre– to post–tax and transfer inequality.[18] Following the hypotheses of power resources theory, we expect strong effects of union organization on pre–tax and transfer inequality and of leftist government on governmental redistribution via its effect on the size of the welfare state and the distributive profiles of taxes and transfers. We control for a variety of variables hypothesized in the literature to affect distributive outcomes.

Literature and Hypotheses

Power Resources Theory

The general arguments of Korpi and Stephens are identical.[19] The distribution of power resources in society (Korpi) or the distribution of

[16] Malcolm Sawyer, *Income Distribution in OECD Countries*, Occasional Studies Paper (Paris: OECD, 1976).

[17] See, for instance, Deborah Mitchell, *Income Transfers in Ten Welfare States* (Brookfield, Vt.: Avebury, 1991).

[18] While we do discuss variations in posttax, posttransfer income distribution, as that is the policy outcome of greatest interest, we see it as product of these two distinct stages and thus do not subject it to multivariate analysis. Indeed, pre–tax and transfer inequality and government distribution account for 99.51 percent of the variation in post–tax and transfer inequality.

[19] Korpi (fnn. 3, 14); and Stephens (fnn. 3, 14).

power in civil society (Stephens) determines distributive outcomes directly in the market and indirectly through the state. Like Giddens[20] and unlike most Marxists, both conceptualize capital, skills, and labor power as market power resources and determinants of class position. Both also follow the traditional Marxist position of seeing capital as a unique power resource because it is concentrated in the hands of the few, and they argue that, *in the hypothetical absence of subordinate*[21] *class organization*, the asymmetric distribution of power resources in capitalist society results in state power being almost exclusively in the hands of capital owners, even in democracies. Nonetheless, democracy assures freedom of association, which allows subordinate classes to organize, as they do in all democratic capitalist societies; critical for the theory, however, the degree of organization varies greatly across societies and through time within societies. These variations in power resources are hypothesized to result in variation in distributive outcomes through two channels: the market and the state. Organization in unions results in a shift of power in the market toward the union members. Organization in social democratic parties, often with the support of unions and allied parties of the left, results in shifts in political power that direct state policy toward more redistribution. Neither author claims that leftist parties are the sole force behind the development of the welfare state. They do argue, however, that longer periods of rule by the left will be associated with greater social spending ceteris paribus and that the distributive profile of the welfare state will be more favorable to lower-income groups. Taxes are more progressive and transfers and publicly provided services are more equally distributed in welfare states developed under social democratic governments. With regard to the distributive profile, Stephens contrasts the distributive effects of welfare states developed under Catholic and social democratic auspices, presenting evidence to support his view that, while both types are generous, social democratic welfare states are more redistributive because taxes are more progressive and transfers more equally distributed.

The Sawyer data[22] on ten advanced industrial countries mentioned above[23] and in some cases supplemented by data on three additional

[20] Anthony Giddens, *The Class Structure of Advanced Societies* (London: Hutchinson, and New York: Harper and Row, 1973).

[21] We say subordinate rather than working class because both authors as well as Esping-Andersen (fn. 14, 1985) see the development of the welfare state and redistribution as the product of shifting class coalitions. Nonmanual employees are viewed as either a part of the working class or another subordinate class, which is consistent with these authors' operationalization of union strength as including all union members not just manual workers.

[22] Sawyer (fn. 16).

[23] Korpi (fn. 3); Stephens (fn. 3).

countries[24] were the basis for early attempts to analyze the distributive process in two stages, as we do here.[25] With so few cases, it is not surprising that the conclusions of all four studies are based on comparing the correlations of measures of pre– and post–tax and transfer income and redistribution with various hypothesized causal variables. Though the measures are somewhat different, a similar picture emerges from the four studies: pre–tax and transfer inequality is very strongly related to measures of union strength (union density and/or union centralization), while redistribution and post–tax and transfer inequality are very strongly related to the measures of party government (leftist government, weighted leftist cabinet and parliamentary seats, difference between leftist and rightist government), thus supporting the hypotheses of power resources theory. It is worth underlining how strong the relationships found in these studies were, with most correlations in the .7 to .9 range, leading Hicks and Swank to observe that "they seem likely to withstand further advances . . . despite the small number of cases."[26]

As noted, partisan government affects the size and distributive profile of welfare spending. As indicated above, we expect social democracy to have a larger impact than Christian democracy on reduction in inequality not primarily because of its impact on the size of the welfare state but because of its impact on the redistributive profile of taxes and benefits. The effect of social democratic incumbency would be even larger if our measure of welfare state generosity included publicly de-

[24] Alexander Hicks and Duane Swank, "Redistribution in Rich Capitalist Democracies," *Policy Studies Journal* 13, no. 2 (1984); and J. Corina M. Van Arnhem and Guert J. Schotsman, "Do Parties Affect the Distribution of Incomes? The Case of Advanced Capitalist Democracies," in Francis G. Castles, ed., *The Impact of Parties* (Beverly Hills, Calif.: Sage, 1982).

[25] Before the publication of Sawyer (fn.16), several scholars used the Paukert income distribution data; E. Paukert , "Income Distribution: A Survey of the Evidence," *International Labour Review* 108 (1973). See, for instance, Christopher Hewitt, "The Effect of Political Democracy and Social Democracy on Equality in Industrial Societies: A Cross-National Comparison," in *American Sociological Review* 42, no. 3 (1977); David Cameron, "Inequality and the State" (Paper presented at the annual meeting of the American Political Science Association, Washington, D.C., September 1976); and Stephens (fn. 14). After the Sawyer study revealed the incomparability of much of these data, Stephens (fn. 3) used the Sawyer data but dropped multiple regression for simple correlation because of the small number of cases, while Cameron dropped the income distribution section of the earlier APSA paper in his 1978 article; Cameron, "The Expansion of the Public Economy," *American Political Science Review* 72, no. 4 (1978).

[26] Hicks and Swank (fn. 24), 266. More recently, Vincent A. Mahler, David K. Jesuit, and Douglas D. Roscoe analyzed data from waves 2 and 3 of LIS, breaking the distributive process into two stages and actually calculating reduction in inequality, as do Hicks and Swank (fn. 24) and the present study; see Mahler, Jesuit, and Roscoe, "Exploring the Impact of Trade and Investment on Income Inequality," *Comparative Political Studies* 32 (May 1999). However, the latter study is not comparable to these two studies or to the other three cited in the text, because it focuses on the earnings of working-age employed individuals rather than on the income of households. It also does not include any of the political or union variables included in these earlier analyses. Moreover, like the four earlier studies, Mahler, Jesuit, and Roscoe limit themselves to bivariate analysis.

livered services, such as national health care and public education, as it is in this aspect and not in transfer generosity that the social democratic welfare state is most distinctive.[27] To foreshadow the discussion of operationalization, the LIS data do not measure the impact of public services on (in kind) income, and our measure of taxes and transfers does not measure the distributive profile of transfers. Thus, we do expect a direct effect of partisan incumbency on reduction in inequality. If we were able to include accurate measures of the redistributive profile of taxes and benefits, we would expect partisanship to have no such direct effects on reduction in inequality.

Alternative Causes

We draw on the recent literature on the comparative political economy of the welfare state and labor-market institutions for hypothesized alternative causes of pre–tax and transfer income inequality and governmental redistribution. The literature on the welfare state demonstrates that Christian democratic government does result in large welfare states,[28] but its effect on redistribution is more ambiguous, as some authors argue that the distributive profile of taxes and transfers partially or even wholly offsets the impact of the level of spending.[29]

Constitutional structure is also an important determinant of welfare state development and thus of redistribution through the tax and transfer system. A relatively large number of *veto points* in a country's constitutional structure—that is, points in the political process at which legislations can be blocked—depress welfare state expansion by enabling relatively small groups to obstruct legislation. By the same token, such veto points make retrenchment of established welfare state programs more difficult.[30] The extreme types are represented by, on the one hand, the unicameral, unitary parliamentary systems of Scandi-

[27] Gøsta Esping-Andersen, *Social Foundations of Postindustrial Economies* (Oxford: Oxford University Press, 1999); Huber and Stephens (fn. 7); and Fritz W. Scharpf, "Economic Changes, Vulnerabilities, and Institutional Capabilities," in Fritz W. Scharpf and Vivien A. Schmidt, eds., *Welfare and Work in the Open Economy*, vol. 1, *From Vulnerability to Competitiveness* (Oxford: Oxford University Press, 2000).

[28] Esping-Andersen (fn. 14, 1990); Evelyne Huber, Charles Ragin, and John D. Stephens, "Social Democracy, Christian Democracy, Constitutional Structure and the Welfare State," *American Journal of Sociology* 99, no. 3 (1993); Kees Van Kersbergen, *Social Capitalism: A Study of Christian Democracy and the Welfare State* (London and New York: Routledge, 1995); and Harold Wilensky, "Leftism, Catholicism, and Democratic Corporatism," in Peter Flora and Arnold Heidenheimer, eds., *The Development of the Welfare State in Europe and America* (New Brunswick, N.J.: Transaction Press, 1981).

[29] Esping-Andersen (fn. 14); Stephens (fn. 3); and Huber and Stephens (fn. 7).

[30] Ellen Immergut, *The Political Construction of Interests: National Health Insurance Politics in Switzerland, France and Sweden, 1930–1970* (New York: Cambridge University Press, 1992); Huber, Ragin, and Stephens (fn. 28); and Huber and Stephens (fnn. 9, 7).

navia in which the party or coalition of parties with a single-seat majority in the national legislature can pass any policy it desires and, on the other hand, the strongly bicameral, federal, presidential system of the United States, in which legislation may find itself not only blocked by either house or the president but also not even under the full control of the federal government.

Based on conventional economic reasoning, critics of the welfare state contend that generous welfare state benefits (particularly unemployment benefits and other transfers, such as social assistance) available to able-bodied working-age persons increase pre–tax and transfer inequality because they act as disincentives for recipients to seek work. Indeed, it is sometimes argued that, to the extent that generous welfare states reduce post–tax and transfer inequality, they simply make up for the damage done to pre–tax and transfer inequality levels. We are skeptical regarding this argument, as it ignores the fact that generous welfare states are often labor mobilizing and invest heavily in skill formation, particularly under the influence of social democratic parties. Nevertheless, we will need to test the hypothesis that welfare state generosity may increase pre–tax and transfer inequality.

Recent literature on wage-bargaining institutions and wage dispersion argues that centralized bargaining results in less wage dispersion. [31] Both Wallerstein's and Pontusson, Rueda, and Way's analyses of pooled time-series data on wage inequality do show very strong effects of wage-bargaining systems on wage dispersion among full-time workers.[32] Based on these studies, we expect to find at least moderately strong effects of bargaining centralization on pre–tax and transfer household income distribution.

Bargaining centralization is often used as a measure of corporatism (tripartite bargaining between centralized business associations and trade unions and the state), which results in generous social policy as a quid pro quo for wage restraint on the part of the unions.[33] The dominant interpretation in the literature is that corporatism is the outcome

[31] See, for instance, Torben Iversen, "Power, Flexibility and the Breakdown of Centralized Wage Bargaining: The Cases of Denmark and Sweden in Comparative Perspective," *Comparative Politics* 28 (July 1996); Michael Wallerstein, "Wage Setting Institutions and Pay Inequality in Advanced Industrial Societies," *American Journal of Political Science* 43, no. 3 (1999); and Jonas Pontusson, David Rueda, and Chris Way, "Comparative Political Economy of Wage Distribution: The Role of Partisanship and Labor Market Institutions," *British Journal of Political Science* 32, no. 2 (2002).

[32] Wallerstein (fn. 31); Ponstusson, Rueda, and Way (fn. 31).

[33] David Cameron, "Social Democracy, Corporatism, Labour Quiescence, and Representation of Economic Interest in Advanced Capitalist Society," in John Goldthorpe, ed., *Order and Conflict in Contemporary Capitalism: Studies in the Political Economy of Western European Nations* (Oxford: Clarendon Press, 1984).

of strong and centralized unions and long periods of left-wing government and thus can be considered a manifestation of subordinate class power.[34] Moreover, bargaining centralization is highly correlated with union centralization, which some analysts consider to be a dimension of union strength, since it facilitates unified action.[35]

Romer[36] and Meltzer and Richard[37] have argued that greater inequality in pre–tax and transfer earnings increases support for redistribution. If income distribution is skewed toward the high end, as it is in all capitalist societies, then the mean will be above the median income and the median voter will have an interest in redistribution. The greater the difference between median and mean income, the greater the level of redistributive spending preferred by the median voter.[38]

Unemployment should increase pre–tax and transfer inequality and, to the extent that welfare state benefits do not replace work income, it should also affect post–tax and transfer inequality.[39] The hypothesized effect of unemployment on the reduction in inequality is, at first blush, counterintuitive: to the extent that welfare state benefits replace work income, it should increase redistribution. That is, in the presence of unemployment benefits (which all of these countries have) and other income replacements for unemployed workers (which most of them have), higher unemployment will be associated with more redistribution, ceteris paribus.

[34] Cameron (fn. 33); Hicks (fn. 7); and Alexander Hicks and Joya Misra, "Political Resources and the Growth of Welfare in Affluent Capitalist Democracies, 1960–82," *American Journal of Sociology* 99, no. 3 (1993).

[35] Hicks and Swank (fn. 24); Peter Lange and Geoffrey Garrett, "The Politics of Growth: Strategic Interaction and Economic Performance in the Advanced Industrial Democracies, 1974–1980," *Journal of Politics* 47, no. 3 (1985). Peter Katzenstein explicitly rejects the view that corporatism is the product of union strength and left-wing government; Katzenstein, *Small States in World Markets* (Ithaca, N.Y.: Cornell University Press, 1985).

[36] Thomas Romer, "Individual Welfare, Majority Voting, and the Properties of a Linear Income Tax," *Journal of Public Economics* 14 (May 1975).

[37] Allan H. Meltzer and Scott F. Richard, "A Rational Theory of the Size of Government," *Journal of Political Economy* 89 (October 1981).

[38] Moene and Wallerstein (fn. 13) hypothesize the opposite relationship for certain insurance types of social spending, but because such spending is income related, it is less likely to be redistributive. Since our dependent variable is redistribution, we hypothesize a positive relationship between pre–tax and transfer inequality and redistribution.

[39] Note that our dependent variable is household income and includes the households of the unemployed. Thus, the inverse relationship between wage dispersion and unemployment noted by Adrian Wood and Gøsta Esping-Anderson would not be expected in our data; see Wood, *North-South Trade, Employment, and Inequality* (Oxford: Oxford University Press, 1994); and Esping-Anderson, "Postindustrial Cleavage Structures: A Comparison of Evolving Patterns of Social Stratification in Germany, Sweden, and the United States," in David B. Grusky, ed., *Social Stratification in Sociological Perspective*, 2d ed. (Boulder, Colo.: Westview Press, 2001). They explain this inverse relationship with the argument that in countries offering high unemployment benefits, unemployed workers will be more likely to prefer unemployment (with attractive benefits) rather than accept low-paying jobs, while in countries with few benefits workers have no choice but to accept these low-paying jobs.

Advanced economies have become increasingly integrated into international markets for goods, capital, and labor over the course of the last three decades. Three trends associated with this process of globalization may have affected the incidence of inequality in developed nations: growing imports from nonindustrial economies, capital mobility, and immigration.[40] Importation of manufactured goods from less developed nations places workers in industrial nations in direct competition with lower-paid workers in developing ones. As trade between nations increases, the wages and jobs of the least-skilled workers in industrialized countries are threatened because they compete with lower-paid workers in less developed countries.[41] This competition reduces wages and increases unemployment.

A second feature of globalization is increasing capital mobility, which means more options for the outflow of capital from developed to developing economies, that is, capital flight. If capital takes advantage of these options to shift production from core countries to less developed countries that offer tax incentives and low-wage labor, then this may translate into job losses and/or downward pressure on wages of the unskilled and greater pre–tax and transfer inequality. Capital mobility can further be assumed to have raised pre–tax and transfer inequality via its negative effect on labor's share of income. As Scharpf points out, the combination of higher interest rates and easier capital mobility in the 1980s required that capital invested in enterprises render higher profit margins, which increased the share of capital relative to that of labor, resulting in lower real wages.[42] Moreover, capital mobility per se enhances the power of capitalists relative to the government and labor, undermining the bargaining power of labor and the capacity of governments. Due to the availability of easy exit options, business may demand tax and social policy concessions from the government and wage concessions from organized labor.[43] Thus we expect capital mobility, in the form of lack of restraints on outflows and not necessarily in the form of actual outflows, to be associated with greater pre–tax and transfer inequality and with less government redistribution.

The final component of globalization is increased labor mobility among nations, experienced by developed ones as a swelling flow of immigrants.[44] A high rate of immigration has been associated with greater

[40] Arthur S. Alderson and François Nielsen, "Globalization and the Great U-Turn: Income Inequality Trends in Sixteen OECD Countries," *American Journal of Sociology* 107 (March 2002).
[41] Wood (fn. 39).
[42] Scharpf (fn. 27).
[43] Alderson and Nielsen (fn. 40).
[44] George J. Borjas, "The Economics of Immigration," *Journal of Economic Literature* 32, no. 2 (1994).

inequality in advanced economies because (1) immigrants have lower average skills than the resident population and (2) the immigrant population is typically bifurcated into low-skills and high-skills components.[45] The influx of low-skills migrants has been viewed as increasing inequality by displacing native workers or depressing their wages.

Development, usually operationalized as GDP per capita in constant dollars, has been included as a causal variable in almost all studies of income distribution. For studies that include developing countries or long time series on advanced industrial countries stretching back into the early part of the twentieth century, the key hypothesis was the Kuznets inverted U-curve. For their study of both industrializing and deindustrializing societies, Nielsen and Alderson[46] hypothesize (and find) a U-curve in which inequality continues to fall in mature industrial societies but then increases with the onset of postindustrialism and globalization.[47] Given that our sample of countries and time points falls into the postindustrial category, one would expect a trend to increasing inequality with rising per capita income. However, it is unclear that rising income per se, independent of the associated processes of deindustrialization and globalization outlined in the previous paragraphs, should be associated with greater inequality.[48]

Another aspect of development is the diffusion of education (for example, Alderson and Nielsen).[49] A simple supply-demand theory of the labor market suggests that increased education of the population will have a negative effect on inequality, since an increased supply of educated workers should decrease the wage differential between more educated and less educated workers. By contrast, Katz and Murphy[50] found that the U.S. in the 1980s experienced a large increase in returns

[45] George J. Borjas, Richard B. Freeman, and Lawrence F. Katz, "On the Labor Market Impacts of Immigration and Trade," in George J. Borjas and Richard B. Freeman, eds., *Immigration and the Work Force: Economic Consequences for the United States and Source Areas* (Chicago: University of Chicago Press, 1992.); Alderson and Nielsen (fn. 40).

[46] François Nielsen and Arthur S. Alderson, "Income Inequality, Development, and Dualism: Results from an Unbalanced Cross-National Panel," *American Sociological Review* 60, no. 5 (1995).

[47] See also Alderson and Nielsen (fn. 40).

[48] We should note that globalization is causally related to the development of the world economy but simply associated with (and not causally related to) rising per capita GDP in individual countries. Thus, for example, in the mid-1990s, economic actors and policymakers in the U.S. and the U.K. faced the same pressures from open financial markets despite quite different levels of per capita GDP. By contrast, since postindustrialization is primarily a property of the domestic economy, there is a stronger causal link between domestic economic development and postindustrialism than between domestic economic development and globalization.

[49] Alderson and Nielson (fn. 40).

[50] Lawrence F. Katz and Kevin M. Murphy, "Changes in Relative Wages, 1963–1987: Supply and Demand Factors," *Quarterly Journal of Economics* 107, no. 1 (1992).

to skill (measured either by education or by experience), despite a large increase in the supply of educated and experienced workers. This combination suggests that the demand for skilled labor outstripped the supply in the U.S. and thus led to increased inequality. Gottschalk and Joyce, using LIS data for a cross-national sample, note that a systematic negative relationship exists between the size of supply shifts (educated workers) and changes in the education premium.[51] Country studies cited in Gottschalk and Smeeding also support the simple supply-demand model of the labor market, although the relative size of the education premium varies quite a bit.[52] While it would be ideal to test directly for the effect of skills on inequality, data limitations dictate that we use education as a proxy. We expect to find a negative relationship between educational attainment of the population and pre–tax and transfer inequality.

The advanced industrial countries also vary greatly in their systems of vocational education. Vocational education is particularly important for those at the bottom of the distribution of the type of generalized skills acquired in academic educational tracks. The vocational education systems characteristic of European coordinated market economies (CMEs)[53] allow these workers to develop skills, often specific to a given industry or firm, that raise their productivity and pay.[54] In addition, as Estevez-Abe, Iversen, and Soskice argue, such systems of vocational education also give those workers an incentive to work on their academic courses, as these often determine their placement in vocational tracks.[55] Thus, strong systems of vocational education should also improve generalized skills at the bottom. The strength of vocational education in CMEs is, thus, arguably a reason in addition to bargaining centralization for the compressed wage and salary differentials in these economies.

[51] Peter Gottschalk and Mary Joyce, "Changes in Earnings Inequality in OECD Countries: The Role of Market and Institutional Factors" (Manuscript, Boston College, 1996).

[52] Peter Gottschalk and Timothy M. Smeeding, "Cross-National Comparisons of Earnings and Income Inequality," *Journal of Economic Literature* 35, no. 2 (1997).

[53] CME is the term Soskice uses to characterize the types of economies that earlier work had referred to as "organized market economies." In CMEs "there is considerable nonmarket coordination directly and indirectly between companies, with the state playing a framework-setting role; and . . . labor remains 'incorporated.'" David Soskice, "Divergent Production Regimes: Coordinated and Uncoordinated Market Economies in the 1980s and 1990s," in Herbert Kitschelt, Peter Lange, Gary Marks, and John D. Stephens, eds., *Continuity and Change in Contemporary Capitalism* (New York: Cambridge University Press, 1999).

[54] Margarita Estevez-Abe, Torben Iversen, and David Soskice, "Social Protection and the Formation of Skills: A Reinterpretation of the Welfare State," in Peter Hall and David Soskice, eds., *Varieties of Capitalism* (New York: Oxford University Press, 2001).

[55] Ibid.

Iversen and Soskice also argue that the industry- and firm-specific nature of many of the skills acquired in vocational education systems results in higher support for social spending, because workers with these skills are vulnerable to longer spells of unemployment.[56] If they are correct, one would expect the extent of vocational education to be positively related to higher social spending and reduction in inequality, as well as negatively related to pre–tax and transfer inequality.

Several demographic variables have been found to affect pre–tax and transfer inequality. Different authors have hypothesized, in contradiction to one another, that female participation in the labor force both increases and decreases inequality.[57] Recent research has pointed to the rising proportion of households headed by females as an important variable in explaining the rise in inequality in the United States.[58] A rising proportion of such families contributes to inequality because they command lower average incomes than families of married couples.[59] In their review of the literature, Gottschalk and Smeeding conclude that "rising earnings inequality among men and among two-earner families, and the growth in the number of single individuals and single female headed families were the primary factors accounting for the increase in inequality in the United States since the mid-1970s."[60] Thus, we include this variable in our analysis and hypothesize a positive effect of the proportion of female-headed households on income inequality.

Following the lead of previous LIS researchers, we adjust household income for household size (see below). Thus, if there is a negative association between household income and fertility, as is often the case, there will be a positive association between the proportion of the population that is young and inequality.

In closing, we note that some of the variables that have been hypothesized to affect pretax income inequality have no necessary relationship to governmental reduction in inequality and vice versa (see Table 1).

[56] Iversen and Soskice (fn. 12).

[57] Lester C. Thurow, "A Surge in Inequality," in *Scientific American* 256, no. 5 (1987); Maria Cancian, Sheldon Danziger and Peter Gottschalk, "Working Wives and Family Income Inequality among Married Couples," in Sheldon Danziger and Peter Gottschalk, eds., *Uneven Tides: Rising Inequality in America* (New York: Russell Sage Foundation, 1993); and François Nielsen and Arthur S. Alderson, "The Kuznets Curve and the Great U-Turn: Income Inequality in U.S. Counties, 1970 to 1990," *American Sociological Review* 62, no. 1 (1997).

[58] Frank Levy and Richard C. Michel, *The Economic Future of American Families: Income and Wealth Trends* (Washington, D.C.: Urban Institute Press, 1991); Nielsen and Alderson (fn. 46).

[59] Alderson and Nielsen (fn. 40).

[60] Gottschalk and Smeeding (fn. 52), 667. See also Lynn A. Karoly, "Anatomy of the United States Income Distribution: Two Decades of Change" (Manuscript, RAND Corporation, Santa Monica, Calif., 1995); and Sheldon Danziger and Peter Gottschalk, *American Unequal* (Cambridge: Harvard University Press, 1995).

TABLE 1
VARIABLE DEFINITIONS AND PROPOSED EFFECTS

Variables	*Description*	*Proposed Impact on* *Preinequality*	*Proposed Impact on* *Inequality Reduction*
Dependent Variables			
Pre–tax and transfer inequality	Pre–tax/transfer gini index of income inequality among households with a head aged 25–29		
Reduction in inequality	proportional reduction in inequality effected by taxes and transfers [(1–post inequality/preinequality) × 100]		
Independent Variables			
Political Variables			
Leftist cabinet	leftist cabinet: scored 1 for each year when the left is in government alone, scored as a fraction of the left's seats in parliament of all governing parties' seats for coalition governments, 1946 to date (HRS)	–/+	+
Christian democratic cabinet	Christian democratic cabinet: religious parties' government share, coded as for left cabinet (HRS)	N/A	0/+
Constitutional veto points	constitutional structure: veto points created by constitutional provisions (HRS)	N/A	–
Welfare generosity	summation of the standardized values of government revenue as % of GDP and nonpension social security transfers as % of GDP (HRS, OECD)	–/+	+
Labor-Market Institutions			
Union density	union density: union membership as % of total wage and salary earners (HRS)	–	+
Bargaining centralization/ corporatism	degree of wage coordination	–	+

Controls			
Wage dispersion	ratio of the 90th percentile to the 10th percentile of wages of full-time employees	N/A	+
GDP per capita	gross domestic product per capita adjusted for PPPs (OECD)	−	+
Education	secondary school enrollment as % of the population of secondary school age (World Bank)	−	N/A
Vocational education	vocational education as % of an age cohort in either secondary or postsecondary vocational training	−	+
Industrial employment	% of the working-age population in industrial employment (HRS, OECD)	−	+
Unemployment	unemployment: % of total labor force unemployed (HRS, OECD)	+	+
Outward direct foreign investment	outward direct foreign investment as % of GDP	+	N/A
Capital-market openness	liberalness of capital controls	+	−
LDC imports	imports from non-OECD countries as % of GDP (OECD)	+	N/A
Net migration	population growth per 1000 population (birth rate − death rate) (World Bank)	+	N/A
Youth	% of the population under 15 years of age (HRS, OECD)	+	N/A
Single-mother families	% of families with children under 18 with a female head (LIS)	+	−
Female labor-force participation	female labor-force participation: % of women age 15 to 64 in the labor force (HRS, OECD)	−	N/A

SOURCES: For pre–tax and transfer inequality and reduction in inequality, see Luxembourg Income Surveys. For leftist cabinet, see data from Evelyne Huber, Charles Ragin, and John D. Stephens, Comparative Welfare States Data Set (Northwestern University and University of North Carolina, 1997) (http://lissy.ceps.lu/compwsp.htm). Original data source for welfare generosity is OECD. For union density, see Ebbinghaus and Visser (fn. 68). For bargaining centralization/corporatism, see Kenworthy (fn. 70). For vocational education, see Estevez-Abe, Iversen, and Soskice (fn. 54). For liberalness of capital controls, see Quinn and Inclan (fn. 73). HRS refers to Huber, Ragin, and Stephens (1997); OECD refers to data from OECD sources cited in Huber, Ragin, and Stephens (1997). For LIS, see fn. 61. For World Bank, see fn. 75.

Given the absence of a theoretical justification for their inclusion, we do not include them in the analysis of that variable.

Measures of Dependent and Independent Variables

The measures of poverty are derived from the Luxembourg Income Study (LIS) database.[61] LIS collects data from national microdata sources (that is, survey data based on individual-level data rather than macroaggregates) and harmonizes the data sets to allow for income comparisons across countries and over time.[62] LIS data are arranged by waves, with the first starting in the late 1970s and the most recent wave in the mid- to late 1990s. There also exist historical data (pre-1979) for a handful of countries. The LIS surveys provide the best available comparable cross-national, over-time data source for income in OECD countries.[63]

The income inequality figures published on the LIS web site and in the many publications using the LIS data are not adequate for our purposes, as they include pensioners, which distorts the pre–tax and transfer inequality and exaggerates the reduction in equality. We take advantage of the fact that the LIS microdata are available for analysis, and we calculate our own measures of the dependent variable. Most importantly, we limit our analysis to the working-age population, which allows us both to eliminate the distortion in measures of reduction in inequality created by the inclusion of the aged population and to measure cross-income group (rather than age group) distribution and redistribution more precisely. In countries with comprehensive public pension systems, such as the Nordic countries, which give the pensioner a replacement rate that is often three-quarters of his or her working income, pensioners make little other provision for retirement. For instance, in an analysis of LIS data, Mäkinen finds that 93 percent of Finns and 89 percent of Swedes are poor before transfers and only 4 percent and 2 percent are poor, respectively, after transfers are added in.[64] Thus, pretax income inequality (and poverty) will be artificially

[61] For a general introduction to the LIS database and a complete list of countries, years, and variables available in this rich data source, see http://ww.lis.ceps.lu.

[62] Complete comparability is, of course, not possible. Since LIS collects data in "waves" (corresponding roughly to the same period of time), LIS data are more comparable within waves rather than over time (due to a change in country surveys utilized by LIS, for example). However, given the careful harmonization of surveys by the LIS project, the use of LIS data to study income trends is widely accepted. See OECD, "Income Distribution in OECD Countries: Evidence from the Luxembourg Income Study," *Social Policy Studies* 18 (1995).

[63] OECD (fn. 62).

[64] Tiina Mäkinen, "Contradictory Findings? The Connection between Structural Factors, Income Transfers and Poverty in OECD Countries," Series B (Department of Social Policy, University of Turku, Finland, 1998), 19.

high and the reduction in inequality also exaggerated.[65] In order to avoid this distortion, we excluded those over fifty-nine and under twenty-five. This excludes most early pensioners and students as well, so the remaining population is clearly of working age.

We constructed two measures: pre–tax and transfer inequality and reduction in inequality effected by taxes and transfers, which necessitates construction of a measure of post–tax and transfer inequality (see Tables 1 and 2). For our measure of inequality we chose the gini coefficient, a measure of income distribution based on plotting the share of households in a given setting (in this case a country) against the cumulative share of income. The gini coefficient ranges from 0 to 1. With complete equality in society (all households having an exactly equal share of income) the gini coefficient would equal 0; similarly, if one household held all the income the gini would equal 1. A lower gini coefficient indicates greater equality. There are several choices facing users of microdata in terms of how to calculate income variables. As discussed above, we restrict our measure of inequality to households with a head aged twenty-five to fifty-nine to reduce the distorting effects of pensioners and students on the distribution of income. The pre–tax and transfer gini calculations are based on market income. This is the total income from wages and salaries, self-employment income, property income, and private pension income. The post–tax and transfer gini is based on disposable personal income. This includes all market income, social transfers, and taxes. Figures for both market income and disposable income were bottom coded at 1 percent of mean income and top coded at 10 times the median income, adjusted for household size and composition. Because we are using an income concept based on households, adjustments had to be made for household size. Equivalence scales are used to adjust the number of persons in a household to an equivalent number of adults. If one chooses not to use an equivalence scale, one ignores the economies of scale resulting from sharing household expenses and assumes that each additional equivalent adult in a household has the same "cost" as other members of the household. We choose a commonly used scale of the square root of the number of persons in the household.[66] Our exclusion of pensioners and youth from the analysis has an additional great advantage from the point of view of the comparative welfare states literature. In critiques of the welfare

[65] To take one example, Mitchell (fn.17) calculates that taxes and transfers reduce inequality among the population of surveyed Swedes in 1981 by 53 percent, whereas our calculations for the population aged 25–59 show a 34 percent reduction in equality.

[66] For a discussion of equivalence scales, see OECD (fn. 62).

TABLE 2
MEAN VALUES OF KEY VARIABLES BY COUNTRY

	LIS Survey Years	*Pre–Tax & Transfer Gini*	*Post–Tax & Transfer Gini*	*Reduction in Gini due to Taxes & Transfers*	*Union Density*	*Wage Coordination*	*Leftist Cabinet*	*Christian Democratic Cabinet*	*Welfare Generosity*
Social Democratic Welfare States									
Sweden	67, 75, 81, 87, 92, 95	32.7	20.2	37.9	80	4.3	32	0	1.61
Norway	79, 86, 91, 95	29.8	21.5	27.5	55	4.5	32	2	0.96
Denmark	87, 92	32.5	21.5	33.6	72	3.0	25	0	2.17
Finland	87, 91, 95	31.0	20.0	35.2	78	4.0	19	0	1.35
Mean		31.5	20.8	33.6	71	4.0	27	1	1.52
Christian Democratic Welfare States									
Belgium	85, 88, 92	33.7	21.6	35.6	57	4.3	13	23	2.34
Netherlands	83, 87, 92	37.5	26.0	30.6	26	3.5	10	28	3.46
Germany	73, 78, 81, 83, 89, 94	32.2	26.2	18.7	32	4.0	11	18	–0.41
France	79, 81, 84, 89, 94	39.4	29.4	25.4	12	2.0	7	4	0.88
Italy	86, 91, 94	35.7	31.3	12.1	40	2.7	5	37	–0.77
Switzerland	82, 92	33.5	30.5	8.8	26	4.0	11	12	–2.04
Mean		35.3	27.5	21.9	32	3.4	10	20	0.58
Liberal Welfare States									
Australia	81, 85, 89, 94	37.5	28.5	24.0	40	3.0	12	0	–1.97
Canada	71, 75, 81, 87, 91, 94	35.8	28.2	21.3	28	1.0	0	0	–1.22
U.K.	69, 74, 79, 86, 91, 95	38.2	29.3	22.7	40	2.3	15	0	–1.52
U.S.A.	74, 79, 86, 91, 94, 97	39.8	32.8	17.6	17	1.0	0	0	–2.21
Mean		37.8	29.7	21.4	31	1.8	7	0	–1.73

state, it is often claimed that welfare states effect only life-cycle redistributions of income and not redistribution across income classes.[67] By limiting the analysis to the working-age population, we assure that our measure does measure redistribution across income groups. As one can see from Table 2, the reduction in inequality effected by taxes and transfers is substantial and the cross-national variation in the reduction is also great.

Our proposed measure of welfare state effort is strongly conditioned by the nature of the LIS data. The LIS post–tax and transfer income distribution data measure disposable cash income. No effort was made to estimate the redistributive effects of the provision of free or subsidized public goods, a dimension of the welfare state on which the social democratic welfare state is most distinctive. Thus, variations in the funding and delivery of social services have no obvious effect on the measures of reduction in inequality and post–tax and transfer inequality we have calculated from the LIS data. Since we excluded those over fifty-nine from the analysis, public pensions will have little if any impact on our measure of redistribution. Our measure of welfare state effort, Welfare Generosity, is the sum of the standard scores for total taxes as a percentage of GDP and transfer payments minus pension transfers as a percentage of GDP (see Table 1). We standardize the two measures in order to weigh them equally. The indicator taps the size of the welfare state but not the distributive profile of taxes and transfers.

We coded the political variables—leftist party government share and Christian democratic party government share—as 1 for each year that these parties were in government alone and as a fraction of their seats in parliament of all governing parties' seats for coalition governments. We use a cumulative measure from 1946 to the year of the LIS surveys used. Our measure of veto points created by the constitutional structure is an additive index of federalism (none, weak, strong), presidentialism (absent, present), bicameralism (absent, weak, strong), and the use of popular referenda as a normal element of the political process (absent, present). Thus, a high score indicates high dispersion of political power and the presence of multiple veto points in the political process.

For union density, we use union membership as a percentage of total wage and salary earners.[68] Our industrialism measure is percentage of

[67] Frank Parkin, *Class Inequality and Political Order* (New York: Praeger, 1971); John Westergaard and Henrietta Resler, *Class in a Capitalist Society* (New York: Basic Books, 1975).

[68] Bernhard Ebbinghaus and Jelle Visser, "European Trade Unions in Figures" (Manuscript, Department of Sociology, University of Amsterdam, 1992). Data for 1993–97 were supplied to us by Jelle Visser.

the working-age population employed in industry.[69] The bargaining centralization measure is Kenworthy's measure,[70] in which a higher score indicates stronger wage coordination.[71] The wage dispersion measure is the ratio of disposable personal income of workers at the 90th percentile to disposable personal income of workers at the 10th percentile of the wage distribution (author calculations of Luxembourg Income Study data). We excluded all incomes with a zero value, bottom coded the income data at 1 percent of mean income, and top coded the data at ten times the median income.[72] We considered four measures of globalization: capital market openness, outward direct foreign investment, LDC imports, and the net migration rate. Capital market openness is operationalized with the Quinn/Inclan measure of capital controls.[73] The maximum score indicates no capital controls. Outward direct foreign investment is measured as outward DFI divided by GDP. LDC imports are measured as manufacturing imports from Standard International Trade Classification groups 5, 6, 7, and 8 from non-OECD countries as a percentage of GDP.[74] The net migration rate is calculated as population growth adjusted for crude birth and death rates.[75]

We include two measures of economic development: gross domestic product per capita, adjusted for purchasing power parities, and agricultural employment, measured as the proportion of the civilian labor force employed in agriculture. We also include industrial employment as an indicator of deindustrialization. It is measured as the percentage of the population aged fifteen to sixty-four in industry. We use this divisor rather than the total employed population, as it avoids the illusion that industry is declining in employment simply because another sector is expanding.

[69] The Alderson and Nielsen (fn. 40) results suggest that we should also include the percentage of the population in agriculture as an independent variable. We did test this hypothesis but it did not have the hypothesized effect in our data, which do not reach as far back in time as their data. The agricultural section is very small in all of our countries by this point in time (mean = 5 percent).

[70] Lane Kenworthy, "Wage-Setting Measures: A Survey and Assessment," in *World Politics* 54 (October 2001).

[71] We cross-checked the Kenworthy measure (fn. 70) by substituting measures of bargaining centralization developed by Wallerstein (fn. 31); and Torben Iversen, "Wage Bargaining, Central Bank Independence and the Real Effects of Money," *International Organization* 52, no. 3 (1998). All of these measures are highly correlated, and the others performed no better than the Kenworthy measure.

[72] For a discussion of top and bottom coding, see Gottschalk and Smeeding (fn. 52).

[73] Dennis Quinn and Carla Inclan, "The Origins of Financial Openness: A Twenty-one-Country Study of Its Determinants, 1950–1988," *American Journal of Political Science* 41, no. 3 (1997).

[74] Following Alderson and Nielsen (fn. 40); OECD, *Foreign Trade by Commodities* (Paris: OECD, various years).

[75] Following Alderson and Nielsen (fn. 40); World Bank, *World Tables* (Baltimore: Johns Hopkins University Press, various years).

Two variables measure human capital or skill distribution: secondary school enrollment as a percentage of the population of secondary school age and, following Estevez-Abe, Iversen, and Soskice, vocational education as a percentage of an age cohort in either secondary or postsecondary vocational training.[76] The vocational training measure would appear to be a good measure of general skills at the bottom of the skill distribution as well as of vocational skills, as the correlation between the Estevez-Abe measure and the OECD/HRDC (2000) measure[77] of literacy skills of the 5th percentile is .73. The vocational education data were available for only forty-nine of the sixty-one cases. For the remaining cases, we have substituted the mean value for the country in question.[78]

The operationalizations of percentage of the total labor force unemployed, female labor-force participation, and percentage of the population under fifteen are self-explanatory. Finally, female-headed households are measured as the percentage of all families with children under eighteen headed by a woman.[79]

Fourteen of the eighteen large advanced industrial countries that have been democracies since World War II are included in the analysis. New Zealand and Japan are excluded, as there are no LIS surveys for these countries. The one Austrian LIS survey and the one Irish LIS survey are excluded due to missing data. The average values for the dependent variables and some of the independent variables are listed by country grouped by welfare state regime in Table 2.[80]

Estimation Techniques

Unbalanced Panel Data and Correlated Errors

We use an unbalanced panel data set with sixty-one observations on fourteen countries, with countries providing different numbers of observations according to data availability; there are a minimum of two and a maximum of seven observations per country. The time span be-

[76] Estevez-Abe, Iversen, and Soskice (fn. 54).

[77] OECD/HRDC, *Literacy in the Information Age: Final Report of the International Adult Literacy Survey* (Paris: Organization for Economic Cooperation and Development, Human Resources Development Canada, 2000).

[78] These data were made available to us by Torben Iversen.

[79] In married-couple households with females listed as the head of the household, LIS recoded the data to have married-couple households always headed by a male.

[80] The grouping in this table is based on the character of the welfare state regime, *not* on political incumbency. The grouping here has no impact on the regressions, where we measure political incumbency as explained in the text.

tween observations is irregular, varying across countries and time points. A central problem in estimating regression models from panel data is that the assumption of independence of errors across observations is unlikely to be satisfied. As a result OLS produces incorrect standard errors for the regression coefficients.[81]

There are several strategies to deal with correlated errors in panel data. One approach (exemplified by the Parks method) assumes serially correlated errors within each unit (country) obeying a unit-specific autoregressive process (that may optionally be constrained to be the same across units). As pointed out by Beck and Katz,[82] this approach requires what Stimson[83] calls temporally dominated time series of cross-sections, that is, data structures consisting of relatively few units observed over many equally spaced time points. The small number of time points and irregular spacing of observations in our data set preclude this approach.

Another approach is to estimate a random effect model (REM) in which the error term contains a unit-specific component that differs across units but is constant over time for a given unit. Such an error structure would arise if unmeasured unit-specific causes, such as systematic measurement differences or other overlooked aspects of the social and cultural makeup of a country, affect the dependent variable in the same way at each point in time over the period of the data. The stable unit-specific component implies that observations for the same unit at different time points are all correlated by the same amount ρ. The REM strategy is feasible with our data; one attractive feature of REM is that it allows estimating the value of ρ. But REM requires relatively strong assumptions and may not be optimal given the small size of the sample.

Since it is not substantively essential in this situation to measure ρ, we adopt an alternative estimation strategy that addresses the correlation problem while requiring minimal assumptions on the behavior of the errors. We combine OLS estimation of the regression coefficients, which provides consistent estimates of the regression coefficients, with the use of a *robust-cluster* estimator of the standard errors. The robust-cluster variance estimator is a variant of the Huber-White robust estimator that remains valid (that is, provides correct coverage) in the

[81] See, for instance, William H. Greene, *Econometric Analysis,* 2d ed. (Englewood Cliffs, N.J.: Prentice Hall, 1993).

[82] Nathaniel Beck and Jonathan N. Katz, "What to Do (and Not to Do) with Time-Series Cross-Section Data," *American Political Science Review* 89, no. 3 (1995).

[83] James A. Stimson, "Regression in Time and Space: A Statistical Essay," in *American Journal of Political Science* 29, no. 4 (1985).

presence of *any* pattern of correlations among errors *within* units, including serial correlation and correlation due to unit-specific components.[84] Thus the robust-cluster standard errors are unaffected by the presence of unmeasured stable country-specific factors causing correlation among errors of observations for the same country, or for that matter any other form of within-unit error correlation. The robust-cluster estimator produces correct standard errors *even when the observations are correlated within clusters*.[85]

The robust-cluster estimator of the standard errors is impervious only to correlations of errors *within* clusters. It requires errors to be uncorrelated *between* clusters. The latter assumption might be violated if unmeasured factors affect the dependent variable (inequality, or the reduction in inequality) in all units at the same point in time. Global economic fluctuations could produce such contemporaneous effects. To evaluate the potential impact of such unmeasured period-specific factors, we reestimated the models with indicator variables for the 1980s and for the 1990s; the baseline category corresponds to the 1970s and includes two observations from the late 1960s. None of the two indicators reached significance in any of the models (for either dependent variable), suggesting that period-specific effects are not present in this data set (results not shown).

Given the superiority of robust-cluster estimation, we utilized this method as our primary technique. However, to demonstrate the robustness of our results, we also employed OLS and REM estimation, following the reduction criteria explained below.

Collinearity

As Huber, Ragin, and Stephens point out, collinearity is a serious problem in these data.[86] Leftist cabinet, union density, and bargaining centralization are highly intercorrelated, which is not surprising since they are causally interrelated. Including our welfare generosity measure adds

[84] For the development and description of the technique, see Peter J. Huber, "The Behavior of Maximum Likelihood Estimation under Nonstandard Conditions," in L. M. LeCam and J. Neyman, eds., *Proceedings of the Fifth Berkeley Symposium on Mathematical Statistics and Probability* 1 (Berkeley: University of California Press, 1967); Halbert White, "A Heteroskedastic-Consistent Covariance Matrix Estimator and a Direct Test of Heteroskedasticity," *Econometrica* 48, no. 4 (1980); J. Scott Long and Laurie H. Ervin, "Using Heteroscedasticity Consistent Standard Errors in the Linear Regression Model," *American Statistician* 54 (2000).

[85] William H. Rogers, "sg17: Regression Standard Errors in Clustered Samples," *Stata Technical Bulletin* 13, reprinted in *Stata Technical Bulletin Reprints* 3 (1993). See also William Sribney, "Comparison of Standard Errors for Robust, Cluster, and Standard Estimators" (1998), at Stata FAQ Statistics, Stata Corporation at www.stata.com/support/faqs/stat/cluster.html); StataCorp, *Stata Statistical Software: Release 6.0* (College Station, Tex.: Stata Corporation, 1999), User's Guide 256–60.

[86] Huber, Ragin, and Stephens (fn. 28).

to the problem, as we tried to add it to regressions that include its own determinants, for example, leftist cabinet. Leftist cabinet is at the center of this nexus, being strongly correlated with union density (.80), bargaining centralization (.59), wage dispersion (–.58), and welfare generosity (.54). We take two steps to deal with this problem. First, we do not enter union density and leftist cabinet in the same equation even when this does not create multicollinearity by conventional criteria (VIF = 10), since entering both in the same equation causes considerable coefficient instability. We substitute the two variables for each other in different equations and compare the explanatory power of the equations. Second, we first regressed each dependent variable on the control variables, the labor-market institutional variables, and the political variables separately. Then, to make sure that we did not pass over potentially significant variables, we regressed the dependent variable on all variables that were significant at the rather tolerant .1 level in the separate equations. We also conducted an F-test of the joint significance of all of the variables with individual significance less than .1 to see if they could be safely dropped from the model. We then reduced the equation using the .1 criterion to eliminate variables and then used the conventional .05 level to assess significance in the final equation.

Results

Table 3 displays the results of the regressions for pre–tax and transfer inequality. Equations 1–3 regress the dependent variable on controls, labor-market institutions, and the political variables, respectively. Regression 4 presents the results of the regression with all variables significant at the .1 level or better in the first three equations, and regression 5 presents the reduced equation. As indicated by the R^2, the fit is very good. Unemployment, female-headed families, and union density all have the hypothesized moderate-to-strong effects on the dependent variable. We were not surprised that secondary school enrollment showed no significant effect, since it is a poor proxy for skill distribution. The insignificant effect of vocational education is rather more surprising, especially given its previously noted strong relationship to general skills at the bottom.

By far the most surprising result was the absence of any significant effect of wage coordination on pre–tax and transfer inequality in the combined model (model 4). This is not an artifact of the particular measure we used; we got the same insignificant results using the two measures of bargaining centralization used by Wallerstein in his study

of wage dispersion.[87] When we substitute leftist cabinet into equation 6, we find a substantial reduction in the model's overall explanatory power, down from .64 when union density is included to .53 with leftist cabinet. Therefore, equation 5, with unionization, is the best estimate of pre–tax and transfer inequality.

Table 4 presents our results for the analysis of governmental reduction in inequality. Equations 1–3 regress the dependent variable on the controls, labor market institutions, and the political variables, respectively. After performing a series of F-change tests, equation 4 combines all variables significant at .1 except unionization (because of the multicollinearity problem noted above). Equations 5 and 6 present the reduced models. Equations 7 and 8 substitute unionization and wage coordination (here as a measure for corporatism) for leftist cabinet. The variation explained by equations 4–8 is impressive, indicating an extremely good fit with the data. As hypothesized, the variations in the magnitude of taxes and transfers have a very powerful effect on variations in the reduction in inequality. The zero-order correlation between these two variables is an impressive .68. This result clearly demonstrates the crucial importance of a generous welfare state for redistribution across income classes. As hypothesized, unemployment has a positive effect on governmental reduction in inequality. In the presence of unemployment benefits, support for retraining, and so on, higher unemployment results in more redistribution. We also find a direct positive effect on redistribution of leftist government and a negative one of Christian democratic government.

The final three equations test the importance of leftist government, unionization, and wage coordination, respectively. Leftist government and union density both have the hypothesized positive effects on inequality reduction. Interestingly, wage coordination is nonsignificiant in equation 2 when union density is controlled. The F-change test suggests that wage coordination can be safely dropped from the remaining equations without reducing their explanatory power. However, given the theoretical importance of wage coordination (here as a measure for corporatism), we retest this variable by incorporating it into equation 8. We find that it is significantly positive.

The variation explained by these equations is sufficiently similar that it is difficult to make a statistical case for the superiority of one of these three closely interrelated variables over the others. We know, however, from comparative historical evidence that the crucial decisions about

[87] Wallerstein (fn. 31).

TABLE 3
DETERMINANTS OF PRE–TAX AND TRANSFER INEQUALITY[a]

	Controls (1)		*Labor-Market Institution* (2)		*Political* (3)		*Combined* (4)		*Reduced* (5)		*Substitute Leftist Cabinet* (6)	
Variables	b	β	b	β	b	β	b	β	b	β	b	β
GDP per capita	0.41	0.50	—		—		0.12	0.15	—		—	
	(1.87)						(1.14)					
Industrial employment	29.81	0.29	—		—		12.09	0.12	—		—	
	(1.57)						(0.62)					
Education	–0.03	–0.11	—		—		—		—		—	
	(–0.70)											
Net migration	0.22	0.11	—		—		—		—		—	
	(0.90)											
LDC imports	31.73	0.06	—		—		—		—		—	
	(0.31)											
Vocational education	–0.02	–0.07	—		—		—		—		—	
	(–0.52)											
Outward direct foreign investment	0.62	0.16	—		—		0.39	0.10	0.35	0.09	0.49	0.13
	(1.90)						(1.31)		(1.36)		(1.96)	
Unemployment	0.77	0.56	—		—		0.59	0.42	0.61	0.44	0.56	0.40
	(2.30)						(2.69)		(5.18)		(3.90)	
Single-mother families	0.49	0.52	—		—		0.42	0.44	0.40	0.43	0.43	0.46
	(1.93)						(2.28)		(4.56)		(4.26)	
Female labor-force participation	–0.22	–0.49	—		—		–0.07	–0.17	—		—	
	(–3.72)						(–0.96)					

Youth	0.40 (1.10)	0.24	—		—		—		—		—	
Capital-market openness	−0.54 (−0.66)	−0.08	—		—		—		—		—	
Union density	—		−0.06 (−2.19)	−0.29	—		−0.08 (−2.23)	−0.36	−0.11 (−4.11)	−0.50	—	
Wage coordination	—		−1.26 (−2.56)	−0.39	—		−0.42 (−1.22)	−0.13	—		—	
Welfare generosity	—		—		0.05 (0.13)	0.02	—		—		—	
Leftist cabinet	—		—		−0.15 (−2.33)	−0.36	—		—		−0.17 (−3.22)	−0.39
Constant	20.74 (1.39)		41.54 (29.87)		37.31 (31.87)		30.38 (5.96)		30.12 (16.51)		27.71 (14.05)	
R-Square	0.62		0.36		0.12		0.66		0.64		0.53	
F-Test	F(6,48) = 1.85		—		F(1,58) = .02		F(4,52) = .44		—		—	

[a]b = unstandardized coefficient; β = standardized coefficient; T-values are in parentheses; N = 61.

TABLE 4

DETERMINANTS OF POST–TAX AND TRANSFER REDUCTION IN INEQUALITY[a]

	Controls (1)		*Labor-Market Institution* (2)		*Political* (3)		*Combined* (4)		*Reduced* (5)		*Reduced* (6)		*Substitute Unionization* (7)		*Substitute Wage Coordination* (8)	
Variables	*b*	β	*b*	β	*b*	β	*b*	β	*b*	β	*b*	β	*b*	β	*b*	β
GDP per capita	−0.39	−0.25	—		—		−0.17	−0.11	—		—		—		—	
	(−1.98)						(−1.16)									
Wage dispersion	−4.76	−0.53	—		—		−0.12	−0.01	—		—		—		—	
	(−3.65)						(−0.10)									
Industrial employment	−35.43	−0.19	—		—		—		—		—		—		—	
	(−1.07)															
Unemployment	0.62	0.24	—		—		0.74	0.29	0.60	0.24	0.62	0.25	0.51	0.20	0.59	0.23
	(1.55)						(3.26)		(2.87)		(3.08)		(2.14)		(2.27)	
Single-mother families	1.23	0.71	—		—		0.39	0.23	0.07	0.04	—		—		—	
	(3.35)						(2.41)		(0.90)							
Capital-market openness	−2.91	−0.22	—		—		−1.23	−0.09	—		—		—		—	
	(−2.75)						(−1.13)									
Vocational education	0.16	0.31	—		—		0.03	0.05	—		—		—		—	
	(1.49)						(0.33)									
Union density	—		0.27	0.70	—		—		—		—		0.13	0.32	—	
			(3.45)										(3.62)			

Wage coordination	—	−0.36	−0.06	—		—		—		—		—		1.21	0.21
		(−0.43)												(2.67)	
Christian democratic cabinet	—	—		−0.28	−0.37	−0.21	−0.29	−0.28	−0.37	−0.29	−0.39	−0.29	−0.39	−0.41	−0.54
				(−5.45)		(−2.22)		(−4.15)		(−4.64)		(−4.03)		(−7.15)	
Constitutional veto points	—	—		−0.05	−0.01	—		—		—		—		—	
				(−0.13)											
Leftist cabinet	—	—		0.15	0.20	0.21	0.27	0.25	0.31	0.25	0.32	—		—	
				(1.60)		(1.73)		(3.19)		(3.24)					
Welfare generosity	—	—		3.49	0.75	2.83	0.61	2.94	0.63	2.92	0.63	3.09	0.66	3.54	0.76
				(8.30)		(5.88)		(8.13)		(7.93)		(7.41)		(7.64)	
Constant	42.22	14.77		25.08		20.28		18.78		19.50		18.46		20.34	
	(2.94)	(5.12)		(15.02)		(3.87)		(10.54)		(12.13)		(7.07)		(7.41)	
R-Square	0.65	0.44		0.76		0.82		0.81		0.81		0.82		0.78	
F-Test	F(1,51) = 1.74	F(1,58) = .28		F(1,56) = .02		F(4,49) = .80		F(1,55) = .34		—		—		—	
N	59	61		61		59		61		61		61		61	

[a]b = unstandardized coefficient; β = standardized coefficient; T-values are in parentheses.

the structure of major welfare state programs were always taken by parliaments and that strong labor movements, such as the Australian, were not capable of building generous welfare states in the absence of incumbent left-wing parties.[88] Thus, this evidence argues for equation 6 (leftist government) rather than equation 7 or 8 (union strength and corporatism, respectively).

Clearly, the welfare state is the main policy tool available to governments for redistributing resources. Thus, we might expect the entire effect of partisan government to be captured by taxes and transfers. However, our measure captures only the magnitude of taxes and transfers; the remaining direct effect of partisan incumbency once magnitude is taken into account draws attention to the differences in structures of tax and transfer systems. Obviously, tax systems vary greatly in their degree of progressivity, and the allocation of transfers can be more or less skewed toward lower-income groups. Social democratic governments have favored more progressive tax systems and transfers more heavily directed toward lower-income groups, whereas Christian democratic governments have been less intent on shaping their tax and transfer systems in a redistributive direction. If we were able to include measures for the structure of tax and transfer systems in our analysis, we would expect the entire effect of political incumbency to be absorbed by the measures of the magnitude of taxes and transfers and their structure. Indeed, we tried to include measures for the structure of transfer programs in our analysis, such as the proportion of transfers that are means tested. However, we found no significant effects, as the available measures of policy characteristics are too blunt to capture the redistributive impact of these policies.[89]

It is worth pointing out here that our results indicate that all types of welfare states are redistributive, including the liberal welfare states. However, since magnitude of taxes and transfers strongly influences the degree of redistribution achieved, and since the northwestern Christian democratic welfare states (Belgium, Netherlands, France) are markedly more generous, these welfare states have a stronger redistributive effect than the liberal welfare states (Table 2). In fact, a visual inspection in

[88] Huber and Stephens (fn. 7).

[89] Even a measure of the progressivity of taxes and transfers would not capture the entire redistributive effect of social democratic governments because of limitations in our dependent variable. Our dependent variable measures only income and not the value of free or subsidized public services. Social democratic governments have expanded a variety of public services, from public health care, child care, and elderly care to training and retraining, access to which is either universal and free or to be paid for according to income. With the partial exception of health care, Christian democratic governments have preferred private delivery of such services—to the extent that the state became involved in supporting them at all—and payments according to insurance principles, which has a less redistributive effect.

Table 2 of the magnitude of and the total redistribution effected by liberal and Christian democratic welfare states suggests that the structure of the liberal welfare states is more redistributive than the structure of the Christian democratic welfare states. This is largely a result of the heavy reliance on means testing and the limits of earnings-related benefits characteristic of liberal welfare states.

While we expected Christian democratic government to have a negative effect on reduction in inequality *net of its positive effect on taxes and transfers*, we did not expect an effect of this magnitude. We can explore this further by examining the determinants of our measures of taxes and transfers. We regressed the tax and transfer variable on the seven variables that Huber and Stephens found to be the consistently most important determinants of eight different measures of welfare state generosity: Christian democratic cabinet, leftist cabinet, constitutional structure, female labor-force participation, unemployment, per capita GDP, and percent aged.[90] Reducing the equation by eliminating independent variables not significant at the .1 level produced the following:

$$\text{Taxes \& Transfers} = .33\ \text{Christian democratic cabinet} + .67\ \text{Left cabinet} + .33\ \text{Unemployment}$$

The coefficients are standardized (or path) coefficients and the R^2 is .54. With this equation and equation 6 in Table 4, we can calculate the indirect effects of Christian democracy and social democracy on reduction in inequality via taxes and transfers and add it to the standardized coefficient to get an estimation of the total effect on reduction in inequality. The indirect effect of social democracy via taxes and transfers is .42, giving a total effect of .75. The indirect effect of Christian democracy via taxes and transfers is .21, giving a total effect −.18.[91] This effect is small enough in size to warrant the interpretation that the overall effect of Christian democratic incumbency is distributionally neutral: Christian democratic incumbency does not result in a reduction of income inequality. These causal processes are graphically represented in Figure 1. Given the cross-class base of Christian democratic parties and their project of mediation and reconciliation of interests, this is not surprising.[92] Christian democratic parties favor the welfare state because they want to offer generous safety nets for people in all income groups, not because they want to redistribute income.

[90] Huber and Stephens (fn. 7).

[91] The total effects of Christian democracy and social democracy are very similar to the results one gets if one drops Taxes and Transfers from equation 3 in Table 4. The standardized coefficients for social democracy and Christian democracy are .74 and −.18, respectively. The latter coefficient is not significant.

[92] Van Kersbergen (fn. 28).

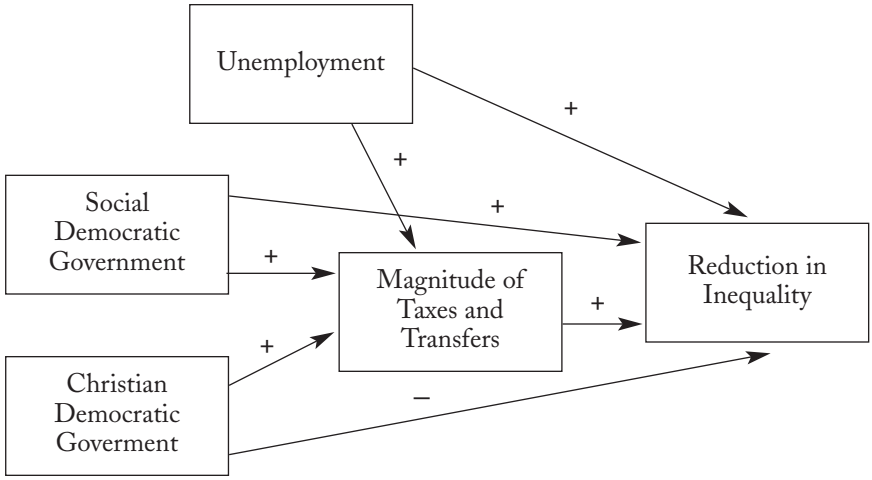

FIGURE 1
DIRECT AND INDIRECT EFFECTS ON REDUCTION IN INEQUALITY

To test the robustness of our robust-cluster estimation, we also generated OLS and REM estimations, and these results provide overwhelming support for our argument (see the appendix). We do not find a substantial difference in the results between robust cluster and OLS estimates for either pretax inequality or posttax reductions in inequality. Furthermore, we do not find a substantial difference between robust cluster and REM estimation of post–tax and transfer reductions in inequality. However, we do find that REM amplifies the significance of time-varying variables for pre–tax and transfer inequality. These include gross domestic product, migration, and female labor-force participation.[93]

CONCLUSION AND DISCUSSION

This article breaks new ground in the study of variations in the distributive outcomes in postindustrial democracies by dividing the distributive process into two stages, the distribution of pre–tax and transfer income and the reduction in inequality effected by taxes and transfers, and subjecting these dependent variables to multivariate analysis systematically testing competing theories against one another. Our first contribution arises from the mere computation of the reduction in in-

[93] See also Alderson and Nielsen (fn. 40).

equality variable for the working-age population. We demonstrate that the assertion that the welfare state merely redistributes income across generations is wrong. All types of welfare states, even liberal welfare states, redistribute income across income groups. However, there is great variation in time and space in the proportional reduction in inequality from the extremes of Switzerland in 1982 with only a 6.2 percent reduction in inequality to Sweden in 1995 with a 47 percent reduction in inequality.

We then examine the determinants of the two stages separately and indeed find that they are quite different. High pre–tax and transfer inequality is associated with high unemployment and a high proportion of female-headed households and with low union density. By contrast, political variables, directly or indirectly via their effect on the volume of taxes and transfers, figure strongly among the determinants of reduction in inequality. The importance of partisan politics is particularly great if in Table 4 one selects equation 6 (with leftist cabinet), rather than equation 8 (wage coordination) or 7 (union density), as the appropriate causal model. As we have seen, there is no statistical reason to do so. There is, however, comparative historical evidence that points very strongly in the direction of leftist cabinet and not in the direction of union density or wage coordination. Huber and Stephens investigate this question extensively and conclude that neither union organization nor wage coordination (which in this case can be taken to be an indicator of corporatism) had much effect on social policy independent of the partisan composition of government.[94]

Thus, our equation 6 can be taken to be the best estimate of the determinants of reduction in inequality. This equation and the estimations of indirect effects of leftist and Christian democratic government via their effect on taxes and transfers yield our most important and striking finding: leftist government very strongly drives the redistributive process directly by shaping the distributive contours of taxes and transfers and indirectly by increasing the proportion of GDP devoted to taxes and transfers. By contrast, if we add the direct and indirect effects of Christian democratic government, the net result is actually negative though not strongly so. Huber and Stephens and Swank have taken Esping-Andersen to task for his characterization of Christian democratic welfare states as preserving inequality.[95] From the marginals on governmental redistribution in Table 2 one can see that they do not (nor do other types of welfare states). But if we can agree with Swank

[94] Huber and Stephens (fn. 7), chap. 5.
[95] Huber and Stephens (fn. 7); and Swank (fn. 7).

and Huber and Stephens that the Christian democratic welfare states have slightly more egalitarian effects than liberal welfare states, our analysis shows that this is the case because they spend more and they have stronger unions or longer periods of left government, and not because of Christian democratic governance.

In recent pooled time-series analyses of the determinants of variations in inequality in industrial and postindustrial democracies, union density and welfare state effort have been found to be strong determinants of post–tax and transfer inequality.[96] We were able to replicate this finding in our data (not shown) and found that substituting leftist government for union density resulted in a significantly poorer fit with the data. The conclusion from this finding would appear to be that labor-market institutions and not politics are decisive for the final distributive outcomes. By breaking the distributive process into two stages, we manage to question this interpretation. Union density is an important but not overwhelming determinant of pre–tax and transfer inequality, while leftist government and union density are both significant determinants of governmental redistribution. Whereas statistical procedures suggest that they might be equally important, comparative historical evidence demonstrates that leftist incumbency is decisive. Union density's strong effect on post–tax and transfer inequality is a product of its strong relationship with leftist government ($r = .80$) and pre–tax and transfer inequality.

Given the strong relationship between bargaining centralization and wage inequality found by Wallerstein and Pontusson, Rueda, and Way, the absence of a significant relationship between wage coordination and pre–tax and transfer inequality came as a surprise.[97] Since our data are household income and thus include not only full- and part-time work income in the same household but also property income, while the wage dispersion data are for full-time individual employees, one might not expect as strong a relationship. Still, the absence of any significant relationship is puzzling and needs further investigation.

The results for unemployment follow the conventional expectations for pre–tax and transfer inequality: more unemployment leads to more inequality. For the other two variables, the results were not so obvious and say something rather new about distributive processes in the welfare state. The positive effect of unemployment on reduction in in-

[96] Alderson and Nielsen (fn. 40); and Bjorn Gustafsson and Mats Johannson, "In Search of Smoking Guns: What Makes Income Inequality Vary over Time in Different Countries?" *American Sociological Review* 64, no. 4 (1999).

[97] Wallerstein (fn. 31); and Pontusson, Rueda, and Way (fn. 31).

equality was an easily resolved paradox: all of these countries had unemployment-compensation systems, so while unemployment raised pre–tax and transfer inequality, unemployment compensation lowered it and thus the reduction in inequality was greater where and when unemployment was higher. We also found no significant effect of unemployment on post–tax and transfer inequality (not shown). We attribute this to the comprehensiveness of unemployment social protection in the Christian democratic and social democratic welfare states and sufficient adequacy in the liberal welfare states. Aaberge et al.'s longitudinal study[98] of annual data on income distribution in Nordic countries with data comparable to LIS data showed almost no effect of the unemployment crises of the 1980s and 1990s on post–tax and transfer income inequality, which is a tribute to the comprehensiveness of Nordic unemployment social protection systems.

The positive effect of unemployment on pre–tax and transfer income inequality and on reduction in inequality raises the question whether the welfare state is not in part rectifying problems that it created. On the basis of our analysis, we can say that welfare state generosity has no direct effect on pre–tax and transfer inequality, but we cannot rule out that it might have an indirect effect on inequality via its effect on unemployment. That is, generous benefits, particularly unemployment-compensation replacement rates, might raise the reservation wage and thereby increase unemployment, as claimed by neoclassical economists. This hypothesis is most effectively tested with annual pooled time-series data. The recent comprehensive test of this hypothesis and related hypotheses regarding the effects of wage dispersion and employment protection on employment by Bradley presents strong evidence against this argument.[99]

Taken together, the results of our study are a resounding vindication of power resources theory,[100] as well as its predecessors[101] and its extensions.[102] These theories hypothesize a strong relationship between distributive outcomes and the weight of subordinate classes in the balance of class power whose expressions are union movement strength, leftist party mobilization, and leftist party governance. The important role of

[98] Rolf Aaberge, Anders Börklund, Markus Jäntti, Peder J. Pedersen, Nina Smith, and Tom Wennemo, "Unemployment and Income Distribution: How did the Nordic Countries Fare during Their Crises," *Scandinavian Journal of Economics* 102, no. 1 (2000).

[99] David Bradley, "The Political Economy of Employment Performance: Testing the Deregulation Thesis" (Ph.D. Diss., University of North Carolina-Chapel Hill, 2001).

[100] Korpi (fn. 3); Stephens (fn. 3).

[101] Lenski (fn. 14).

[102] Huber and Stephens (fn. 7).

union organization in influencing variations in distributive outcomes underlines the findings of previous studies. The decisive role of leftist government in determining variations in governmental redistribution is a new finding that supports a central hypothesis advanced by these theories.

Appendix

Final Models from Alternative Estimates of Determinants of Pre–Tax and Transfer Inequality and Reduction in Inequality

	Pre–Tax and Transfer Inequality			*Reduction in Inequality*		
Variables	*OLS Robust Cluster (1)*	*OLS (2)*	*REM (3)*	*OLS Robust Cluster (4)*	*OLS (5)*	*REM (6)*
GDP per capita	—	—	0.27	—	—	—
			(2.61)			
Wage dispersion				—	—	—
Industrial employment	—	—	—	—	—	—
Education	—	—	—			
Net migration	—	—	0.33			
			(2.05)			
LDC imports	—	—	—			
Vocational education	—	—	—	—	—	—
Outward direct foreign investment	0.35	—	—			
	(1.36)					
Unemployment	0.61	0.63	0.51	0.62	0.62	0.49
	(5.18)	(5.65)	(3.82)	(3.08)	(3.54)	(2.68)
Single-mother families	0.40	0.42	0.38	—	—	0.19
	(4.56)	(5.48)	(2.90)			(1.32)
Female labor-force participation	—	—	–0.15	—	—	—
			(–1.94)			
Youth	—	—	—			
Capital-market openness	—	—	—	—	—	—
Union density	–0.11	–0.11	–0.09	—	—	—
	(–4.11)	(–6.03)	(–2.71)			
Wage coordination	—	—	—	—	—	—
Christian democratic cabinet	—	—	—	–0.29	–0.29	–0.17
				(–4.64)	(–5.63)	(–1.85)
Leftist cabinet	—	—	—	0.25	0.25	0.27
				(3.24)	(3.82)	(2.46)
Welfare generosity	—	—	—	2.92	2.92	2.04
				(7.93)	(7.25)	(3.62)
Constant	30.12	30.20	35.06	19.50	19.50	16.81
	(16.51)	(20.76)	(10.95)	(12.13)	(10.16)	(6.99)
R-Square	0.64	0.64	0.61	0.81	0.81	0.79

Unstandardized coefficients; T and Z values in parentheses; N = 61