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Electoral turnout and income redistribution by the state: A cross-national analysis of the developed democracies

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Abstract. This article explores the sources of variation in state redistribution across 13 developed democracies over the period 1979–2000, drawing upon data from the International Institute for Democracy and Electoral Assistance, the Luxembourg Income Study and the Comparative Study of Electoral Systems. The discussion begins with the median voter hypothesis, which predicts that the extent of state redistribution in a country will be positively related to the degree of pre-government inequality. In seeking to extend the median voter approach, the article takes into account two additional variables: the level of electoral turnout and the degree to which turnout is skewed by income. The analysis confirms that pre-government inequality is indeed positively related to state redistribution. However, the predictive power of the median voter approach is significantly improved when account is taken of the level of electoral turnout and the extent to which the turnout rate reflects an income skew – variables that are themselves related. The link between turnout and redistribution is especially strong for social transfers as opposed to taxes, and for the lower and middle, as opposed to the upper, part of the income spectrum.

In recent years, a good deal of scholarly attention has been devoted to cross-national comparisons of electoral turnout in the developed world. As might be expected, most of the research effort in this area has explored the sources of the considerable variation in turnout across countries and over time. Among the many factors that have been considered have been registration procedures and electoral design (Powell 1986; Norris 2004); mobilization by labor unions and political parties (Radcliff & Davis 2000; Gray & Caul 2000); citizens' sense of political efficacy and trust in government (Dalton 2004: 173–177); and the socialization of successive age cohorts into the ranks of eligible voters (Franklin 2004). Much less attention has been directed to the effects of electoral turnout on political outcomes. To the extent that the topic has been explored empirically, the majority of studies have focused on partisan effects, particularly the question of whether higher turnout benefits leftist political parties (Pacek & Radcliff 1995; Citrin et al. 2003). To date, very little cross-national work has been done on the relationship between turnout and public policy outputs, especially income redistribution by the state via taxes and transfers. And yet there is reason to expect that electoral turnout will have a

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redistributive effect. If groups in a polity do not participate in even the most basic way in choosing the leaders who formulate redistributive policies, their preferences are unlikely to be reflected in those policies. In the words of Lijphart (1997: 4): '[W]ho votes, and who doesn't, has important consequences for who gets elected and for the content of public policies.'

In seeking to understand the causal mechanisms linking turnout and redistribution, it is useful to begin with the familiar median voter approach (Meltzer & Richard 1981; Milanovic 2000). In essence, the median voter hypothesis predicts that the demand for redistribution in a democracy will be a function of the difference between the income of the median voter and the mean income of that country – that is, the extent of pre-government income inequality. In the words of Milanovic (2000: 368–369): '[W]hen individuals are ordered according to their factor (or market) incomes, the median voter (the individual with the median level of income) will be, in more unequal societies, relatively poorer. . . . The more unequal is the income distribution, the more the median voter has to gain through the joint action of taxes and transfers, and the more likely he or she is to vote for higher taxes and transfers.'

Several simplifying assumptions underlie the standard median voter approach. For example, Meltzer and Richard (1981) assume that individuals correctly understand their position on the income scale and the effect of taxes and transfers on that position, that they are not motivated by considerations other than economic well-being, and that their preferences are single-peaked. Most relevant to the purposes of this article, median voter theory makes a fourth assumption: that all potential voters in a polity actually vote. As is well known, however, electoral turnout varies widely in the developed world, both across countries and over time. Moreover, the socio-economic status of citizens who vote may differ systematically from that of those who do not. To the extent that the median income of voters is higher than that of non-voters, an extension of the median voter logic would lead us to expect the demand for redistribution to decrease. The key variable is not turnout *per se*, but rather the extent to which the income skew of the electorate grows as turnout declines.

In explaining cross-national variance in government redistribution from a median voter perspective, then, three variables must be taken into account: the distribution of pre-government income, the level of electoral turnout and the extent to which turnout is skewed by income. Of these variables, only the first has been the subject of much empirical work. A number of recent studies have employed a median voter approach in exploring the relationship between pre-government income inequality and the extent of public sector redistribution. The results have been mixed. On the one hand, some studies have confirmed the median voter expectation that pre-government inequality is positively related to government redistribution (e.g., Milanovic 2000). A larger

number of studies, however, have found the relationship to be more complex than that depicted in the standard median voter model. For example, Moene and Wallerstein (2001, 2003) found that greater pre-government wage inequality was associated with increased support for welfare expenditures when benefits are targeted to the employed, but decreased support when benefits were targeted to those without earnings. Similarly, Iversen (2005; see also Iversen & Soskice 2001) found a negative relationship at the zero order that disappeared when other variables were introduced, observing that 'one must be cautious interpreting the effect of inequality given how unstable it is across measures and model specifications' (Iversen 2005: 154).

One reason for these inconclusive findings may be the divergent measures used in different studies. For example, a good deal of empirical work on government redistribution (e.g., Castles 2004; Swank 2002; Huber & Stephens 2001; Hicks 1999) has employed as its dependent variable a measure of total social benefit expenditures, not of the redistributive effect of those expenditures. However, the size of social benefits and their redistributive effect are not the same thing; as put by Milanovic (2000: 370): '[A] society with high taxes and transfers may have contributors and beneficiaries who are the same people.' Similarly, in measuring pre-government inequality, many studies (e.g., Moene & Wallerstein 2001, 2003) have focused on the distribution of gross income across full-time workers, omitting the unemployed, the underemployed and those who have exited the labour force. It seems questionable, however, to remove from consideration the very groups that are most likely to receive social transfers. Finally, many studies (e.g., Iversen 2005; Kenworthy & Pontusson 2005) have employed measures of the distribution of total pre-government income at the level of households, adjusted for household size, but have excluded from consideration the elderly. Although such measures are useful for many purposes, it is our view that a full examination of the relationship between electoral turnout and government redistribution must include all members of a polity – including the elderly, who not only vote in higher proportions than most other groups, but also receive the largest share of social benefit expenditures. (More will be said on this topic shortly.)

The second variable mentioned above, electoral turnout, has received much less attention in the median voter literature, which in its standard formulation simply assumes that all eligible voters actually vote. It is true that turnout has often been employed as an independent variable in studies seeking to explain cross-national variance in social benefit expenditures (e.g., Hicks 1999; Iversen & Cusack 2000; Moene & Wallerstein 2001). However, as has been indicated, the size of social benefits is not the same thing as government redistribution, in part because benefits vary in their internal progressiveness and in part because some redistribution is accomplished by taxes. Of the much smaller number of

studies that have focused specifically on redistribution, some (e.g., Bradley et al. 2003) have not considered turnout at all, while in nearly all of the others (e.g., Huber & Stephens 2001; Crepaz 2002; Mahler 2004) turnout has been one of many variables in analyses whose main focus was on other factors.

There have been even fewer empirical studies employing the third variable mentioned above: the degree to which low turnout reflects an income skew. By far the greatest attention has been devoted to the United States (e.g., Rosenstone & Hansen 1993; Freeman 2003). Of the scattered work on other countries (e.g., Martikainen et al. 2005), relatively little has been comparative; and even among the handful of cross-national studies of the relationship between turnout and class, most have examined education rather than income (Lijphart 1997). In sum, very little of the extensive empirical work on the sources of cross-national variance in government redistribution has relaxed the obviously unrealistic assumption of the standard median voter formulation that all potential voters actually turn out to vote. One of the few exceptions is Kenworthy and Pontusson (2005; see also Nelson 1999).[1] In an article that primarily tests the standard median voter hypothesis, these authors at one point (Kenworthy & Pontusson 2005: 459) also include a measure of electoral turnout, finding that both pre-government inequality and turnout are significant predictors of the extent of government redistribution in 11 developed democracies. While they report only a single finding and do not offer an empirical examination of the extent to which turnout reflects an income skew, they consider their results 'quite promising' and urge that the issue be explored further.

More broadly (and as Kenworthy & Pontusson also point out), when turnout is taken into account it becomes easier to relate the median voter hypothesis to power resources theory – a major alternative approach to explaining redistribution that has developed largely in isolation from the median voter literature. The central claim of power resources theory is that, in the words of Korpi and Palme (2003: 425): '[I]t is fruitful to view welfare states as outcomes of, and arenas for, conflicts between class-related socioeconomic interest groups.' In most work from a power resources perspective the emphasis is on the relative prominence of social democratic (and sometimes also Christian democratic) parties in governing cabinets (Bradley et al. 2003; Huber & Stephens 2001). However, there would seem to be no reason in principle why a focus on electoral turnout could not contribute to a power resources approach: if the potential voting power of a particular socioeconomic group is not realized because its members vote in smaller proportions than other groups, its position is clearly compromised before party contestation even begins. Once turnout is taken into account, the median voter and power resources approaches are much more easily reconciled.

The central aim of this article is to build upon Kenworthy and Pontusson's brief and preliminary analysis by examining more closely the relationship between electoral participation and government redistribution. Specifically, the article will conduct two basic empirical analyses. First, it will explore whether there is indeed a positive relationship between the level of electoral turnout and the extent of government redistribution across the developed democracies over the last two decades. This analysis will go beyond the existing empirical work on this question by employing household income data from Luxembourg Income Study (LIS) micro-datasets, which are more extensive, detailed, comparable and recent than those used in most previous research (LIS 2006). Specifically, LIS data permit us to consider redistribution by taxes and transfers separately, and to focus on redistribution not only across the entire income spectrum, but also with respect to high/low, high/median and median/low percentile ratios. Second, the article will explore empirically whether electoral turnout has a class dimension – that is, whether the income skew of the electorate grows as turnout rates decline. As has been indicated, cross-national empirical evidence on this second relationship has been even scarcer than on the first.

Variables

We begin by describing the dependent variable in our empirical analysis: government redistribution. For a variety of reasons, data on direct redistribution (especially over-time data) have until recently been available for only a small number of countries, and then only in highly aggregated form. As has been indicated, however, the situation has improved considerably in recent years as a result of the efforts of the LIS, which offers researchers access to household-level income surveys for most developed countries (in many cases for five or more points in time) that have been carefully harmonized to conform to a common definitional framework. The data employed here have been calculated from LIS micro-data and measure a number of aspects of government redistribution in 13 developed countries for multiple years between 1979 and 2000 (59 country-years in all).[2] They are available from Mahler and Jesuit (2006a) and are described in more detail in Mahler and Jesuit (2006b). Specifically, they reflect the change in pre-government income inequality when transfers are added and taxes deducted from households' income.[3]

LIS data cover a wide range of social transfers, including: social retirement benefits; universal child and family allowances; unemployment compensation; sick pay; accident pay; disability pay; maternity pay; military/veterans/war

benefits; 'other social insurance'; 'near-cash benefits' (in-kind transfers whose value is easy to determine, such as food, medical, housing, heating, educational or child care allowances); and means-tested cash benefits of various kinds. In addition, they account for income taxes and social insurance contributions. Figures are available for overall government redistribution as well as, separately, for redistribution by way of taxes and of transfers. We have calculated redistribution not only across all household members using the Gini index of overall inequality, but also for upper/lower, upper/middle and middle/lower percentile ratios.[4] Finally, we focus on the very lowest income groups, employing a measure of the reduction in poverty as a result of government redistribution. This measure makes use of a composite poverty measure developed by Brady (2003) that taps both the 'headcount' of those in poverty (the proportion of the population that falls below 50 per cent of their country's median income) and the depth of their poverty (the difference between the median income of the entire population and the mean income of the poor [as defined above], standardized by the population median income).

Our next variable is a measure of the distribution of pre-government household income: the focus of the standard median voter formulation's prediction that the level of pre-government inequality will be positively related to the extent of redistribution by the state. Our measure of pre-government inequality is also from the LIS dataset. Figures are based on: wages and salaries; income from self-employment; income from property and from pensions of private and public sector employees; alimony and child support; 'other regular private income' (mainly income from relatives or private charities); and 'other cash income' (a miscellaneous category that reflects income from private sources).[5] Household-level data have been equivalized by dividing by the square root of household size and weighting by the number of household members. Income is thus compared at the level of individuals, but in a way that accounts for the structure of the household in which they live.

Our next two independent variables measure aspects of electoral turnout. The first measure is the proportion of the age-eligible electorate that casts a vote in a given general election.[6] As straightforward as this definition is, there are a few practical difficulties in measuring turnout rates. With respect to votes cast, there is little ambiguity; – all sources of aggregated data use the official vote totals provided by national electoral authorities. Matters are not as clear-cut for the denominator: the number of citizens who could have voted including those who did not. In countries in which registration is automatic, this value is very similar to the registered population, but in countries in which the onus for registering is on the individual (notably the United States), it differs greatly. Because of this, the denominator in turnout statistics is generally

assembled from census data that may differ definitionally across countries or include some persons who are not eligible to vote. The figures employed in this study are from the International Institute for Democracy and Electoral Assistance dataset (IDEA 2006), which is assembled from a wide range of cross-national and single-country sources and is considered to be among the most authoritative sources of cross-national electoral data.

As has been indicated, underlying the hypothesized positive relationship between electoral turnout and income redistribution is the assumption that turnout has an income skew – that is, that there is a negative relationship between the level of turnout in a country and the extent to which high income groups vote at a higher rate than low income groups. The first step in determining whether this is the case is to measure whether, within a given country, turnout increases as income increases. In a perfect world, the basic data for such an analysis would be derived from the same micro-data surveys that were employed to measure income distribution and redistribution. However, with a few exceptions (notably the United States Current Population Survey in November of each general election year), official income surveys in the developed countries do not ask political questions, even non-partisan ones such as whether the respondent voted in a particular national election.[7] Because of this, it is necessary to make use of the election studies that are conducted in nearly every developed democracy that invariably ask respondents whether they voted in a given national election. Although such surveys are primarily intended to tap political attitudes and behavior, nearly all also ask basic demographic and economic questions, including respondents' income.

Until relatively recently, it has been difficult to compare the results of election studies in different countries. Like income surveys before the LIS efforts at harmonization, national election studies varied considerably in the information they gathered, making cross-national comparisons difficult. However, this has become much less true with the inauguration of the Comparative Study of Electoral Systems (CSES), which began in the late 1990s with support from the United States National Science Foundation, the Center for Political Studies at the University of Michigan and some 70 participating research groups throughout the world. Essentially, the CSES makes available the results of the most authoritative post-election surveys in participating countries, which have agreed to include a common module of questions. For purposes of this article, it is possible to employ CSES data to calculate the reported rate of turnout in national elections for each income quintile of the adult population, resulting in a straightforward and cross-nationally comparable measure of the relationship between income and turnout in a relatively large number of countries (CSES 2005).

Unfortunately, CSES data cannot be directly incorporated into the dataset that will be employed in the first part of this article. The reason is that the CSES project began in 1996, which is near the end of the 20-year span of LIS data. Moreover, not every country for which LIS data are available participates in the CSES project, and several CSES participants do not participate in the LIS. Finally, as is well-known in the research community that employs post-election surveys, even the most authoritative election studies invariably overestimate turnout as reported by national electoral authorities through some combination of under-sampling of difficult-to-reach groups and selective memory on the part of some of those surveyed who report that they voted when they did not. Because of this, many scholars believe that turnout figures based on aggregated data, like the IDEA figures described above, are more accurate than those calculated from election surveys.[8] Still, CSES data should offer a good sense of the extent to which the actual electorate is unrepresentative of the potential electoral with respect to income. As has been indicated, this underlying relationship has been assumed, but not empirically examined, in the cross-national studies of the link between turnout and redistribution conducted to date.

Analysis

Turnout and redistribution

As has been indicated, the traditional median voter hypothesis claims that there is a positive relationship between the degree of pre-government inequality in a country and the demand for redistribution by the state. However, as was observed in the first part of this article, this does not account for the fact that there is substantial cross-national variance in the proportion of potential voters who actually vote. When electoral turnout is also taken into account, it is reasonable to expect that the explanatory power of the median voter hypothesis will be improved. With this in mind, the initial equation that will be tested is as follows:

$$Y = a + b_1x_1 + b_2x_2 + e,$$

where:

Y = a measure of the extent and nature of government redistribution;
x_1 = a measure of the distribution of pre-government private sector income;
x_2 = a measure of electoral turnout; and
e = an error term.[9]

Table 1 reports the results of a series of equations in which these hypothesized relationships are tested. We start with the relationship between our two independent variables and overall government redistribution. As can be seen, our reformulated median voter hypothesis is clearly borne out: both the Gini index of pre-government income inequality and the level of turnout in the

Table 1. Sources of state redistribution

Dependent	Pre-Government inequality	Electoral turnout	R^2
Total fiscal redistribution	0.508***	0.002***	0.541
	0.168	0.001	
	2.99	3.47	
Tax redistribution	0.029	0.000	0.148
	0.066	0.000	
	0.44	1.51	
Transfer redistribution	0.480**	0.002*	0.428
	0.168	0.001	
	2.86	2.02	
75/25 reduction	22.758***	0.039**	0.462
	5.111	0.015	
	4.45	2.59	
90/50 reduction	2.429***	0.002	0.507
	0.526	0.002	
	4.62	1.09	
75/50 reduction	1.129***	0.002*	0.415
	0.351	0.001	
	3.22	1.94	
50/25 reduction	19.670***	0.036**	0.517
	4.75	0.15	
	4.14	2.49	
Poverty reduction	57.443***	0.2244**	0.590
	14.649	0.079	
	3.92	2.83	
25–59 HH heads	0.432***	0.001***	0.541
	0.092	0.000	
	4.68	4.89	

Notes: Top number is slope coefficient; middle number is robust standard error; bottom number is t statistic. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$ (two-tailed tests). N = 59.

election immediately preceding the year of a given LIS income survey are positively related, at the $p < 0.01$ level, to the reduction of the Gini index of income inequality owing to taxes and transfers together.[10] The bivariate relationship between turnout and redistribution, the main focus of this article, is graphically depicted in Figure 1. As can be seen, a 1 per cent increase in electoral turnout is, on average, associated with a 2-Gini-point increase in redistribution – a relationship that explains 35 per cent of the total variation in government redistribution.

The next question is whether the relationships described above are primarily the result of redistribution via taxes or via social transfers. As can be seen by comparing the second and third rows of Table 1, turnout (and, for that matter, pre-government market income inequality) is more strongly related to the redistributive effect of social transfers than to that of direct taxes, which is no doubt related to the fact that, on average, some three-quarters of all redistribution in the contemporary developed countries is accomplished by

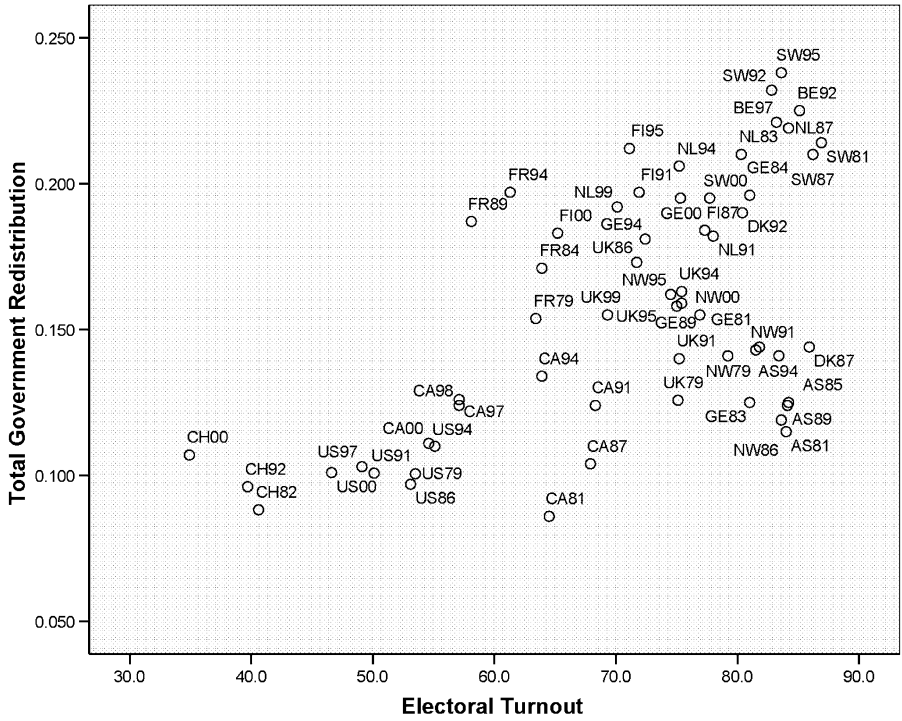

Figure 1. Electoral turnout and government redistribution.
Notes: $b = 0.002$ (0.001), $t = 3.50$ ($p < 0.01$), $R^2 = 0.35$, $n = 59$.
Sources: International Institute for Democracy and Electoral Assistance; Luxembourg Income Study.

transfers. Incidentally, although Meltzer and Richard (1981) seek to explain redistribution as a whole, they actually assume a proportional tax on income (Nelson 1999: 188); obviously, it is preferable actually to measure redistribution by way of taxes.

So far, we have been examining redistribution across all income groups, as summarized by the Gini index. While overall redistribution is of obvious interest, it is also instructive to examine redistribution across different subsets of all households. Specifically, we will explore the difference between several pre- and post-government percentile ratios, focusing on the 75:25, 90:50, 75:50 and 50:25 ratios.[11] As can be seen in Table 1, there is indeed a statistically significant relationship between the level of electoral turnout and the difference between the pre- and post-government 75:25 percentile ratio, which focuses on upper-middle and lower-middle income households. The obvious next question is whether this relationship is primarily associated with the lower or upper part of the income spectrum. One way of exploring this is to compare reductions in the 50:25 percentile ratio owing to government redistribution to reductions in the 90:50 and 75:50 percentile ratios. As can be seen in Table 1, turnout is significantly positively related to redistribution as it affects our middle-to-low income percentile ratio, but the relationship is weaker for the 75:50 ratio and no longer significant for the 90:50 ratio.

Finally, what of the very lowest income groups, those in poverty? As can be seen in Table 1, electoral turnout is quite strongly related to the reduction in Brady's (2003) two-dimensional poverty index as a result of government redistribution, confirming that turnout dynamics are especially strong in the lower part of the income spectrum. The fact that the effect of turnout is especially strong on the bottom part of the income scale has rarely been noted in previous work, which has generally focused on overall redistribution. (One exception is Iversen (2005: 154), who finds a similar relationship.) This distinctive finding encourages us to explore further the precise nature of the income skew of turnout in the developed countries, which will be the task of the next section.

As has been indicated, one reason for the mixed findings in median voter research may be the fact that cross-national empirical studies have employed divergent measures of both pre-government inequality and government redistribution. A number of previous studies (e.g., Moene & Wallerstein 2001, 2003) have focused on figures from an OECD database that measures the distribution of gross wages of individual full-time workers. However, as has been shown by Kenworthy and Pontusson (2005), these figures are misleading if one's ultimate goal is to measure general economic well-being, since they do not include the unemployed or underemployed – who are, of course, prime beneficiaries of government transfers. (Perversely, when a low-income worker is laid off, figures for wage inequality across full-time workers actually indicate

a *more* egalitarian distribution because the worker is no longer part of the labor force (OECD 1996: 63)).[12]

A stronger case can be made for using equivalized household-level inequality data that include only households headed by persons of working age, and a number of previous studies of redistribution (e.g., Bradley et al. 2003; Kenworthy & Pontusson 2005) have in fact excluded households headed by elderly persons. The rationale for such measures is that, in the words of Bradley et al. (2003: 209): '[I]n countries with comprehensive public pension systems . . . pensioners [will] make little other provision for retirement. . . . Thus, pretax income inequality . . . will be artificially high and the reduction in inequality also exaggerated.' Essentially, Bradley et al. question the validity of the pre-government counterfactual to the observed post-government distribution, arguing that transfers have produced a feedback effect that makes the income of the elderly lower than it otherwise would be. One response to concerns about the validity of the 'pre-government' counterfactual is to observe that this is only one manifestation of a concern that applies to all age groups: clearly there is an equally long tradition arguing that the availability of government transfers discourages working age persons from participating in activities that improve their long-term income prospects or lengthens their absence from the labor force, and it seems somewhat inconsistent to eliminate one group and not the other. Beyond this, the elderly not only vote (in many countries, in higher proportions than other age groups), but also are major recipients of social benefits, and it seems questionable to exclude them from redistribution figures, but not from turnout figures. However all of this may be, there is also a case to be made for omitting the elderly from calculations of government redistribution, and it is not at all uncommon to do so. In the interest of comparability with other studies, we have recalculated figures for pre-government inequality and government redistribution for our 59 LIS surveys using only households headed by persons between the ages of 25 and 59. These results, reported in the last row of Table 1, are quite similar to those for all households.

The model examined to this point is a simple one that includes only two explanatory variables. Although this is consistent with median voter theory, researchers have obviously employed a great many other variables in seeking to explain redistribution in the developed world, and there is always the danger that the model reported here may be misspecified in that it does not account for important alternative explanations. Similarly, to this point the model tested has assumed that the direction of causation linking electoral turnout and government redistribution leads from the former to the latter. However, it is possible that causation also runs in the opposite direction, from redistribution to turnout. Redistribution may itself encourage turnout as social transfers increase the stake of low-income groups in electoral outcomes or the

social inclusion encouraged by redistributive programs creates a subjective sense of empowerment among low-income groups.

In seeking to offer a more complete model of government redistribution, we begin by introducing five additional variables that have been employed widely in explaining cross-national variation in government redistribution. The first is the share of the entire population that is aged 65 or older, to account for the prominence of the elderly in major public social benefit programs (World Bank 2003). The second is the ideological balance of governing cabinets, which is measured using a scheme that classifies national cabinets in a given year on a 5-point scale ranging from hegemony of right-wing parties to hegemony of left-wing parties, in an effort to test the partisan hypothesis (Armingeon et al. 2004).[13] Finally, we introduce measures of three aspects of the extent to which a country is integrated into the global economy, addressing the claim that economic globalization has encouraged a 'race to the bottom' in benefit coverage: the share of imports from less developed countries in GDP (UNCTAD 2003: Table 3.1); the share of outbound direct foreign investment in GDP (UNCTAD 2003: Table 6.2); and a measure of the openness of a country's economy to global financial flows (Quinn & Inclán 1997, updated by the authors through 1997).[14]

In an effort to explore the effects of a bidirectional relationship between turnout and government redistribution on our main findings, we have employed an instrumental variable structural equation approach. Specifically, turnout was instrumented using three variables that are hypothesized to explain variation in turnout, but not government redistribution, thus accounting for any simultaneity effects that would result in biased coefficients in an equation in which turnout is exogenous to government redistribution. The first is the degree of 'electoral disproportionality': the extent to which an electoral system skews voting results in national legislatures – almost always in favor of large parties. In the words of Jackman and Miller (1995: 468):

> [H]ighly disproportional systems require minor parties to accumulate many more votes to achieve a given degree of legislative representation, thereby diminishing the benefits of voting for supporters of those parties. The greater the disproportionality . . . the more likely the votes of minor parties are to be wasted. Disproportionality in the translation of votes into legislative seats should therefore result in lower voter turnout.

Electoral disproportionality is measured using a Gallagher index (data are from Lijphart (1999) and represents the average of the 1971–1996 period).

A second variable measures national procedures for voter registration. Specifically, it is often argued that electoral turnout will be higher in countries

in which the burden of registration is on the state, as opposed to individual citizens. In measuring the nature of registration systems, we have followed Powell (1986: 38) in distinguishing between countries in which registration is either compulsory or automatic and those in which it is the responsibility of individual voters. The variable is coded 1 when registration is automatic and 0 when it is not.

Finally, it is frequently argued that electoral turnout is positively associated with the competitiveness of elections (Blais 2000; Franklin 2004). Obviously, when an election is a foregone conclusion there is less incentive for potential voters to participate than when it is closely contested. In measuring this variable, we have followed Blais (2000), Gray and Caul (2000) and Franklin (2004) in measuring the difference between the shares of the vote received by the two leading political parties. Data on party shares are from Armingeon et al. (2004).

Table 2 reports the results of an instrumental variable equation that includes the proposed additional explanations for cross-national variation in government redistribution and electoral turnout that have been described above. As can be seen, several results are in evidence. First, pre-government income inequality and electoral turnout continue to be the two strongest explanatory variables when turnout is instrumented as described above – stronger than any of five additional variables that have been included in literally dozens of other studies of the welfare state. On average, a 1 per cent increase in electoral turnout is associated with approximately a 2-Gini-point increase in government redistribution and a 1-Gini-point increase in pre-government inequality is associated

Table 2. Sources of Government redistribution: An instrumental variable model

		b	Standard error	t
Government redistribution	Pre-Government inequalities	0.477*	0.207	2.31
	Turnout	0.002*	0.001	2.31
	Over 65 population	0.005	0.004	1.02
	Cabinet balance	0.001	0.004	0.20
	LDC imports	–0.103	0.373	–0.28
	Outbound DFI	0.090	0.115	0.78
	Financial openness	0.001	0.003	0.50

Notes: Turnout is instrumented by electoral disproportionality, registration system and electoral competitiveness. A Hausman test for simultaneity bias compares coefficients from the instrumental variable regression reported above with coefficients from an OLS equation in which turnout is exogenous and the other variables listed above are also included, testing a null hypothesis of no systematic difference. The Chi^2 statistic of the Hausman test = 0.94 ($p = 0.99$). $R^2 = 0.597$. N = 59.

with just under half a Gini-point increase in redistribution, when accounting for other explanations. Second, with respect to the directionality of the relationship between turnout and redistribution, the b coefficient for our instrumented measure of electoral turnout is very similar to that for an OLS regression that assumes that turnout is exogenous and redistribution endogenous. Moreover, a Hausman test confirms that the null hypothesis of no simultaneity bias can be accepted with a high degree of confidence. In sum, turnout continues to be strongly positively related to government redistribution even when additional variables and the bidirectional nature of the relationship between turnout and redistribution are taken into account.

Does turnout have an income skew?

To this point, we have considered whether the rate of turnout in national elections helps to explain cross-national variation in government redistribution beyond that explained by pre-government inequality. The findings presented above confirm that this is the case, offering what we believe is a valuable refinement of the standard median voter approach. However, underlying the median voter approach is the assumption (which is rarely tested empirically) that as turnout increases, the income skew of the electorate will decrease. In this section, we will summarize the available evidence on this hypothesized relationship.

As has been indicated, recently it has become possible to examine the relationship between income and electoral turnout cross-nationally using data from the Comparative Study of Electoral Systems (CSES) dataset. Specifically, CSES surveys in various countries asked respondents whether they had cast a vote in a given election, and also asked them to place themselves in income groups that represented quintiles of the entire income spectrum in their country. From this information, it is possible to calculate the average reported turnout rate for each income quintile, as well as the average rate across all income groups. Table 3 reports figures for the lowest through highest income quintiles that have been calculated from national election surveys conducted between 1996 and 2000.[15]

As can be seen, there is a good deal of variation in the turnout rates of income groups in low-turnout countries. In the United States, for example, the difference between the reported turnout of the highest and lowest income quintiles is very large: over 35 percentage points. In fact, despite the much-discussed low average turnout rate in the United States, the highest income quintile votes at a rate (86.7 percent) well above the average for all developed democracies. Similarly, in Switzerland, with an even lower average turnout rate than the United States, the difference in reported turnout between the highest

Table 3. Turnout rates by income quintiles

Election	Q I	Q II	Q III	Q IV	Q V	Average	Gini
Australia, 1996	98.9	98.6	98.4	99.3	99.4	98.9	0.002
Belgium, 1999	84.0	88.0	93.0	95.0	94.0	90.8	0.025
Canada, 1997	69.3	75.2	77.2	84.5	86.9	79.4	0.045
Denmark, 1998	89.2	94.5	94.9	94.7	95.0	93.7	0.010
Germany, 1998	81.9	84.4	85.9	91.5	90.1	86.7	0.023
Iceland, 1999	78.0	82.5	85.7	88.4	87.0	84.4	0.024
Japan, 1996	77.3	76.8	75.2	84.1	86.4	79.5	0.030
New Zealand, 1996	85.8	90.3	84.6	83.3	88.6	86.1	0.017
Netherlands, 1998	88.4	86.6	88.3	94.9	94.3	90.5	0.020
Norway, 1997	74.9	83.1	88.5	90.0	92.6	86.1	0.039
Spain, 2000	87.3	79.0	84.4	82.1	78.7	82.2	0.022
Sweden, 1998	80.6	86.5	84.8	89.7	93.1	86.9	0.028
Switzerland, 1999	52.6	54.2	56.5	65.4	72.4	61.1	0.067
United Kingdom, 1997	76.3	83.2	77.6	85.4	83.0	80.9	0.023
United States, 1996	50.6	55.4	66.0	72.6	86.7	70.0	0.108

Source: Comparative Study of Electoral Systems.

and lowest quintiles is almost 20 percentage points. Even in Canada, in which the average reported turnout rate is somewhat higher, a substantial income skew is in evidence: the difference in turnout between the highest and lowest income quintile is 17.6 percentage points. On the other hand, in high-turnout countries, the income skew of the electorate is much smaller. An extreme case is that of Australia, one of only two developed democracies in which there is a compulsory voting system that involves real sanctions. (The other is Belgium.) In Australia, with an average reported turnout rate of 98.9 per cent, the difference between the turnout of the highest and lowest quintiles is trivial: less than 1 percentage point. Much the same is true of other high-turnout countries such as New Zealand (a 3-point difference) and Denmark and the Netherlands (a 6-point difference).

More broadly, it is possible to plot the relationship between, on the one hand, the average reported turnout in a country and, on the other, its electoral income skew. First, however, it is necessary to calculate the average income skew across income quintiles. While high-minus-low figures are useful for illustrative purposes, for more systematic analysis it is desirable to construct a measure that taps the degree of inequality across all income groups. One way of doing this is to calculate a Gini index that summarizes the distribution not – as is usually the case – of income, but rather of electoral turnout. As can be

seen graphically in Figure 2, there is a strong negative relationship ($p < 0.001$) between the average reported turnout rate and the Gini index of reported turnout across five income quintiles, as measured in the CSES electoral surveys. To some extent, the relationship is driven by the United States and Switzerland, whose reported turnout rates are the lowest among the developed democracies, and which also demonstrate the greatest income skew. Even when these countries are dropped, however, the relationship continues to be strong, statistically significant at the $p < 0.01$ level.

As has been indicated, the CSES data used in examining income skew are available only for the most recent LIS income surveys. Because of this, it is not possible to fully incorporate our examination of the income skew of turnout into our earlier analysis of the relationship between turnout and government redistribution. However, it is possible to examine directly the relationship between the income skew of turnout and redistribution in the nine countries for which both CSES and LIS data are available for roughly the same point in time. Figure 3 depicts the relationship graphically. The predicted negative relationship is indeed in evidence ($p < 0.05$). Although the number of countries for which data from the LIS and CSES datasets can be combined is small, the fact

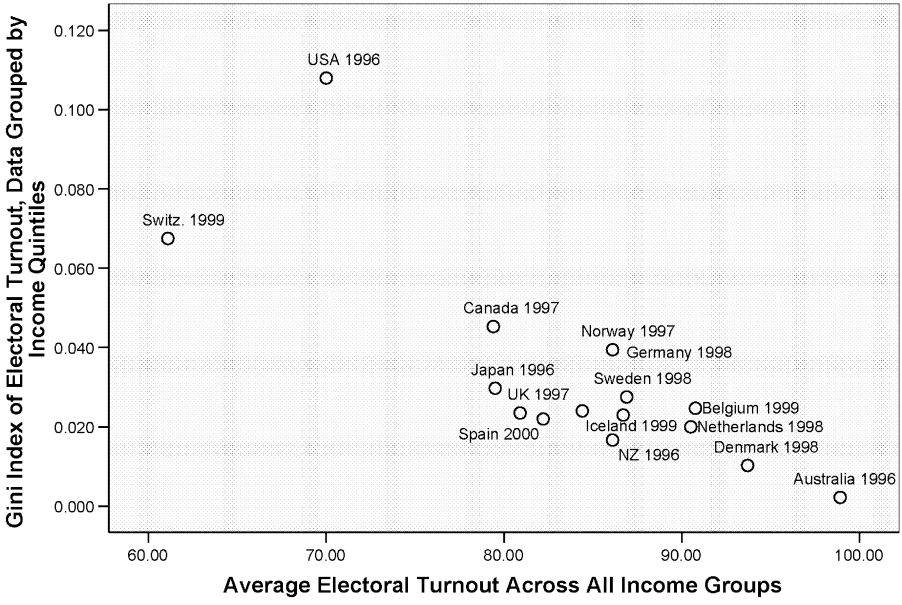

Figure 2. Electoral turnout and income skew.
Notes: b = –0.001 (0.000), t = –4.97 ($p < 0.001$); $R^2 = 0.66$; n = 15.
Without Switzerland and USA: b = –0.001 (0.000), t = –3.64 ($p < 0.01$); $R^2 = 0.55$, n = 13.
Source: Comparative Study of Electoral Systems.

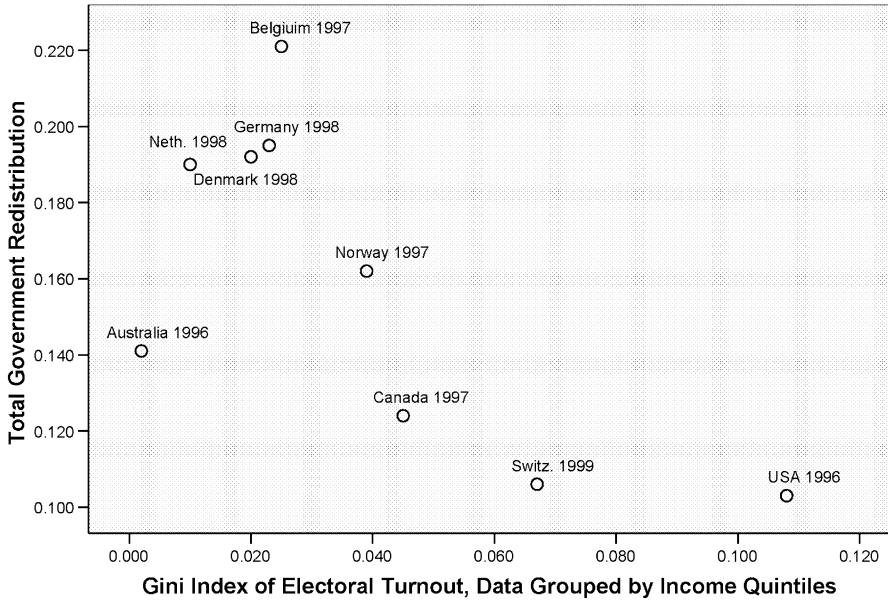

Figure 3. Income skew of electoral turnout and state redistribution.
Notes: B = –0.915 (0.353), t = –2.59 ($p < 0.05$), n = 9.
Source: Comparative Study of Electoral Systems; Luxembourg Income Study.

that the expected relationship continues to be in evidence helps to confirm the findings reported earlier.

Conclusion

The key conclusion of the foregoing analyses is that, controlling for pre-government inequality, the rate of electoral turnout is positively related to the extent of government redistribution in the developed democracies, as predicted by the modified median voter hypothesis developed earlier. This is especially true of redistribution that is accomplished by way of transfers and that affects the lower part of the income spectrum. It is our hope that our refinement of the familiar median voter approach will be useful in achieving a better understanding of the sources of government redistribution. Moreover, from the second series of analyses reported above, it seems evident that the underlying mechanism linking turnout and redistribution is the income skew of electoral turnout. As has been indicated, the relationship between turnout level and income skew has rarely been explored cross-nationally, and we hope

that our empirical analysis will help to elucidate the link between turnout and redistribution, providing empirical confirmation of Kenworthy and Pontusson's (2005: 459) tentative suggestion that 'voter turnout [be] treated . . . as a proxy for the electoral mobilization of low-income workers, condition[ing] the responsiveness of government policy to market income inequality trends'.

In sum, the redistributive outcomes associated with non-voting are of considerable interest for both theoretical and empirical reasons. However, to date, the topic has not been extensively examined cross-nationally. The main reason for this has been a lack of data – something that is being rectified by the IDEA, LIS and CSES projects. It is our hope that the analyses described above, which employ the best available data on turnout, inequality and redistribution, will constitute a valuable first step toward achieving a better understanding of a critical aspect of democratic practice in the contemporary developed world.

Notes

1. Franzese (2002) is clearly aware of the relationship between income skew, electoral turnout and state redistribution, but he does not measure directly the income skew of electoral participation.
2. The LIS surveys considered are Australia, 1981, 1985, 1989, 1994; Belgium, 1992, 1997; Canada, 1981, 1987, 1991, 1994, 1997, 1998, 2000; Denmark, 1987, 1992; Finland, 1987, 1991, 1995, 2000; France, 1979, 1984, 1989, 1994; Germany, 1981, 1983, 1984, 1989, 1994, 2000; Netherlands, 1983, 1987, 1991, 1994, 1999; Norway, 1979, 1986, 1991, 1995, 2000; Sweden, 1981, 1987, 1992, 1995, 2000; Switzerland, 1982, 1992, 2000; United Kingdom, 1979, 1986, 1991, 1994, 1995, 1999; United States, 1979, 1986, 1991, 1994, 1997, 2000. We do not include a number of LIS datasets (e.g., Italy, Austria, Ireland, and the 1985 and 1988 Belgian surveys) in which income is measured net of taxes and figures are thus unsuitable for measuring redistribution, surveys that have nevertheless been used in a number of previous studies of government redistribution.
3. The traditional way of measuring state redistribution is to express it relative to pre-government inequality. However, Kenworthy and Pontusson (2005: 463–467) have recently argued in favor of focusing on the absolute rather than the relative difference between pre- and post-government income because it allows one to compare the extent of state redistribution over time in a way that is not affected by trends in market income inequality. In accordance with their arguments, we will focus on the absolute change in private sector inequality before and after taxes and transfers.
4. Pre-government private sector income figures include households that report zero income (i.e., all of their income is supplied by the state), but drop households that report zero post-government income on the assumption that such households must receive at least some income from unreported sources. In computing Gini indexes, we have employed the standard LIS conventions in this area, which top-code household income at ten times the median of non-equivalized income and bottom-code income at 1 per cent of equivalized mean income.

5. This definition differs slightly from 'market' income in that it includes private inter-household transfers. Technically, some 'pre-government' income does come from the state in the form of wages and benefits of public sector employees. The definition employed here is, however, the conventional use of the term 'pre-government' in this context.
6. Figures represent elections to the lower house of the national legislature. In the United States, figures are for presidential years and include only valid votes.
7. The CPS consistently reports that turnout is positively related to income in the United States (see, e.g., Holder 2006).
8. On the other hand, IDEA figures underestimate turnout to the extent that the age-eligible population includes ineligible persons. However that may be, CSES and IDEA values for the same election are quite strongly correlated for the countries in this study for which data from both sources are available: $r = +0.89$.
9. Since our LIS surveys constitute an unbalanced pool (i.e., the years of LIS surveys vary slightly and not all countries have conducted surveys in all years), we have used a statistical technique throughout this article that employs OLS regression with Huber White 'sandwich' robust standard errors clustered by country; see Bradley et al. (2003) and Kenworthy and Pontusson (2005) for applications. Regressions were conducted in Stata 9.0.
10. Few scholars have literally tested the median voter hypothesis, especially across countries. However, it is possible to use LIS data to calculate the difference between the mean and median equivalized household income in each of our countries, divided by median income (because LIS data are expressed in national currencies). As it happens, this value is not significantly related in either direction to redistribution by the state. However this may be, most scholars consider the Gini index a better measure of inequality than the difference between the mean and median income.
11. A number of studies have employed 90:10 and 50:10 percentile ratios. However, these can be misleading in calculating redistribution figures since in some countries more than 10 per cent of households receive no pre-government income (all of their income is derived from the state) and figures for the 90:10 ratio are thus greatly affected by bottom-coded values. A more accurate reflection of very low incomes is the poverty rate, which we have also examined.
12. In addition, such figures are not aggregated at the household level (equivalized for household size), which is the level at which income is actually consumed. As a result, they will register inequality when a high-income spouse shares a household with a low-income spouse, even though their income is pooled. Beyond this, wage figures do not reflect self-employment income, whose importance varies considerably across the developed countries.
13. It might be objected that partisan effects operate over a longer period than that covered by this study. In an effort to assess this possibility, figures for cabinet balance were replaced with figures for cumulative left party participation in national cabinets, measured as the summation of annual scores of the percentage of all cabinet portfolios held by left parties from 1946 to the year of observation (from Huber et al. 2004). This variable was also non-significant.
14. 1997 values are used for 1998 through 2000.
15. Separate surveys were conducted in the Flemish and Walloon parts of Belgium, but enough information was provided that the results could be combined. Although two surveys are available for Spain, we have used only the most recent, which was conducted in 2000.

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