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Electoral Turnout and State Redistribution: A Cross-National Study of 14 Developed Countries

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This study explores the relationship between electoral participation and income redistribution by way of social transfers, using data from the European Social Survey, the Comparative Study of Electoral Systems and the Luxembourg Income Study. It extends previous research by measuring the income skew of turnout rather than using average turnout as a proxy for its income bias. We find that a larger income skew in turnout is negatively related to transfer redistribution and that higher electoral participation by income groups, especially those in the low and middle parts of the income distribution, is associated with greater redistribution in their favor.

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Few political phenomena have attracted as much scholarly attention for as long a time as electoral turnout. This abiding interest is hardly surprising. The right to participate in competitive elections is a defining feature of democracy, and the fact that widely varying proportions of all eligible citizens actually exercise that right is one of the most striking political differences among contemporary democratic regimes.

The variation in electoral participation across democracies is so large that a substantial cross-national literature has considered its implications for political outcomes. Political scientists studying the developed world have devoted much of their attention to the relationship between turnout and the extent of government redistribution by way of social transfers—which itself varies widely across the affluent democracies. The basic intuition is that higher turnout reflects a more equal representation of low-income groups in the political process, which in turn results in a more extensive effort to redistribute market income in favor of disadvantaged groups. In the words of Lijphart (1997: 4), "who votes, and who doesn't, has important consequences for who gets elected and for the content of public policies"—including, especially, redistributive policies.

Is the expectation that electoral turnout is positively related to the size and redistributive effect of social transfers borne out by the cross-national evidence? In the last decade a growing number of empirical studies (e.g., Lupu and Pontusson, 2011; Mahler, 2010; Brady, 2009: 117; Kenworthy and Pontusson, 2005; Iversen, 2005: 154) have suggested that it is—although many other variables also play a role. At the heart of these analyses, however, there is almost always a missing step. Nearly all broad cross-national studies have measured average electoral turnout in a country when what they have really been interested in is the degree to which turnout is skewed in favor of high-income groups. Is it, though, actually the case that the average level of electoral

turnout is directly related to its income skew? Certainly, when turnout is very high, there is little room for participation to vary systematically by income group: if 90 percent of eligible persons vote, all income groups will necessarily participate at similar rates. However, what of the difference between an average turnout of 75 percent and one of 50 percent; does income skew systematically increase as average turnout declines? Similarly, can countries with the same average level of electoral turnout safely be assumed to manifest the same degree of income skew? These are questions that cannot be addressed by the usual practice of using average national turnout as a proxy for the income skew of turnout.

Most cross-national studies fail even to mention these issues, implicitly assuming that average turnout is a direct proxy for the income skew of turnout. One recent exception is a careful empirical study by Pontusson and Rueda (2010) which focuses on the political mobilization of low-income voters, particularly its effect on the willingness of left parties to ameliorate inequality by government action. The authors of this study are clearly aware of the limitations of using average national turnout as a proxy for the income skew of turnout. However, in the end practical considerations compel them to do so; as they suggest, while "aggregate turnout is, of course, only a rough proxy for relative turnout by income . . . it has the advantage of being readily available and comparable across countries and elections" (ibid.: 681). In sum, even as careful a study as that of Pontusson and Rueda runs up against the hard fact that reliable and fully comparable data disaggregating turnout by income group have heretofore been available for only a tiny number of countries and elections.

The aim of this paper is to address this limitation by assembling comparative data for a number of developed countries that disaggregate electoral turnout by income group—quintiles, to be exact. In so doing, we will follow several steps. First, self-reported individual-level data

on turnout have been gathered from two major compendia of electoral surveys, the European Social Survey (ESS) and the Comparative Study of Electoral Systems (CSES). These studies ask respondents not only whether they voted in a given election but also the income group within which their household income falls.

One major problem with individual-level election studies is that respondents commonly over-report electoral participation by a non-trivial amount, commonly indicating turnout levels 10 or more points higher than those reported in aggregate election statistics. In adjusting for this over-reporting, the second step of our analysis is to "deflate" self-reported turnout figures with reference to aggregate figures available from national election authorities. Here, an additional complication arises. While aggregate-level figures for turnout are clearly more accurate than those based on self-reported totals, there is a debate in the literature as to whether the denominator of turnout rates should be registered voters or the voting-age population (summarized in Dettrey and Schwindt-Bayer, 2009). We will make a case for focusing on votes/registered in most, but not all, countries.

Finally, our paper will explore the relationship between the income skew of electoral turnout and the degree and nature of government redistribution by way of social transfers. The first part of this analysis will be at the country level, relating several measures of the income skew of turnout to the extent of redistribution by way of social transfers in 14 developed countries. Next, we will conduct an analysis that merges quintile-by-quintile turnout figures into individual-level income surveys from the Luxembourg Income Study and then employs multi-level methods to include both individual- and country-level variables. Together, these analyses will offer a more detailed and direct assessment of the redistributive effect of electoral participation than is typical in the literature—which, as has been indicated, ordinarily simply

assumes that average national turnout is a direct proxy for the actual variable of interest, the degree to which turnout is skewed by income.

Individual-Level Turnout

One basic way of measuring turnout is at the individual level. Individual-level data on electoral participation are derived from the surveys that are conducted in many countries at the time of national elections, which invariably ask respondents whether they voted in the election in question. As has been indicated, in this paper we have made use of surveys available from the ESS and the CSES. Again, the most important advantage of individual-level election studies is that they offer information about respondents' household income—information that is obviously not available in national-level aggregate data on turnout.

Despite this advantage, election studies have a major disadvantage that limits their usefulness in comparative work: self-reported data almost always indicate a higher rate of turnout than data from national electoral rolls, which are based on actual election results. To make matters worse, the extent of over-reporting varies considerably from country to country. A good deal of attention has been paid to the over-reporting problem in the scholarly literature, particularly with reference to the American National Election Studies (ANES). The consensus is that the most important reason for the over-reporting of turnout in individual-level election studies is a tendency for some respondents to seek social approval by telling interviewers that they voted in a given election even if they did not actually do so (Karp and Brockington, 2005; McDonald, 2003, 2007; Katz and Katz, 2010: 824-825). Another reason is that some of the same traits that make it difficult for election studies to locate certain types of respondents—those who move frequently, the young and the very elderly, for example—also tend to characterize persons who are less likely to vote than the population as a whole.

The most direct way of addressing these problems is to conduct post-election validation studies in which the names of survey respondents are cross-checked against voting lists maintained by electoral authorities. When such studies have been conducted, they have shown that respondents are much more likely to report that they voted when they actually did not than the other way around. Unfortunately, full-scale validation studies are expensive and difficult to conduct, and even well-established studies like the ANES have rarely undertaken them in recent years.[1] Less direct methods of validation have been conducted (e.g., Ansolabehere and Hersh, 2012), but these have mostly been confined to elections in the United States. Most such studies confirm the importance of social approval as a motivation for mis-reporting, particularly among politically aware voters and in countries with a strong social norm of high participation (Karp and Brockington, 2005; McDonald, 2003, 2007).

National-Level Average Turnout

A first goal of this paper is to reconcile individual-level data—which are, of course, the only data offering information on eligible voters' income—with national-level aggregate data. In this section, we will introduce the aggregate-level data on national turnout that will be employed in this effort.

As has been suggested, there are two basic approaches to measuring electoral turnout at the national level; in one the denominator is the registered population and in the other it is the voting aged population. Cross-national studies employing the former approach include Franklin (2004) and Blais and Dobrzynska (1998); studies employing the latter include Endersby and Krieckhaus (2008) and Gray and Caul (2000). In both measures, the numerator of the turnout ratio is the same: the number of votes recorded by national electoral authorities. Although there is ordinarily no alternative to these figures, there are some possible concerns even in the

straightforward matter of measuring how many people voted in a given election. For one thing, procedures vary in assessing ballots that are invalid because voters did not follow electoral rules or because their intentions were unclear—or, as is the tradition in a few European countries, because they deliberately cast a spoiled ballot as a way of expressing their displeasure with the political system. When possible, we count such votes (the number of which is ordinarily very small). And, of course, votes are sometimes omitted from or added to the final count, whether intentionally or unintentionally—although in most modern democracies there are extensive safeguards against errors or electoral manipulation. Despite these practical concerns, the consensus is that the vote totals reported by national electoral authorities in the developed countries are very similar to the number of ballots actually cast, similar enough to have only a miniscule effect on national averages. In the words of Franklin (2004: 86) "this number is as near to being cross-nationally comparable as any statistic in comparative political research."

There is no such consensus concerning the denominator of the turnout ratio. The most obvious choice would seem to be the registered electorate, the list of persons who have been legally certified as eligible to vote in a country. Such a figure, however, depends not only on the accuracy of electoral rolls but also—especially—on the share of the eligible population that is registered. In a large majority of countries the onus of registration is on the state, which takes responsibility for maintaining and updating registration rolls. One or the other (sometimes both) of two basic methods is employed: eligible citizens are obliged by law to register; or the state compiles registration lists from such sources as national identity registers, tax rolls, vehicle license lists, military service registers and social benefit recipient lists.[2] Maintenance of up-to-date and accurate electoral rolls is ordinarily accompanied by a mechanism whereby would-be

voters who do not appear on electoral registers can verify their eligibility and be added to registration lists at the time of the election.

In most of the countries included in this analysis, then, the ultimate responsibility for registration rests with the state, not the individual, and electoral authorities are mandated to ensure that all eligible persons are registered. The one glaring exception is the United States, where registration is entirely the responsibility of the individual. Even when registered voters do no more than change their residence they must typically take the initiative to re-register at their new address, and if they move to another state they may be faced with an entirely different registration process. Moreover, in most U.S. states potential voters must register in advance of an election—most commonly 30 days in advance. For these and other reasons, a substantial share of eligible voters in the United States remains unregistered, in some cases for their entire lives.

Before the 2000s, the standard response to the obvious inadequacy of vote/registered figures for the U.S. was to express turnout relative to the voting-age population (VAP). However, when McDonald and Popkin (2001) looked more closely at VAP figures for the United States they found that, not only did they include a good many ineligibles, but the number of ineligibles had grown steadily over time—to the point that a much-discussed decline in U.S. electoral turnout between the 1960s and the 1990s actually reflected not a decrease in the number of persons who went to the polls but an increase in the number of ineligibles. The most important reason for the over-count was the inclusion of a rapidly growing number of resident non-citizens in the U.S. voting-age population. Beyond this, U.S. voting law disqualifies persons who are incarcerated as well as, in many states, persons on parole or probation and even, in a few states, persons who had committed a felony in the past but had long since served their prison

terms. McDonald (2012) excludes such persons from the denominator of U.S. turnout figures (and also adds a much smaller number of U.S. citizens living abroad, who had previously not been counted). His are the figures that will be employed in this paper.

One more issue must be briefly considered. The numerator of turnout figures ordinarily focuses on votes for the lower house of a country's legislature, which in parliamentary systems produces the executive. However, in the United States, Finland, Austria and Ireland, presidents and legislatures are separately elected by popular vote. For the U.S., we have focused on turnout in presidential elections, which unambiguously produce the executive. A less obvious case is Finland, in which a separately elected president serves alongside the prime minister. However, since the 2000 constitution and 2012 amendments to it, the position of president has been less powerful than that of the prime minister, particularly in the domestic arena (Ministry of Foreign Affairs of Finland, 2013). We have thus focused on turnout in Finnish parliamentary rather than presidential elections. Finally, in Austria and Ireland the Presidency, while directly elected, is primarily a symbolic position, so we have focused on legislative elections in these cases.[3]

To summarize, we have used modified VAP in the denominator of U.S. turnout figures, and registered voters for the other countries (a decision rule similar to that employed by Franklin (2004)), and have focused on presidential elections the United States and legislative elections in other countries. The source of vote/registered figures is the International Institute for Democracy and Electoral Assistance (IDEA) (2012), except for the U.S., where data are from McDonald (2012).[4] Figures are provided in table 1.

TABLE 1 ABOUT HERE

Turnout by Income Quintile

To this point, we have introduced our individual-level data on electoral turnout and have demonstrated how they can be "deflated" with reference to national figures in such a way that they account for over-estimation of turnout rates in self-reported data.[5] The next step is to calculate self-reported turnout levels for each of five income quintiles. Both the CSES and the ESS, our sources of data on self-reported turnout, offer basic information on respondents' household income. In both cases, interviewers place respondents' income within the appropriate group from a list of income categories.[6] When possible, we have employed ESS data. However, in several cases, including all of the countries we examine outside Europe, we have used data from the CSES.[7] One advantage of the ESS for our purposes is that, although the goal of both surveys is to measure after-tax income, we believe there to be somewhat stricter cross-national comparability in this regard in the ESS than in the CSES data—which is why we have employed the ESS when possible.[8]

Next, we "deflate" self-reported figures to bring them into accord with figures based on aggregate data, thus compensating for various degrees of over-estimation in self-reported figures. Quintile-by-quintile figures for turnout at different income levels, adjusted for over-reporting, are listed in table 2.[9] As can be seen, in countries with very high average turnout, there is little room for electoral participation to vary by income group. An extreme case is that of Australia, where turnout varies less than one percentage point across the entire income spectrum. (Australia has had a compulsory voting system since the 1920s.) Variation across quintiles is also very low in Luxembourg and Denmark. At the other end of the spectrum, the difference across income quintiles is very high in the United States, high in Germany, and fairly substantial in Switzerland, Norway, Italy and Finland.

TABLE 2 ABOUT HERE

A summary is offered in table 3. Perhaps the most straightforward measure of the overall income skew of turnout is the Gini index. Gini indexes are traditionally used to measure the distribution of income across households, but they can be used to measure any distribution, including that of electoral turnout across income groups. When the Gini is calculated in this manner, it is clear that there is considerable cross-national variation in the degree to which voting in national elections is marked by an income skew. At the high end of the scale is the United States, whose Gini index is nearly twice that of the next highest countries, Germany and Switzerland. At the other end of the scale, the income skew of turnout in Australia and Luxembourg is extremely low, with Austria, Greece, Belgium, Denmark and the Netherlands not much higher. Other countries' values fall in between.

TABLE 3 ABOUT HERE

One limitation of the Gini index as a summary measure of inequality is that it is as sensitive to variation in the middle of the distribution as at the ends, even though the top and bottom of the income spectrum are likely to be of special interest. In an effort to examine more closely the extremes of the income scale represented by the highest and lowest income groups, we have calculated the difference between the turnout rate of the top and the bottom income quintiles for all elections considered. As can be seen in table 3, the U.S has by far the largest such difference, fully 23.6 percentage points, followed by Germany at 18.5. In a number of other countries the difference is around 10 points (Sweden, Norway and Switzerland), with several in the mid-single digits. In two very high-turnout countries, Australia and Luxembourg, the difference is around one percentage point, and in one, Ireland, the bottom income quintile actually turns out at a higher rate than the top.

A limitation of both of these summary measures is that they represent relative turnout, that is, the variation in turnout across income groups within a given country. A complementary measure can be constructed that focuses on absolute turnout, thus reflecting cross-country rather than intra-country variation. Of special interest is the lowest income quintile. As can be seen in table 3, by far the lowest turnout values for the bottom income quintile are found in Switzerland and the United States, where fewer than half of eligible voters in this group participate. Almost as low are the United Kingdom and Canada, despite their middle-of-the-pack status on other indicators: in these countries income groups turn out at fairly similar levels, but turnout across the board is low in comparison to many other countries. At the other end of the scale, turnout for the lowest income group is very high in Australia and Luxembourg, and not much lower in Denmark. In other high-turnout countries, including Austria, the Netherlands and Sweden, approximately three quarters of the lowest income quintile votes, fairly high by comparative standards, while in Norway, Finland, Germany and Ireland the number is about two thirds.

In concluding this section, we will return to the question posed at the beginning: how well does average electoral turnout, which is the variable employed in almost all previous scholarly work on this topic, serve as a proxy for the income skew of turnout, the real variable of interest? The relationship is depicted in Figure 1, which relates average turnout on the horizontal axis to the Gini index of the income skew of turnout on the vertical. As can be seen, when average turnout is very high, there is little room for it to vary by income group; this is the case for such high-turnout countries as Australia, Luxembourg, Denmark and Austria. As average turnout declines, however, cross-country variation in the degree to which turnout is skewed by income increases. In the middle range of countries, for example, the income skew of turnout is a good deal greater in Germany than its relatively high average turnout would suggest, while the

skew in Canada, the United Kingdom and Ireland is somewhat lower than average for that group of countries. At the lowest level of average turnout, represented by the United States and Switzerland, the variation in the degree of income skew is quite wide. Switzerland, despite the lowest average electoral turnout of any country, has an income skew not very different from that of countries with much higher average turnout, notably Germany. The United States, on the other hand, is characterized by an income skew *far* higher than one would predict from its average turnout—which, while low, is not much different from the average turnout in several other countries with much less income skew.

FIGURE 1 ABOUT HERE

Electoral Participation and Government Redistribution

Now that we have developed several measures of the income skew of electoral turnout, we move to our final question: do countries in which income groups vote at similar levels pursue more redistributive policies than those in which a large share of the low-income eligible electorate does not vote? In exploring this question, which reflects a core concern of democratic accountability, we will pursue two empirical investigations. First, we will conduct a country-level analysis in which the income skew of turnout is related to the extent of income redistribution accomplished by social benefit programs, as calculated from the Luxembourg Income Study (LIS). Second, we will conduct a multilevel analysis in which data on electoral turnout by income quintile from the ESS or CSES are merged into LIS micro-data on income in an effort to explain variation in the redistributive effect of public benefits, controlling for several household-level demographic variables.

The first question is whether the Gini index of the income skew of electoral turnout helps to explain the degree to which government transfers reduce pre-government income inequality,

measured as the difference in inequality before and after public sector transfers are accounted for. In measuring inequality reduction, our source of data is the income surveys available from the Luxembourg Income Study (LIS).[10] In using LIS surveys, we have sought to maximize cross-national comparability, even at the cost of reducing somewhat the number of countries compared. Most importantly, we have focused on redistribution only by way of transfers rather than also by way of taxes. The reason for this is that the household-level income surveys on which the LIS relies account only for direct taxes, such as income taxes and social insurance contributions; they do not account for indirect taxes, such as sales, excise and value added taxes, which tend to be more regressive than direct taxes (especially income taxes). From the standpoint of maximizing cross-national comparability, the problem with this is that countries' share of revenue raised from indirect taxes varies by a factor of more than two to one across the rich OECD countries, with the result that a much smaller share of all taxes paid would be included in some countries than in others (OECD, 2013). Beyond this, employing gross income datasets has the advantage of systematically expressing transfers gross of any taxes on them; the alternative would be to adjust for taxes in some countries but not in others.

With this background, two separate measures of inequality reduction are employed. The first taps the extent to which social benefits reduce pre-government inequality, measuring the reduction in the Gini index before and after public sector transfers are added to pre-government income. The second focuses on the lowest income group, those in poverty. Specifically, our poverty reduction measure compares the share of all households whose income places them below a poverty line set at 50 percent of the median income in a given country, before and after public social transfers are included in their income (Brady, 2009).

Figure 2 depicts the relationship between these variables graphically, with redistribution on the vertical axis and the income skew of turnout on the horizontal. As can be seen, the general trend is negative: as the income skew of turnout rises, the extent of government redistribution declines ($r = -0.43$). However, as can also be seen, the negative relationship is largely driven by a single country, the United States, whose turnout skew is much higher, and whose transfer redistribution much lower, than those of any other country. There are several other distinctive cases. One is Canada, whose turnout skew is moderate compared to other countries, but which is near the bottom in terms of overall government redistribution. Similarly, Australia, despite almost no income skew in electoral turnout, is below average in transfer redistribution.

FIGURE 2 ABOUT HERE

As was suggested, the Gini index of the income skew of turnout takes onto account only intra-country variation in electoral participation, not variation in absolute turnout across countries. Figure 3 focuses on variation in the electoral participation of the lowest income quintile, measuring how turnout of the poorest quintile in a given country compares to turnout of the poorest quintile in other countries. Since this analysis focuses on the lowest income group, we have related turnout not to overall government redistribution but rather to the reduction in the poverty rate as a result of public sector social transfers.

As can be seen, there is a modest positive relationship between electoral participation by this group and poverty reduction as a result of transfer redistribution ($r = +.28$). Again, there are some deviations for individual countries. In particular, the Australian state accomplishes a good deal less poverty reduction than the high turnout among low-income groups in that country would suggest. Indeed, if the Australian case is removed, the bivariate correlation rises from

+0.28 to +0.59. Similarly, poverty reduction by the state is even less in the United States than the very low turnout among low-income groups would lead one to expect. On the other hand, Germany, Finland and Norway, with only middling levels of turnout among the lowest income group, accomplish a relatively high level of poverty reduction.

FIGURE 3 ABOUT HERE

Now that our country-level results have been reported, it is time to move on to a multi-level analysis that permits us to include variables at the level of both of individual households and income quintiles. Specifically, we have merged quintile-level data on turnout from the ESS or CSES into LIS income surveys, adjusting for over-reporting as described earlier. The advantage of a multi-level analysis of this sort is that it permits us to assess the effect of political participation by various income groups, controlling for some of the major household-level characteristics that drive public social benefits in the developed world—characteristics which are largely beyond the ability of political actors to manipulate.

Our dependent variable is the share of a household's total income that is supplied by public sector transfers, most commonly in the form of old age pensions or unemployment compensation; it ranges from 0 to 100 percent. As to independent variables, there are three. Two are measured at the level of individual households. The first of these is coded 1 for households that include no earners and no elderly persons (which would make them likely candidates to receive social benefits aimed at the working-age population) and 0 otherwise. The second is coded 1 for households that include one or more members aged 65 or older (which would make them likely candidates to receive public pensions). Finally, of course, we include the average turnout of the income quintile within which each household is located, as described earlier. If electoral participation has an effect on social benefit provision *above and beyond* the

demographic baseline represented by these two household-level variables, we will be able to move beyond our earlier country-level results.

Our basic approach is to conduct five separate multi-level analyses, one for each income quintile, after having merged the LIS income surveys of the 14 countries we are examining. As has been indicated, the first-level variables are measures of household-level characteristics that capture the relative "need" for benefits by households, while the second-level variable measures electoral turnout for individual income quintiles across countries. In conducting our multilevel analysis we have employed the survey weights available in most LIS income surveys, which adjust for under- or over-sampling of certain types of households; quintiles are thus demarcated on the basis of weighted rather than unweighted numbers of cases. As to merging LIS surveys for various countries, the weights of national surveys with different numbers of respondents are adjusted so that they contribute equally to the multi-level analysis.[11] Technical details on the multi-level analysis are provided in an appendix that follows the text.

The results are reported in table 4. To start, it is clear that the variables intended to tap households' "need" for social benefits—and thus their eligibility for social entitlements—are, for every quintile, strongly positively associated with the share of their income that is supplied by the state in the form of social benefits. However, it is of interest that the relationship between these demographic factors and the prominence of public sector transfers becomes weaker at the top of the income scale (although it should be noted that it remains strong through even the next-to-highest income quintile). This is hardly surprising: the prominence of social benefits in overall household income would be expected to decrease for the highest-income groups, which have the greatest access to other resources. Moreover, it is possible that the leverage supplied by electoral participation will, for this group, increasingly be directed toward redistributive policies

other than social benefits (e.g., taxation policies, subsidies to particular industries or regions) at the high end of the income scale. Still, even for the highest income quintile the relationship between these demographic variables and social benefit provision remains strong.

TABLE 4 ABOUT HERE

Our main interest in this paper is, of course, whether electoral turnout is positively associated with public sector redistribution by way of transfers. For each of our five quintiles there is indeed a positive slope coefficient relating the turnout of the income group within which a household resides and the share of its income supplied by public social benefits. For example, for the lowest income quintile a 1 percent increase in electoral turnout is, on average, associated with a 0.245 percent increase in a household's receipt of social benefits as a share of its total income above and beyond what one would expect from its objective circumstances. Thus, a 20 percent increase in the turnout rate of households in this quintile (approximately the difference between Germany and the United States) is, on average, associated with a 4.90 percent increase in the share of social transfers in total income, after accounting for demographic factors. The slope coefficient rises to 0.252 for the second quintile and then declines to 0.208 for the third, 0.178 for the fourth and 0.136 for the highest. It is of interest that the relationship is strongest for the low and middle quintiles, those most dependent on social transfers, but continues to be in evidence as one moves up the income scale.

Measures of the overall fit of the models are reported in the last three rows of table 4.[12] It is noteworthy that the majority of the variation in redistribution is explained by cross-national variation in electoral turnout. As can be seen, the proportional reduction in variance at the country level (level-2) is greater than the proportional reduction of variance at the individual level (level-1) in each of the quintiles. This level-2 proportional reduction in variance ranges

from 0.634 (first quintile) to 0.823 (second quintile) while the level-1 proportional reduction in variance ranges from 0.455 (fifth quintile) to 0.699 (second quintile). The adjusted R squared, which summarizes the goodness of fit of the model as a whole, ranges from 0.711 (in the second quintile) to 0.484 (in the fifth quintile).

In sum, we find support in our multi-level analysis for our expectation that electoral participation matters. Specifically, higher electoral participation by income groups, especially those in the low and middle parts of the income spectrum, does indeed seem to be associated with greater redistribution in their favor. Certainly, the baseline of "need" determines the basic structure of benefit provision. Still, electoral participation does appear to explain a substantial share of cross-national variation in transfer redistribution above and beyond this baseline.

Conclusion

The overall goal of this paper has been to explore the relationship between the extent to which electoral turnout in the developed world is skewed by income and the degree of income redistribution that is accomplished by way of social transfers. One of our intended specific contributions has been in the area of measurement; in particular, we have moved beyond the usual strategy of employing average turnout in a country as an imperfect proxy for the income skew of turnout. In offering a more precise measure, we have addressed a number of longstanding measurement issues in this area, notably the over-reporting of turnout in individual-level election studies.

A second contribution has been to offer a preliminary analysis of the relationship between several aspects of the income skew of electoral turnout and the extent to which the state redistributes market income. In exploring this relationship, we began with a country-level analysis focusing on variation in individual income quintiles' turnout, both within and across

countries. This was followed by a multilevel analysis in which turnout levels by quintile were merged into income surveys from the Luxembourg Income Study, in an effort to explore whether electoral participation contributes to explaining variation in transfer redistribution above and beyond the effect of household-level variables associated with programs aimed at the working aged and elderly populations.

Our overall conclusion is that turnout is indeed positively associated with transfer redistribution, although many other variables no doubt also play a role. The fact that this hypothesized relationship has withstood a more rigorous empirical test than has commonly been the case increases our confidence that it is indeed in evidence. In sum, we believe that the analysis reported here has made a tangible contribution not only to the measurement of electoral participation but also to our understanding of its policy consequences—a contribution that has implications for broader concerns about democratic accountability in an era of growing income inequality.

Figure 1: Average adjusted turnout versus income skew of turnout

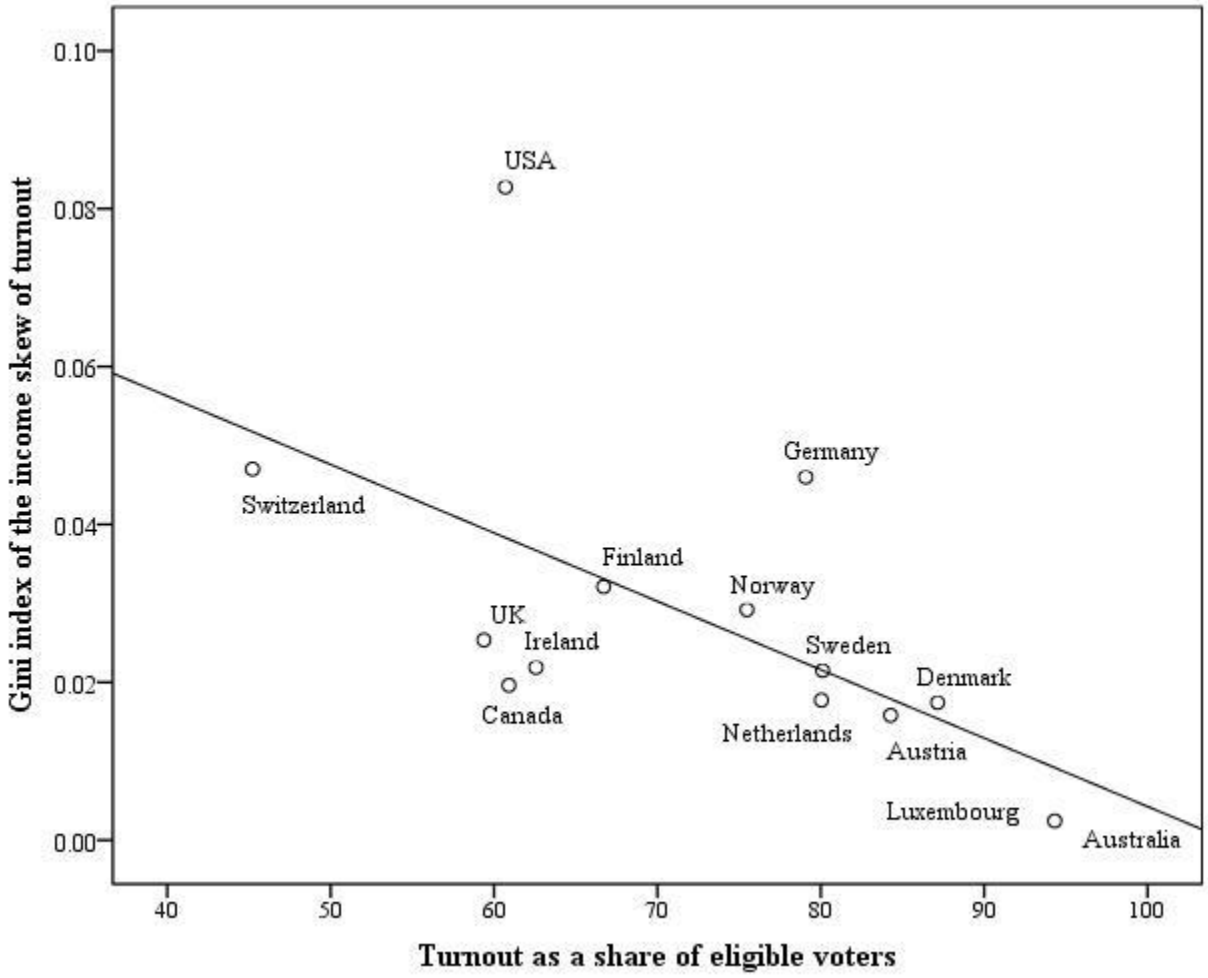

Figure 2: Income skew of turnout and redistribution via transfers

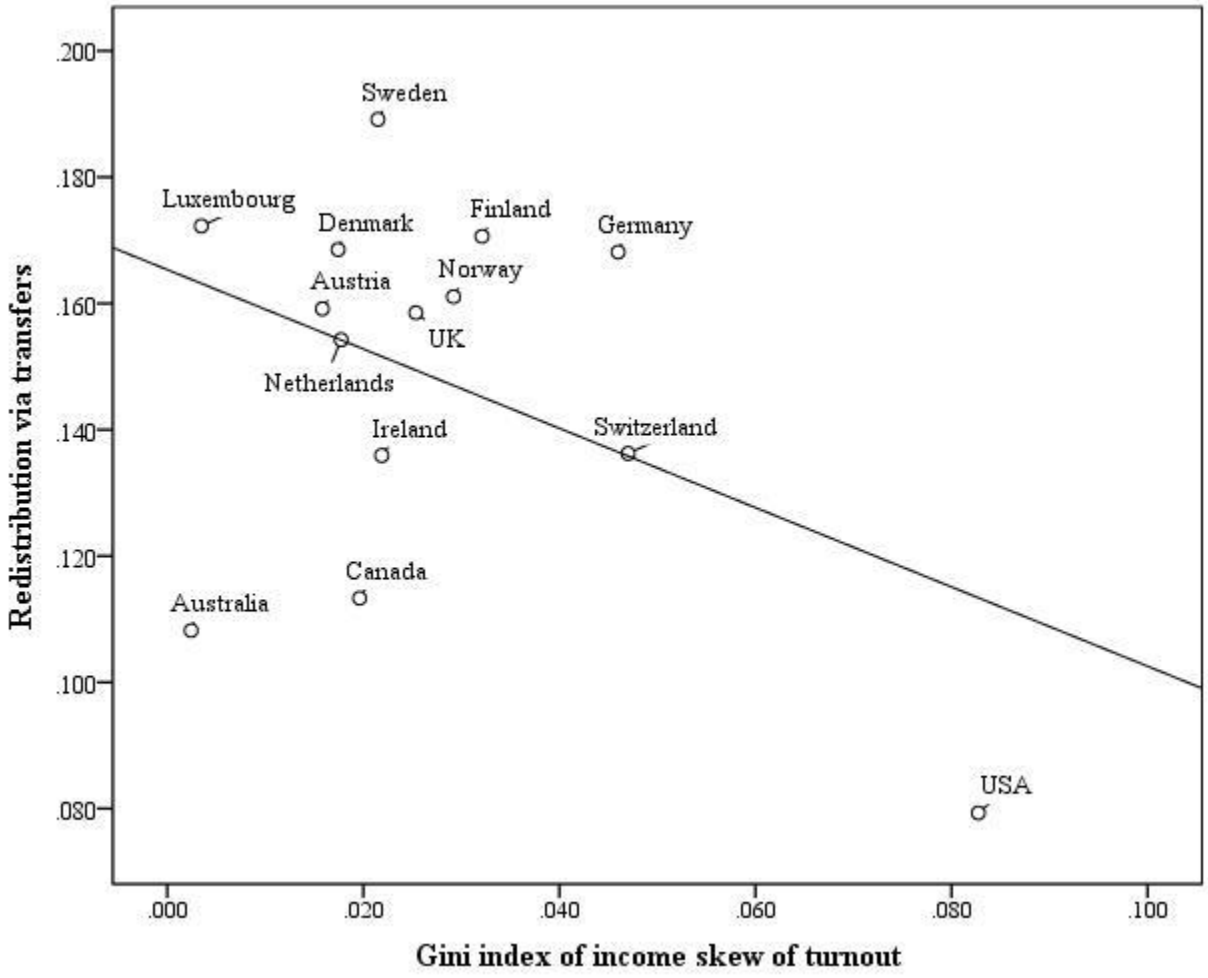

Figure 3: Turnout of lowest quintile and poverty reduction via transfers

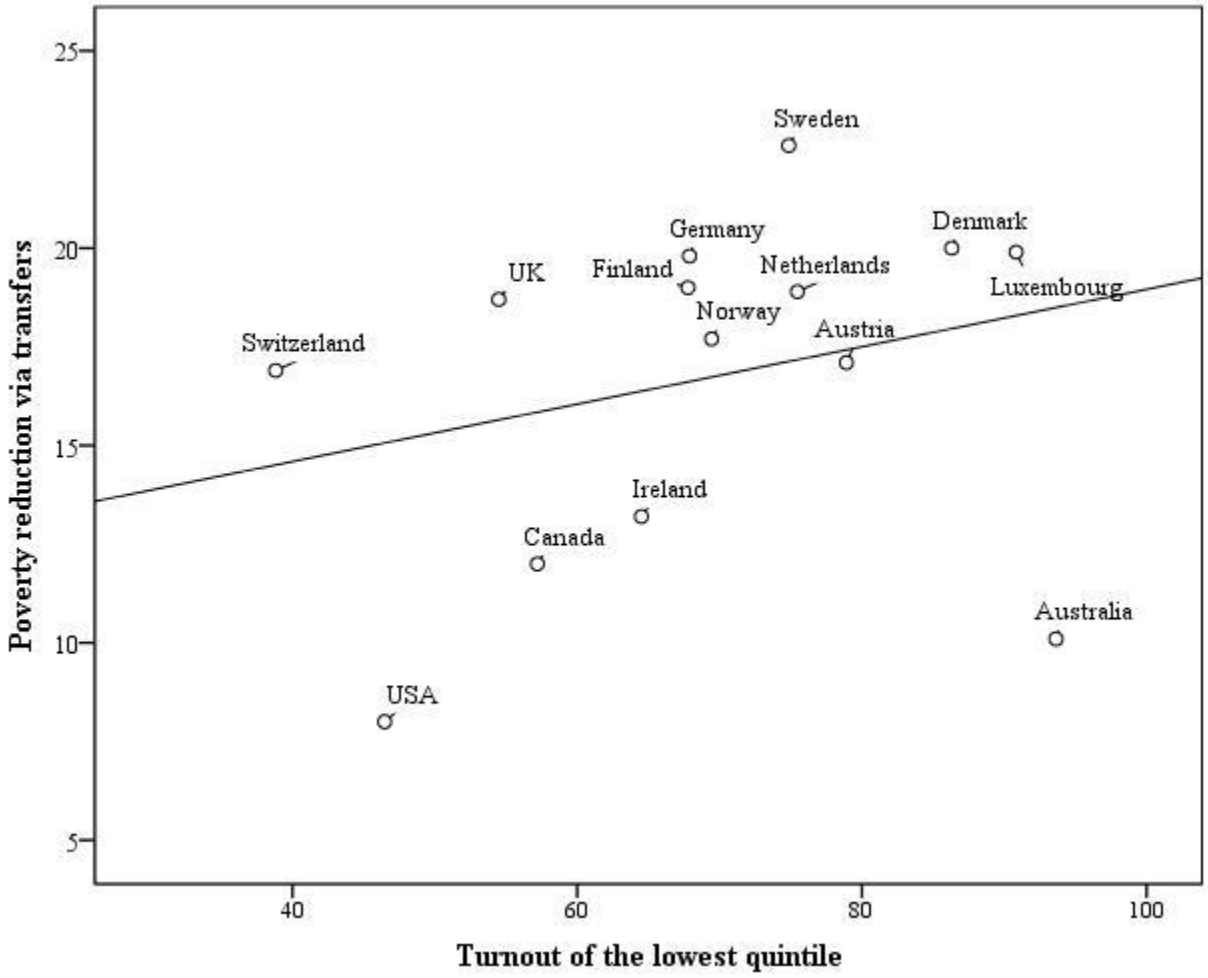

Table 1: Election and survey years and a comparison of turnout rates using different definitions

Country	Election Year	LIS Survey Year	Self-reported turnout	Turnout/ eligible
Australia	2004	2003	98.3	93.2
Austria	2002	2004	89.3	84.3
Canada	2004	2004	90.9	60.9
Denmark	2001	2004	94.6	87.2
Finland	2003	2004	79.8	66.7
Germany	2002	2004	86.8	79.1
Ireland	2002	2004	82.3	68.4
Luxembourg	2004	2004	94.3	91.7
Netherlands	2003	2004	87.2	80.0
Norway	2001	2004	85.5	75.5
Sweden	2002	2005	88.2	80.1
Switzerland	2003	2004	68.7	45.2
UK	2001	2004	72.6	59.4
USA	2004	2004	77.1	68.8

Sources: For individual-level turnout: CSES and ESS; see endnote 7 for details.
For turnout/eligible: International IDEA (2012) for all countries except the United States; for the U.S.: McDonald (2012).

Table 2: Adjusted turnout by country and quintile

Country	Quintile	Adjusted turnout	Country	Quintile	Adjusted turnout
Australia	1	93.6	Luxembourg	1	90.8
	2	94.0		2	92.3
	3	94.6		3	91.7
	4	94.8		4	91.3
	5	94.6		5	92.3
Austria	1	78.9	Netherlands	1	75.5
	2	85.9		2	79.7
	3	84.6		3	79.6
	4	85.3		4	82.6
	5	86.6		5	82.8
Canada	1	57.2	Norway	1	69.4
	2	59.7		2	73.3
	3	62.1		3	75.1
	4	62.2		4	80.3
	5	63.4		5	79.2
Denmark	1	86.3	Sweden	1	74.9
	2	82.0		2	78.8
	3	90.0		3	81.7
	4	88.0		4	81.0
	5	89.4		5	84.2
Finland	1	61.8	Switzerland	1	38.8
	2	64.6		2	43.9
	3	65.0		3	45.1
	4	69.5		4	48.4
	5	72.7		5	49.8
Germany	1	67.9	UK	1	54.5
	2	77.3		2	58.3
	3	78.1		3	61.9
	4	85.8		4	62.1
	5	86.4		5	60.1
Ireland	1	64.5	USA	1	46.5
	2	60.6		2	53.2
	3	63.7		3	65.1
	4	65.3		4	68.7
	5	58.7		5	70.1

Table 3: Various measures of the income skew of turnout

Country	Gini	QV - QI Turnout	QI Turnout
Australia	0.002	1.0	93.6
Austria	0.016	7.7	78.9
Canada	0.020	6.2	57.2
Denmark	0.017	3.1	86.3
Finland	0.032	4.9	67.8
Germany	0.046	18.5	67.9
Ireland	0.022	-5.8	64.5
Luxembourg	0.003	1.5	90.8
Netherlands	0.018	7.4	75.5
Norway	0.029	9.8	69.4
Sweden	0.021	9.3	74.9
Switzerland	0.047	11.0	38.8
UK	0.025	5.6	54.5
USA	0.083	23.6	46.5

Table 4: Multilevel results for share of state transfers in a household's income: 14 Countries

	QI	QII	QIII	QIV	QV
No earners	57.326*** (1.763)	70.983*** (2.172)	72.426*** (3.812)	68.566*** (4.817)	53.469*** (8.092)
Elderly	60.234*** (2.453)	65.131*** (1.883)	59.352*** (2.802)	50.229*** (3.328)	37.915*** (3.230)
Adjusted Turnout	0.245** (0.120)	0.252*** (0.097)	0.208** (0.091)	0.178** (0.073)	0.136** (0.060)
Constant	12.756 (8.877)	-0.308 (7.788)	-3.401 (6.444)	-4.949 (5.002)	-4.767 (4.027)
Intercept Variance (Level 2)	36.699 (10.700)	28.503 (9.290)	21.317 (12.266)	14.841 (9.731)	10.564 (5.836)
Residual Variance (Level 1)	523.161 (25.687)	434.903 (33.186)	372.596 (25.895)	297.754 (26.368)	202.963 (32.152)
Prop. Red. Var. (Level 2)	0.634	0.823	0.729	0.741	0.745
Prop. Red. Var. (Level 1)	0.605	0.699	0.640	0.556	0.455
R sq.	0.607	0.711	0.646	0.571	0.484

Standard errors in parentheses
* $p \leq 0.10$, ** $p \leq 0.05$, *** $p \leq 0.01$ (two-tail test), n=289,425 (unweighted)

Appendix: Technical Description of Multilevel Analysis

The null model is used to compute the proportional reduction in variance explained by the covariates at each level and overall. The null model (with no level-1 or level-2 predictors) for the household *i* in country *j* and in quintile *q* is expressed as:

$$Y_{ijq} = \beta_{0jq} + \varepsilon_{ijq}, \quad (1)$$

where β_{0jq} is the intercept and ε_{ijq} is a variation in estimating share of state transfers in a household's income within countries. The variation in intercepts (between countries) is expressed as:

$$\beta_{0jq} = \gamma_{00q} + u_{0jq}, \quad (2)$$

where γ_{00} is the intercept at level-1 and u_{0j} is the level-2 (between-country) variation in intercepts. Therefore, our null model can be rewritten as a single equation from (1) and (2), which becomes

$$Y_{ijq} = \gamma_{00q} + u_{0jq} + \varepsilon_{ijq} \quad (3)$$

This model is presented in Table A.1 for each quintile sample. Adding to equation (3) the within countries fixed slope for each individual level independent variable, the model is expressed as:

$$Y_{ijq} = \gamma_{00q} + \mathrm{u}_{0jq} + \beta_1(elderly)_{ijq} + \beta_2(noearners)_{ijq} + \varepsilon_{ijq} \quad (4)$$

Since the within-country slopes are fixed $(\beta_{1j} = \gamma_{10}, \beta_{2j} = \gamma_{20})$ the above equation can be formalized as

$$Y_{ijq} = \gamma_{00q} + \mathrm{u}_{0jq} + \gamma_{10}(elderly)_{ijq} + \gamma_{20}(noearners)_{ijq} + \varepsilon_{ijq} \quad (5)$$

where gamma slopes do not vary across countries. Table 4 presents the country-level (level-2) random intercept models, which add the explanatory variable 'adjusted turnout' to the previous models. These are estimated for each quintile at the country level (level-2) to explain the variability in intercepts across countries. Therefore, we add to equation (2) level-2 predictor, adjusted turnout, for each quintile sample

$$\beta_{0jq} = \gamma_{00q} + \mathrm{u}_{0jq} + \gamma_{01}(turnout)_{jq}, \quad (6)$$

The final multilevel model can be expressed as a complex regression equation by combining equation (5) and (6) in the following way:

$$Y_{ijq} = \gamma_{00q} + \mathrm{u}_{0jq} + \gamma_{01}(turnout)_{jq} + \gamma_{10}(elderly)_{ijq} + \gamma_{20}(noearners)_{ijq} + \varepsilon_{ijq}.$$

These multilevel models were then estimated with the maximum likelihood method using Stata software. Table 4 in the text presents the random-intercept linear models with level-1 and level-2 covariates that are estimated for each quintile q with the maximum likelihood method using Stata software.

Table A.1: Multilevel results for share of state transfers in a household's income: Null Model for 14 Countries

	QI	QII	QIII	QIV	QV
Intercept	63.404 4.020	42.568 5.487	28.227 3.492	18.742 2.991	11.169 2.596
Elderly	- -	- -	- -	- -	- -
No earners	- -	- -	- -	- -	- -
Intercept Variance	100.277 35.463	160.780 61.210	78.569 23.132	57.327 18.250	41.488 14.950
Residual Variance	1322.829 75.948	1443.435 74.037	1035.110 102.918	670.514 89.317	372.105 75.415
ICC	0.070	0.100	0.071	0.079	0.100

All estimates are significant at $p < 0.001$, n=289,425 (unweighted)
Top number is the estimate; bottom number is the standard error.

Bibliography

American National Election Studies (2012) www.electionstudies.org.

Ansolabehere, Stephen and Eitan Hersh (2012) "Validation: What Big Data Reveal about Survey Misreporting and the Real Electorate," *Political Analysis* 20: 437-459.

Blais, André and Agnieszka Dobrzynska (1998) "Turnout in Electoral Democracies," *European Journal of Political Research* 33: 239-261.

Blais, André and Daniel Rubenson (2013) "The Source of Turnout Decline: New Values or New Contexts?" *Comparative Political Studies* 46: 95-117.

Brady, David (2009) *Rich Democracies, Poor People: How Politics Explain Poverty*. New York: Oxford University Press.

Brennan Center for Justice (2009) *Expanding Democracy: Voter Registration around the World.* New York: New York University School of Law.

Canadian Election Study (CES) (2012) ces-eec.org/pagesE/home.html.

Comparative Study of Electoral Systems (2013) www.cses.org.

Comparative Study of Electoral Systems (2007) Codebook for Module 3, www.cses.org.

Dettrey, Byran J. and Leslie A. Schwindt-Bayer (2009) "Voter Turnout in Presidential Democracies," *Comparative Political Studies* 42: 1317-1338.

International Institute for Democracy and Electoral Assistance [IDEA] (2006) V*oter Turnout: A Global Survey*, www.idea.int/voter_turnout.

Endersby, James W. and Jonathan T. Krieckhaus (2008) "Turnout around the Globe: The Influence of Electoral Institutions on National Voter Participation," *Electoral Studies* 27: 601-610.

European Social Survey (2013) europeansocialsurvey.org.

Franklin, Mark (2004) *Voter Turnout and the Dynamics of Electoral Competition in Established Democracies since 1945*. Cambridge: Cambridge University Press.

Garfinkel, Irwin, Lee Rainwater and Timothy Smeeding (2010) *Wealth and Welfare States: Is America a Laggard or a Leader?* New York: Oxford University Press.

Graubard, B. I., and E. L. Korn (1996) "Modeling the sampling design in the analysis of health surveys," *Statistical Methods in Medical Research* 5: 263-281.

Gray, Mark and Miki Caul (2000) ""Declining Voter Turnout in Advanced Industrial Democracies, 1950-1997: The Effects of Declining Electoral Mobilization," *Comparative Political Studies* 33: 1091-1122.

Iversen, Torben (2005) *Capitalism, Democracy and Welfare*. New York: Cambridge University Press.

Kenworthy, Lane and Jonas Pontusson (2005) "Rising Inequality and the Politics of Redistribution in Affluent Countries," *Perspectives on Politics* 3: 449-471.

Karp, Jeffrey A. and David Brockington (2005) "Social Desirability and Response Validity: A Comparative Analysis of Overreporting Voter Turnout in Five Countries," *The Journal of Politics* 67: 825-840.

Katz, Jonathan N. and Gabriel Katz (2010) "Correcting for Survey Misreports Using Auxiliary Information with an Application to Estimating Turnout," *American Journal of Political Science* 54: 815-835.

Lijphart, Arend (1997) "Unequal Participation: Democracy's Unresolved Dilemma," *American Political Science Review* 91: 1-14.

Lupu, Noam and Jonas Pontusson (2011) "The Structure of Inequality and the Politics of Redistribution," *American Political Science Review* 105: 316-336.

Luxembourg Income Study (LIS) Database, http://www.lisdatacenter.org (multiple countries; runs completed between 28/12/2011 and 31/01/2013). Luxembourg: LIS.

Mahler, Vincent A. (2008) "Electoral Turnout and Income Redistribution by the State: A Cross-National Analysis of the Developed Democracies," *European Journal of Political Research* 47: 161-183.

McDonald, Michael P. (2012) *United States Elections Project*. elections.gmu.edu/voter_turnout.htm.

McDonald, Michael P. (2003) "On the Overreport Bias of the National Election Study Turnout Rate," *Political Analysis* 11: 180-186.

McDonald, Michael P. (2007) "The True Electorate: A Cross-Validation of Voter Registration Files and Election Survey Demographics," *Public Opinion Quarterly* 71: 588-602.

McDonald, Michael P. and Samuel L. Popkin (2001) "The Myth of the Vanishing Voter," *America Political Science Review* 95: 963-974.

Ministry of Foreign Affairs of Finland (2013) *Political System*, formin.finland.fi/public.

Organization for Economic Cooperation and Development (OECD) (2013) *OECD Tax Database,* www.oecd.org/tax/taxpolicyanalysis/oecdtaxdatabase.htm.

Pontusson, Jonas and David Rueda (2010) "The Politics of Inequality: Voter Mobilization and Left parties in Advanced Industrial States," *Comparative Political Studies* 43: 675-705.

Quintelier, Ellen, Marc Hooghe and Sofie Marien (2011) "The Effect of Compulsory Voting on Turnout Stratification Patterns: A Cross-National Analysis," *International Political Science Review* 32: 396-416.

StataCorp (2011a) *Stata Longitudinal-Data/Panel-Data Reference Manual Release 12*. College Station, TX: StataCorp LP.

StataCorp (2011b) *Stata: Release 12*. Statistical Software. College Station, TX: StataCorp LP.

Endnotes

[1]In six ANES validation efforts from the 1970s through the 1990s, only about a fifth of all responses could be successfully validated (Katz and Katz, 2010: 824-825). Of respondents who could be cross-checked, many more incorrectly reported that they voted when they actually did not; on average the ratio was about 20 to 1. As to countries other than the United States, few full-scale validation studies have, to our knowledge, been completed. One exception is validations of elections in the United States, the United Kingdom, Norway, New Zealand and Sweden, as reported by Karp and Brockington (2005).

[2]The precise methods employed by registrars vary in some respects. For example, in Australia registration is compulsory, and compliance is enforced by door-to-door and mail follow-ups. In Canada, electoral registers are updated with reference to a number of databases, including vehicle registration lists and tax rosters, although it is permissible for citizens to opt out of an electoral roster if they wish to. In Finland, Denmark and Norway registration is part of a more comprehensive national registry that is used for many other public purposes. In Germany and Switzerland, eligible voters are automatically registered and are then sent cards notifying them of their eligibility to vote. Descriptions of many registration systems are available in Brennan Center for Justice (2009).

[3] Germany also has a President, but he or she is not popularly elected.

[4]Our figures are broadly comparable to those reported by Blais and Rubenson (2013:113) for seven of the countries covered in our analysis. We would not expect them to be identical since those authors report averages for as many as a dozen elections dating back to the 1950s and 1960s.

[5]As can be seen, the Canadian Election Study (CES) indicates a higher over-reporting rate than any country. We have consulted with the directors of that survey, who note some particular characteristics of the CES that may account for at least some of the over-reporting. For one thing, part of the Canadian study is a panel study, in which some of the same respondents have participated in polls on earlier elections. The very fact of being interviewed repeatedly over time may increase interest in elections and thus motivate turnout. Second, the CES, like many polls, contacts respondents both before and after the election, but the turnout question applies only to the post-election survey; it is possible that the pre-election survey filtered out some potential non-voters. Having said this, similar procedures are employed in other election surveys, and they cannot completely explain the difference between over-reporting votes in Canada and elsewhere. The large Canadian over reporting rate is confirmed in Quintelier et al.'s (2011) analysis of the 2000 Canadian parliamentary election, whose data indicate that the Canadian over-reporting rate was highest among the 31 countries examined.

[6]There are several differences between the CSES and the ESS in exactly how this is done. In the CSES, a respondent's income is placed by the interviewer into a category that corresponds to the appropriate quintile group in that country's population. In the ESS, interviewers present respondents with a card listing 12 income categories. However, these do not correspond to equal shares of the population; different numbers of respondents fall into various income categories. In converting different-sized ESS categories to quintiles, the grouping used in the CSES, we

have followed the usual practice of first coding the income of each household at the midpoint of the category within which it falls and then placing it in the appropriate quintile. Procedures for resolving ties are those employed in the Stata statistical program (StataCorp, 2011b).

[7]To be precise, we used ESS1 for Austria, Denmark, Germany, Netherlands, Norway, Sweden and the United Kingdom; ESS2 for Finland, Switzerland and Luxembourg; and CSES for Australia, Canada, Ireland and the United States. (We used CSES for Ireland even though it is the subject of an ESS poll because that particular ESS survey failed to report income.)

[8]The Australian CSES survey in particular focuses on pre-tax income. Several other CSES surveys are not explicit on this matter.

[9]Ideally, we would deflate each quintile group separately, but that is obviously not possible since national election statistics do not include information on income.

[10] In accordance with most work using LIS micro-data, we have equivalized income by dividing household income by the square root of the number of household members, weighting households by the number of members they include. We thus compare income at the level of individuals, but in a way that accounts for the structure of the households in which they live (Garfinkel, Rainwater and Smeeding, 2010: 95). Households reporting zero pre-government income (i.e., all of their income is derived from the state) are included but the small number of households that report zero post-government income are excluded, on the assumption that they must receive at least some income from unreported sources. As to top and bottom coding, we adhere to the standard LIS conventions by top-coding income at 10 times the median of non-equivalized income and bottom-coding at 1% of equivalized mean income.

[11]Specifically, the weights of the LIS national surveys with different numbers of respondents are adjusted and weighted by the inverse of their sample-size and normalized so that

the mean level-two weight equals one. Moreover, we use the Graubard and Korn (1996) method in weighting the multilevel models that follow. When using this method, "second-level weights are set to the cluster averages of the products of the weights at both levels, and first-level weights are then set equal to one" (StataCorp, 2011a: 305).

[12]The null or unconditional models are available in the appendix. The null model is used to compute the proportional reduction in variance explained by the covariates at each level and overall.