Does Unequal Turnout Matter?
The Income Distribution of Voters and the Meltzer-Richard Model
PRELIMINARY AND INCOMPLETE

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Abstract

Unequal turnout may lead to policies that do not reflect the interests of the population as a whole. In particular, the Meltzer-Richard model of redistributive policy has the income of the median voter as a key parameter. Thus it would appear that who votes may matter, given the well documented class bias in voting. This paper investigates the income distribution of voters compared to the income of the whole population. I find that the two distributions differ very little, both in the US and cross nationally. I also find that correcting for the turnout bias does not lead to any change in the effect of inequality on redistribution in US states between 1972 and 2000, where the Meltzer-Richard model finds little support. Neither does turnout make a difference in considering the effect of inequality on preferences over redistribution across the countries in the ISSP. However, in these data the positive effect of inequality on preferences for redistribution is borne out by the data.

Introduction

At its most basic, the motivation behind this paper lies in seeking an answer to why the poor in democracies do not use their numerical advantage to equalize the distribution of resources via government policy. Of course, empirically what we observe is that the poor in different countries

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are differentially successful in this attempt to 'soak the rich', and a large literature has been devoted to explaining why this is the case.

It seems obvious to many non-specialists[1] that a major reason that policy fails to reflect the preferences of the numerically dominant poor is that this section of the population is not politically relevant. This concern is echoed by many scholars of voter turnout, exemplified by Lijphart (Lijphart (1997)[27]) who claim the class bias in voting as a serious problem for the democratic credentials of the (in particularly American) political system. In the American context, there has been much debate as to the effect of turnout on election outcomes and on policy based on the idea that if the poor were to vote as much as the rich, more pro-poor policies would result.

However, in many studies of redistribution- particularly those by economists- a 'perfect' democracy (in the sense that everyone votes) is usually assumed without much ado, and the median voter is assumed to determine policy outcomes in the polity. In particular, much ink has been spilled (some might say wasted) debating the merits and defects of Allan Metzer and Scott Richard's 1981 model (Meltzer and Richard (1981)[30]). This simple model predicts that redistribution should be increasing in the degree of pre-fisc inequality in democracies, where the median voter is assumed to determine policy. Where benefits are universal and flat rate, and taxation proportional to income, then any individual will stand to gain more from redistribution the further her income is below the mean. Empirically, income distributions tend to be right skewed, thus median income is below mean income. As this distance increases (which also corresponds to an increase in inequality, by most measures) the median voter will prefer higher levels of redistribution, constrained only by the 'leaky bucket' inefficiencies of higher taxation.

The Meltzer-Richard model, however, finds only mixed support empirically. It runs counter to what Lindert has described as the 'Robin hood paradox', that in fact redistribution seems to be higher where pre-fisc distributions are more equal, and where Robin Hood is most sorely needed, he is nowhere to be found. However, despite the large quantity of research on the relationship between inequality and redistribution, there is no study that can truly claim to test the Meltzer-Richard model. This paper is an attempt to bring the empirical evidence closer to testing the actual logic of the Meltzer-Richard model, as well as to consider how unequal turnout plays into redistributive

[1] at least to many of my acquaintances in Cambridge

policy with the effect on the income of the decisive median voter as the relevant mechanism.

The surprising (?) results are that while the data both from within the US and cross nationally do indicate an income bias in propensity to vote, the effect of this bias on the distribution of income is small, and certainly not large enough to be the important empirical 'wedge' between the Meltzer-Richard theory and the Robin hood paradox. In the case of the US, correcting for the effect of unequal turnout on the income distribution of voters (compared to the income distribution of the population as a whole) has no effect on the effect of inequality on redistribution.

I also present some preliminary results in comparative context which indicate that the non-effect of abstention on the relevant income distribution holds more broadly, and some results on the effect of income inequality on the preferences of the voting and total population rather than the policy outcome measures which are usually studied.

Motivation and Literature Review

This paper stands at the intersection of two major literatures in political science: that concerning voter turnout and the comparative political economy literature on the determinants of redistribution, in particular the Meltzer-Richard model. The former research tradition emphasizes the class bias in political participation, and specifically in voting, and posits that a consequence of unequal turnout could be that policy too is skewed in favor of the more advantaged in society. Lijphart [27] calls this problem 'democracy's unresolved dilemma', and much attention has been devoted to the effects of turnout on both electoral and policy outcomes.

Most of the debate about the effect of turnout on electoral outcomes comes from the US literature, where the 'traditional' view, that the Democrats would benefit from higher turnout since low turnout was disproportionately concentrated among those likely to vote Democratic (the poor, and minorities for example), has been challenged by a 'revisionist' camp claiming that outcomes would be very similar even if everybody voted. Citrin, Schickler and Sides (2003)[9] find that although the Democrats tend to be disadvantaged by non-voting in Senate races, the difference is rarely

large enough that it would have changed electoral outcomes. Similarly, Highton and Wolfinger (2001)[16] find no difference between voters and non-voters. Nagel and McNulty (1996) [31] find that data from senate and gubernatorial elections since 1965 show no relationship between turnout and partisanship. They interpret their results as inconsistent with the view that Democratic voters are disproportionately concentrated among likely non-voters, but supportive of the the argument presented by de Nardo (de Nardo (1980)[11]) that those who are less likely to vote are also less likely to have strong partisan attachments once they get to the ballot box: although they may lean toward the Democrats, these peripheral voters are also more fickle. De Nardo argues that the 'joke's on the Democrats'; as increasing turnout would not be to their benefit.

Nevertheless, electoral results tell us little if the parties involved have adapted their platforms to appeal to those who vote rather than those who abstain. The poor could be disadvantaged in policy terms even if the 'left' party won, if both parties' policy platforms shift to favor the rich. In terms of policy outcomes, Hicks and Swank [15] use pooled time series data for 18 developed nations from 1960 to 1982 and find that in addition to government partisanship, high voter turnout increases welfare spending. Hill and Leighley (1992) [17] and Hill, Leighley and Hinton-Anderson (1995) use CPS data to find that under-representation of the poor leads to lower levels of spending in US state electorates, although they note that the level of class bias, their substantive independent variable, is only modestly related to turnout levels. In addition, left-of-center governments have been found to increase welfare spending (in line with, but not restricted to, traditional power resources theory [25]) by Hicks and Swank [15], Iversen and Wren [22] and Huber and Stephens [19], among others, and turnout levels influence partisan outcomes. Left-leaning parties in general do better as turnout increases [32].

A third relevant strand of literature focuses on the policy preferences of voters as compared to non-voters. Again this literature is centered on the US, and, as with that on electoral outcomes, the tendency seems to be that empirical studies find little difference between the preferences of voters and non-voters. Gant and Lyons (1993)[13] use ANES data from 1972 to 1988 and conclude that abstention does not significantly change the political landscape. Bennett and Resnick (1990)[6] similarly find few differences between voters and non-voters, although importantly for this project,

one dimension on which there may be some bias is over welfare spending preferences. Wolfinger and Rosenstone (1980)[38] similarly find that non-voters do not differ markedly from voters in terms of their policy preferences.

It is worth noting in passing that much of the literature on political participation in general, and voting as particularly concerns us here, is devoted to finding which aspects of SES tend to be the most important predictors of turnout. In this literature (see, for example, Wolfinger (1980) [38]) the correlation between income, occupation and status makes a clear causal effect of income on turnout difficult to parse out. However, the causal effect of income on voting does not matter for our purposes. The cause of the income bias in turnout is immaterial: if people who vote have higher incomes, even for purely spurious reasons, and income determines preferences, we would still see the same deviation of median voter preferences from median individual preferences, with the same implications for policy bias against the poor. The logical difference between these two questions ('what determines turnout?' and 'how does unequal turnout affect the income distribution of voters?') may get us some way in understanding the apparent contradiction between the participation-SES bias literature and the absence of any effect of turnout on substantive outcomes.

To anticipate the empirical results somewhat, the similarity of the income distributions of voters and that of the population as a whole is in accordance with the prevailing scholarly consensus on the effect of turnout on outcomes in the US (although this consensus does not reach journalists and politicians). As a result, however, it does not provide an explanation for the lack of empirical support for the Meltzer-Richard model. While to some extent a disappointing null finding, the test of the Meltzer-Richard model provided by measures that explicitly take into account the nature of the voting population is a stronger blow to the model.

Meltzer and Richard [29] explicitly acknowledge the problematic nature of using median income to proxy for the income of the median voter. They use time series data from the US to test their model, and find that the relative income of the median voter does have explanatory power in explaining changes in redistributive spending. Their results indicate that the 'Wagner's Law' effect of rising GDP raising government spending needs to be qualified as they set out in their model.

Perotti [33] looks at several different measures of redistribution across countries in an investigation of the mechanisms by which inequality could affect growth, but finds little consistent relationship between inequality and redistribution. Rodgriguez [35] tries to test the Meltzer-Richard theory directly using evidence using both time series and cross sectional (across states) data from the United States and finds neither a short- nor a long-term effect of inequality on redistributive spending. However, the data he uses are economy-wide aggregates rather than measures of actual voters, and no account is given about the possibility that the median voter might be different to the economic agent with median income. For example, no attempt is made to control for either immigration or turnout, both of which we would expect to change the distribution of voters' income relative to that of taxpayers. The differences between these results seem to stem from the data sources used, and considering the quality of the data in each case it would seem that the result of no effect is ultimately the more convincing.

Indication that the distribution of voters' income does differ from the income distribution more generally, and that the mechanism may be the median voter, comes from Franzese [12], who finds that democratic governments respond to greater inequality with larger redistributive transfers where there are higher levels of aggregate political participation. He also finds the converse to be true, that increases in participation raise distributive spending disproportionately where there is greater underlying inequality. In particular, while neither the income skew nor the level of turnout on their own reach traditional levels of statistical significance in his model specification, the interaction between the two is highly significant, as is the joint hypothesis of the effect of all three variables together being different from zero. However, as Hill and Leighley point out in their study [17], turnout is not an ideal proxy for the income distribution of voters. If turnout falls from near 100%, this fall will almost certainly introduce a class bias that had not previously existed (a classic example of this is the Netherlands which abandoned compulsory voting in 1970; see Verba, Nie and Kim [37] for a summary). But around the level witnessed in countries without compulsory voting laws, it is not necessarily the case that all changes in turnout are equal in terms of their effects on the distribution of voters' income. Thus the approach taken by Franzese, while an improvement, still does not directly address the question at hand.

Thus this paper is the first to synthesize these two approaches. In particular, I explore how the fact that not everyone votes affects the distribution of income that is relevant for policy-making. From the perspective of the Meltzer-Richard model, this is an important innovation as it brings the empirical analysis one step closer to testing the model's predictions. In terms of the voter turnout literature, the synthesis is also important, since the distribution of income in the Meltzer-Richard model offers a theoretical framework for the translation of lower turnout and class bias in voting to policy, if it exists.

Unequal Turnout and the Meltzer-Richard Model

The underlying logic as to why unequal turnout would affect the Meltzer-Richard model, or why the Meltzer-Richard model might provide a mechanism by which a bias in turnout might be translated to policy bias, is outlined in figure 1. The basic intuition is that by changing the relevant population, unequal turnout will change the identity of the median voter, and thus their preferences over redistribution. The necessity of taking the change in population into account is illustrated in Figure **??**, which shows a situation where the naive measure of income inequality (the measure for the population as a whole) would predict that the median voter would prefer redistribution (median income is less than the mean), whereas the income of the median voter actually exceeds population mean income, so a median-voter determined policy would not lead to redistribution.

Empirical Results

I present empirical results in four sections. First, I show that the income distribution of voters in the US is little different from the population distribution. Second, I show that this holds more generally across countries. This is in accordance with the 'revisionist' account of bias in turnout: although at the individual level it may be the case that richer individuals are more likely to vote, at an aggregate level this has little impact. Third, I present an econometric model of redistribution in the US states as a test of the Meltzer-Richard model, with the relevant income inequality measures corrected for turnout bias. These results are not supportive either of the Meltzer-Richard model, nor of the idea that turnout might make the difference- a result unsurprising in light of the similarity of the income distributions. Finally, I present preliminary evidence suggesting that while the Meltzer-

Richard model may not hold at the level of policy outcomes, the 'demand side', whereby inequality determines preferences, finds some support. However, here too there is no robust evidence that differential turnout matters.

The Income Distribution of American Voters

I use data from the Current Population Survey (CPS)[7] from 1972 to 2004 to investigate the difference between the income distribution of voters and that of the population as a whole. I use the November Voter Supplements to simulate a population for each election year, for the population as a whole and for those who responded that they voted in the election that year. For each election year, for each state, I draw a number of individuals in proportion to the size of the income bracket in the survey (the CPS typically contains 14 gradations of income in the November survey. The CPS March files also contain reports of income in exact dollar amounts, which could be matched to the November data on voting, but due to higher levels of non-response, and artificial clustering around 'round' numbers ($0, $10000 and $20000 in particular) in these reports, I prefer the bracketed measures. The distributions calculated from the brackets lead to the straightforward calculation the measure of skew that is the relevant inequality parameter in the Meltzer-Richard model, by subtracting the median income in the simulated population from the mean income. The measure of mean income used is the same in both cases- the mean income in the population as a whole, since even those who do not vote pay taxes. The median voter's income is taken from the population of voters only. I also construct the 'naive' measure of skew, not corrected for voting behavior, for comparison.

The main finding of this project is that the income distribution of voters does not differ much from that of the income distribution of the population as a whole. Figure 3 shows the two distributions for the year 2004. While there is slight evidence that voters are better off than the population (as evidenced by greater mass in the region of income just above $100,000, and slightly less in the region from about $10,000 to $60,000, the overall picture is one of little difference. Figure 4 shows a quantile-quantile plot of the incomes of voters, the population as a whole, and non-voters. here again we see that up to around the 90th percentile, the income of voters tracks that of the population as a whole very closely. The income of non-voters is somewhat lower at each quantile,

but the smaller number of non-voters (this survey has turnout reported at rates of about 72%) accounts for the non-symmetry of the deviations. The convergence of incomes at the very top of the distribution may be an artifact of top-coding in the data, but the important aspect of the figure for our purposes is how little difference there is in the bulk of the distribution. Differences in the top decile are less important because the relevant piece of the model that is affected by turnout is the income of the median voter, which is fairly robust to differences if the top tail. The sensitivity of the mean to top incomes does not matter since the relevant measure of mean income is the mean income of all taxpayers, and this is not changed by turnout.

The Income Distribution of Voters in Comparative Perspective

Calculating the income distributions of voters in different countries presents some serious data problems. The best data on income (the LIS) contains no information on voting, and nor do many other standard sources of data. The relevant information could probably be compiled from national data sources, but there would remain questions of comparable. The approach taken here is designed to be suggestive only, given that the measures I have of turnout are very imperfect. I use the ISSP Role of Government III (1996) [21] to calculate distributions of income for 21 countries for which the data are available. The ISSP does not actually ask directly about whether the respondent voted in the last election. Thus the measures I use are somewhat indirect. The first is the question that asks of people who did not vote, what their reason for non voting was. Those who did vote are coded as such. Thus I use this an an indicator of voting. The second measure uses the question asking respondents for whom they cast their vote in the last election. Again, this question includes a response indicating that the respondent did not vote, which provides my indicator variable. In some countries only one of these two variables is available. The resulting distributions are displayed in Figures 5,6,7,8,9 and 10. Again, the most striking feature of these distributions is the similarities of the population distributions and the distributions only including those who vote. The one exception to this seems to be the US, where the distribution of voters does in fact seem to be shifted fairly significantly rightwards. However, given the limitations of these data, those from the CPS seem more convincing. However, this discrepancy may be worth further investigation.

Meltzer-Richard Implications: US State Spending in Time-Series Cross Section

Due to the limited data on cross-national income distributions of voters as compared to non-voters, the primary test of the Meltzer-Richard model that I have pursued using the appropriate income distribution (mean minus median voter income) measure is a time series, cross-sectional analysis of US states. The magnitude of the CPS survey allows for reasonable estimates of the inequality parameter from the micro-data, aggregated at the state level. I use the November Voter Supplements of the Current Population Survey [7] from 1972 to 2000 to simulate a population for each election year, for the population as a whole and for those who responded that they voted in the election that year. For each election year, for each state, I draw a number of individuals in proportion to the size of the income bracket in the survey (the CPS typically contains 14 gradations of income in the November survey. The CPS March files also contain reports of income in exact dollar amounts, but due to higher levels of non-response, and artificial clustering around 'round' numbers ($0, $10000 and $20000 in particular) in these reports, I prefer the bracketed measures. The distributions calculated from the brackets lead to the straightforward calculation the measure of skew that is the relevant inequality parameter in the Meltzer-Richard model, by subtracting the median income in the simulated population from the mean income. The measure of mean income used is the same in both cases- the mean income in the population as a whole, since even those who do not vote pay taxes. The median voter's income is taken from the population of voters only. I also construct the 'naive' measure of skew, not corrected for voting behavior, for comparison.

The drawback of comparing states as opposed to nations is the potential for a lack of variation on the dependent variable. However, the individual U.S. states are responsible for two of the most important programs of redistribution, Supplemental Security Income (SSI) and 'welfare': Aid to Families with Dependent Children (AFDC) and Temporary Aid to Needy Families (TANF) after 1996. These programs constitute a significant proportion of the redistributive effort made in the United States, and there is considerable variation in the generosity of benefits across states. In 2004 the average monthly TANF payment to a family with three children was $420, but levels ranged from $170 to $923 [26]. There is also a large degree of variation in total state expenditure. Since this captures all the services provided by the state, to the extent that these are 'lump sum' benefits paid for through proportional taxation, this is a better measure of the 'redistribution' that the

Meltzer-Richard model seeks to explain. Thus this is my preferred measure, even though it may be less 'redistributive', as commonly understood, than the more targeted public welfare expenditures.

Thus I estimate the model with these two measures of the dependent variable: per capita state spending on public welfare, and total state government expenditure per capita. The difference between the two measures is that the latter includes many public goods which are not direct transfers to individuals. Not all of these will benefit the poor, (spending on highways, for example) but the additional spending will tend to be redistributive for two reasons. First, the direct intuition from the Meltzer-Richard model, is that any benefit provided equally to all and financed from a progressive tax is redistributive. Second, the poor may benefit *more* from public goods which are provided in equal measure to all, since the rich are more likely to take advantage of private substitutes. In particular, expenditures for housing and community development, parks and recreation, education, health and hospitals are expenditures included in total spending which are likely to benefit the poor disproportionately. In terms of adhering directly to the terms of the theoretical model, the total expenditure model is to be preferred, since it is precisely these lump-sum benefits which the model concerns. Public welfare spending, by contrast, is likely to be targeted to those poorer than the median voter, and thus exhibit a different logic with respect to voting and inequality than the one envisaged by the model. However, this latter variable captures everyday notions of 'redistribution' better than the broader expenditure measure, thus I include results for both variables. The data for both of these variables come from the Statistical Abstract of the United States [8] for various years, as do the data on the proportion of the population over age 65 and the unemployment rate.

In contrast to the limited variation that the US states may provide on the dependent variable, to some extent this kind of comparison may be more tenable since the maintained assumption that the relationships between the variables (whatever they turn out to be) are in fact generated by the same underlying processes is easier to defend given more similar units of observation. The second important implicit assumption in using a pooled cross-section is that the relevant relationships are constant across time. Since the theory relating inequality to redistribution is highly abstract, and is relies predominantly on the assumption that individuals are trying to maximize their income, this aspect does not seem too problematic (although there is a literature on the emergence

of post-materialist voting [20], much recent scholarship [28],[3] indicates that the importance of voting according to economic interests has not declined in the U.S. However, there is one caveat. The benefits of redistribution to the median voter depends on the efficiency of the taxation system, as the disincentive effects of high marginal rates for the rich may limit output, harming even the poorest in the population. Thus if the system of taxation has become more efficient over time (efficient in the technical sense of raising the same revenue for a smaller cost in terms of output foregone), this could undermine the assumption of a stable relationship over time, which would render pooling the repeated cross sections inappropriate. Arguably this has indeed been the case in the U.S. in the last thirty years. I will ignore this potential spoiler for now.

The model I estimate is a multivariate one, where for each state (indexed $i = 1, ..., N$) for each year (indexed $t = 1, ..., T$), redistributive spending is given by:

$$y_{it} = \alpha + \phi y_{i,t-1} + \beta_1(\text{inequality})_{it} + \beta \mathbf{X_{it}} + \varepsilon_{it},$$

where the $\beta \mathbf{X_{it}}$ are the relevant control variables that must be included to isolate the relationship between inequality and redistribution. Ideally, given the theoretical model, the model would be estimated in levels. However, since all the variables show some degree of non-stationarity over time, this presents a problem. My initial time-series analyses could not reject the null hypotheses that each of the variables is non-stationary in levels, nor did they show evidence of cointegration at traditional significance levels. Differencing the variables resulted in data that can be well modeled by stationary time series, but this implies investigating the relationships between changes in the independent variables and dependent variables:

$$\Delta y_{it} = \alpha + \phi \Delta y_{i,t-1} + \beta_1(\Delta\text{inequality})_{it} + \beta \mathbf{\Delta X_{it}} + \varepsilon_{it}.$$

I present the results of both models, noting that while the models in changes are much to be preferred from a statistical standpoint, they do depart from the exact scope of the theoretical model.

I follow the literature and Beck and Katz (1995)[4] and use ordinary least squares regression (OLS) with panel corrected standard errors. To account for the time-dependency of the outcome variable,

the lagged dependent variable is included in the right hand side. One lag turns out to be ensure that the errors are (conditionally) temporally independent, which is no that surprising given that one lag in the dependent variable is a lag of two years. Given the dimensions of the data ($N = 50$, $T = 16$), such methods specifically for time-series cross-sectional data perform usually better and almost never worse than econometric methods used in panel data. For the sake of robustness checking, I also estimate the model in levels using a lest squares dummy variables (LSDV) estimator. The model is:

$$y_{it} = \alpha_i + \phi y_{i,t-1} + \beta_1 (\text{inequality})_{it} + \beta \mathbf{X_{it}} + \varepsilon_{it}.$$

The LSDV estimator allows for heterogeneity in means for each state, constant through time, by including a series of dummy variables for each geographical unit. This estimator is biased, since it effectively demeans the variables using a mean estimated from all the time periods, introducing a correlation between the demeaned lagged dependent variable and the demeaned error term. However, in terms of trading off bias and root mean squared error, in typical TSCS data the LSDV estimator outperforms many alternative estimators (see Beck and Katz (2004) and the references therein)[5].

The matrix of control variables in each case includes: gross state product per capita; union members as a percentage of non-agricultural wage and salary workers (including public sector workers); the unemployment rate; the proportion of the population older than 65 years; and the proportion of the state's population that is African American. State product is included to capture the effects of 'Wagner's Law' that growing government expenditure is a result of economic progress. Union membership has been shown to be important in the determination of the size of welfare states cross-nationally: the differential mobilization and organization of labor being a key explanatory variable in the power resources theory of welfare state development [25]. The data for gross state product come from the Bureau of Economic Analysis [2], and is estimated as the sum of the costs incurred and incomes earned in the states' production divided by the population of the state in the same year, while data on union membership come from Hirsch, MacPhereson and Vroman's estimates from the CPS [18].

The other key variable in power resources theory is the political power of socialist or leftist parties in government [19]. In my initial analyses I included a dummy variable for the partisanship of the incumbent governor leading up to the election-year observation. However, it never had any significant effect, thus I omit it in the results presented here. Furthermore, there are theoretical reasons to doubt that U.S. partisan incumbency would have the same important effect on redistributive effort, as compared to the parties in Western Europe, which is the focus of the literature that finds an important effect. First, neither of the American parties can truly be characterized as a party of the left, or a social democratic party, and it is the incumbency of social democrats which is found to be important in the European literature. Second, political parties in the U.S. are far less cohesive, coherent entities than their European counterparts [23]. This is particularly pronounced at the state level, since to be a Democrat in one state or region can mean a very different platform from the party platform of another state's Democratic party. This is particularly pronounced with respect to the historical difference between Northern and Southern democrats, but it remains a more general point. Divergence in party strategies within the parties makes incumbency a far weaker predictor of outcomes.

The unemployment rate is likely to be positively related to redistribution for mechanical reasons: as unemployment increases, the population eligible to receive transfer benefits is likely to increase. For this reason it is included as a control. Note though that this effect is likely to be much stronger in the cases of transfers and public welfare expenditure than in total expenditures, which are less likely to have this mechanism at work, and may remain stable as other projects are cut to finance higher levels of unemployment. Similarly, since much government spending is directed toward the elderly, an increasing elderly population may increase expenditure. At the state level this is less pronounced than federal expenditure (the latter includes the bulk of Social Security and Medicare expenditure), but nevertheless SSI and other medical spending are two examples of why a large elderly population is likely to lead to greater spending. Demographic change may also have a more complicated effect. Since the elderly are disproportionately likely to vote than the population as a whole, a higher proportion of elderly people may lead to different patterns in the relationship between voting and income than we would otherwise expect, and perhaps increase political pressure for redistribution (if the elderly are more likely to be poorer) as well as working via the mechanical

effect on expenditures. On the other hand, a high proportion of elderly residents has been shown to depress education spending, particularly when the children receiving schooling are of a different ethnic group than the elderly [34]. Thus the effect of the proportion elderly may depend on the nature of redistributive spending.

Finally, I include the proportion of the state population that is African-American to capture the possibility that this diversity affects redistributive generosity. Alesina and Glaeser [1] maintain that a large portion of the difference between US redistributive effort and the higher levels found in Western Europe is accounted for by greater racial diversity in America, and that this association is repeated at the state level in the United States. Austen-Smith and Wallerstein demonstrate that this outcome can prevail even when people have 'color-blind' preferences, where affirmative action is an alternative to redistribution as a policy dimension in aid of minorities [10]. There is also a strong relationship in American public opinion, which reveals little support for welfare when it is associated with African American recipients [14].

One other variable which is accorded some importance in the international comparative literature is the degree of openness of the economy to international trade and competition. Katzenstein [24] argues that small, open economies develop industrial policies to shelter workers from the higher risks that international exposure brings. However, the accuracy of this link is disputed convincingly by Rodrik [36], and while data are available on international trade, the relevant risks that state-level policy would need to insure, under this argument, include the risks associated with higher levels of inter-state trade within the U.S. In the absence of such data I do not include this variable in the analysis.

Results

As outlined above, I estimate two different specifications (changes and levels), and two different estimators (OLS and LSDV), for both of the dependent variables (public welfare spending per capita and total state expenditure per capita). Each of these is estimated using both the naive measure of skew and the measure corrected for turnout. The results are very similar across the two estimators

thus I do not report those for the LSDV estimator. Across the two estimators the significance and magnitude of the coefficients on inequality are qualitatively identical. The only difference is that the effects of unemployment and population over 65 are no longer significant in the LSDV models estimated in levels. This is likely because they trend only very gradually through time and this variation is captured by the unit-specific means. Overall, the results are fairly consistent across specifications, and indicate that while inequality thus measured may have a statistically significant positive effect on government spending on redistribution, the *substantive* magnitude of the effect is tiny. Tables 1 and 2 present the regression results.

The tables show coefficients which represent the effect in dollars on the dependent variable of a $1000 change in GSP per capita, the lagged dependent variable or the measures of skewness, and for a 1% change in either unionization, the unemployment rate or the proportion of the population over 65 years of age. There are a few notable things about the results with respect to the control variables. First, GSP per capita has the predicted sign in all cases, and is significant in three of the four specifications for both measures of inequality (models 1c, 1d, 2a,2b,2c and 2d). That it has no effect in the models for changes in public welfare spending is not that surprising when we consider that in periods of growth, there are fewer people in need of public welfare spending, although increased tax receipts, among other things, ensure that total expenditure still rises. In terms of levels, however, variation in unemployment comes less from year-to-year growth but from differences across states, and here therefor it is the case that richer states are able to provide more generous benefits, in accordance with Wagner's Law. Unionization rates are significant in only two of the eight models, and are signed inconsistently in the remaining six. The absence of strong union pressure for higher levels of redistributive spending may be a result of the weakness of U.S. labor in general, such that even in highly unionized states members cannot push for benefits to labor as has been shown to be the case in Europe. Alternatively it may be that even where unions remain numerically strong in the period since 1972 they limit their demands on governments in the face of increasingly hostile attitudes of business and the public at large. Of course, much of this is speculation and making the argument that this is indeed the case would be a task for future research.

Unemployment has a consistently positive and significant effect on public welfare spending, but

not on general expenditures; this is in line with theoretical predictions. The proportion of elderly people in the population is complicated, confirming the ambiguous theoretical predictions. First, it is the only coefficient that is sensitive to the inclusion of the proportion of African Americans in the state, which coincides with Poterba's findings on education spending. In models 1a and b, and 2a, b, c, and d, the proportion of old people in the population has a negatively signed coefficient, and in the models estimated in changes it is a large effect. This may be accounted for by the fact that most state-level spending is not directed toward the elderly, but rather provides education and transfers to younger people. The effect of the size of the black population of the state runs counter to theoretical prediction when considering changes, but is in accordance with the theoretical literature when considering levels. This could be due to some lags in timing, however it might also point to a mis-specification of the model, particularly given the distinctiveness of the American South in terms both of redistribution and black population. The levels effect of proportion black may be picking up an anti-redistributive legacy of Southern institutions and attitudes rather than the mechanisms identified in the theoretical discussion.

The lagged dependent variable is significant in levels for both dependent variables, but insignificant in estimating changes. The interpretation of the coefficient on the lagged dependent variable in changes is that it measures the extent to which a change in expenditure is followed by a continued change (in the same direction), thus is is not too surprising that it is not an important variable in these specifications. In levels, the conclusion that high spending in one year leads to high spending the next is unsurprising, but the lagged dependent variable is necessary to model the temporal dependence in the data. the coefficients on unemployment are interesting, as its effects are consistently significant and positive in determining public welfare spending per capita, and consistently negative but insignificant in predicting total expenditure. One possible explanation for this would be that there is a mechanical translation of higher unemployment to higher direct transfers, since more people are eligible for benefits, but at the same time unemployment limits state resources, which ultimately must come from taxation, and thus constrains total expenditure.

However, the important results for testing the Meltzer-Richard model are the coefficients on the inequality measures. There are three aspects to these results. First, inequality is generally

significant and positive, as predicted. Second, however, it is consistently associated with only a tiny substantive effect, despite being precisely estimated. For a $1000 increase in the rate of change of inequality, the rate of change of public welfare spending increases by about one-tenth of a cent. Alternatively in levels, an increase of $1000 in the difference between the mean income and that of the median voter, total expenditure per capita increases by one and a half cents. The average rate of change of Meltzer-Richard skew from one period to the next is $3663, this amounts to an average increase of less than half a cent per period in increasing the rate of change of public welfare spending, and four and a half cents in the rate of increase of total spending. The estimates from the models in levels indicate that moving from the 25th to the 75th percentile inequality levels (a move of one and a quarter standard deviations of that variable) would lead to only a $412 increase in total expenditure, 0.2 standard deviations of the dependent variable. Third, and most importantly for this project, there is never any qualitative difference between the naive measure of inequality and the measure correcting for turnout. All of these results are fairly robust to the model specification.

Meltzer-Richard Implications: Preferences on Redistribution in Comparative Perspective

One advantage of the ISSP data in considering the effect of turnout on the preferences of the median voter is that it does allow us to directly consider preferences rather than redistributive outcomes, which are likely to be affected by many other factors also. These factors (unionization, left party government etc) may still be important, but is likely to be less important for the determination of preferences than in determining actual redistribution. Figure 11 shows the effect of income skew on population level preferences. The dependent variable here is the percentage of respondents within the country answering "definitely should be" or "probably should be" to the question

> On the whole, do you think it should be or should not be the governments responsibility to: Reduce income differences between the rich and poor.

The figure reveals a positive relationship between inequality and support for redistribution, as predicted by the Meltzer-Richard model, but there is wide variation around this trend, and further the relationship appears to be non-linear. This non-linearity seems to be driven by the fact that, by these measures of inequality, the USA, New Zealand, Australia and Japan score in the middle

range on inequality and have low support for redistribution.

Figures 12 and 13 show the difference between the preferences of the median income individual and the median income voter, by two measures. Figure 12 shows the percentage of individuals in the median income quintile who support government redistribution, analogous to the aggregate measure.This figure does provide support for the contention that turnout makes the difference to the Meltzer-Richard model: for the population as a whole, support for redistribution is (albeit very weakly) increasing in the skew of income. However in the right hand panel where only those who voted are considered, the relationship does become negative (and also support for redistribution is generally lower). However, this result is not robust to a slightly different definition of the median. Figure 13 shows the average answer to the same question as above from all voters who report income equal to the median income (population or voters) in their country, where the response that the government "definitely should" reduce income differences between rich and poor is coded as 4, "probably should" as 3, "probably should not" as 2, and "definitely should not" as 1. Here the positive relationship between income skew and preferences over redistribution is amplified when turnout is taken into account.

The overall impression of these results is that, on the whole, turnout cannot account for the discrepancy between the Meltzer-Richard model and empirical observation. However, the results in terms of preferences actually show exactly the relationship that the Meltzer-Richard model predicts. Thus it may be worth considering that the 'demand side' of the Meltzer-Richard model, operating from the distribution of income to individual level preferences (and the preferences of the median voter) holds, but it is on the policy 'supply side' that the model fails. That is, the translation of preferences into policy is where the simplifying assumptions of the Meltzer-Richard model are too restrictive.

Discussion, Conclusion

In conclusion, it seems that unequal turnout does not provide the explanation for the Robin Hood paradox, since there is little difference between the income distributions of those who vote as compared to the populations they represent. This is not the fatal assumption in the Meltzer-Richard

model.

However, in trying to investigate this across countries, I find that the Meltzer-Richard effect of inequality increasing redistribution, does seem to hold in the context of individual preferences over policy. Thus it is likely in the translation from preferences to policy that the 'problem' with the Meltzer-Richard model emerges. This is hardly surprising given the lack of any model of politics in the model. These results also indicate that unequal voter turnout is hardly 'democracy's unresolved dilemma', since the preferences, and outcomes based on the voter population are unaffected by explicitly modeling turnout. Nevertheless, some 'dilemma' remains, to the extent that if the preliminary findings here- that preferences do track the predictions of the Meltzer-Richard model- hold, then the lack of congruence between these preferences and policy outcomes raises questions as to how these preferences are aggregated and channeled into policy.

Figures & Tables

	1a Changes	1b Changes	1c Levels	1d Levels
Intercept	58.5***	57.8***	−60.9***	−60.0***
	(5.4)	(5.4)	(17.6)	(17.7)
M-R Skew	**.00089****		**−.00019**	
	(.0004)		**(.0003)**	
Naive Skew		**.00092****		**−.00013**
		(.0004)		**(.0003)**
GSP/capita	0.68	0.86	2.9***	2.8***
	(1.9)	(1.9)	(.59)	(.61)
Unionization (%)	3.7**	3.7**	−.38	−.40
	(1.7)	(1.7)	(.32)	(.32)
Unemployment (%)	7.5***	7.8***	4.3***	4.4***
	(1.7)	(1.7)	(1.3)	(1.2)
Population 65+ (%)	−25.0***	−25.0***	3.8***	3.8
	(9.5)	(9.5)	(1.0)	(1.1)
Population Black (%)	22.4***	22.3***	−0.23	−0.24
	(6.5)	(6.6)	(0.26)	(0.27)
Lagged DV	26.7	26.8	1010***	1009***
	(45.7)	(45.5)	(23.0)	(23.2)

Table 1: OLS estimates. Dependent Variable (DV) is Public Welfare Spending per Capita. Independent variables in 000s, except proportions. Panel Corrected Standard Errors in parentheses. Significance levels: *** 0.01, ** 0.05, * 0.1.

	2a Changes	2b Changes	2c Levels	2d Levels
Intercept	359***	355***	422***	364**
	(39.8)	(40.4)	(162)	(159)
M-R Skew	**.014*** **		**.016*** **	
	(.005)		**(.003)**	
Naive Skew		**.013*** **		**.014*** **
		(.004)		**(.003)**
GSP/capita	36.4**	39.5**	21.0***	22.0***
	(15.6)	(15.5)	(5.5)	(5.6)
Unionization	15.1	15.7	−3.03	−1.76
	(11.1)	(11.1)	(3.1)	(3.1)
Unemployment	−1.8	−1.9	−3.5	−2.6
	(11.6)	(12.1)	(9.1)	(9.0)
Population 65+	−494.5***	−497.6***	−26.4***	−25.7**
	(76.2)	(76.5)	(10.0)	(9.9)
Population Black (%)	240.6***	242.1***	−6.12**	−6.08**
	(45.2)	(45.4)	(2.7)	(2.7)
Lagged DV	21.7	20.7	835.4***	838.8***
	(27.1)	(26.8)	(24.2)	(23.8)

Table 2: OLS estimates. Dependent Variable (DV) is Total Expenditure per capita. Panel Corrected Standard Errors in parentheses. Significance levels: *** 0.01, ** 0.05, * 0.1.

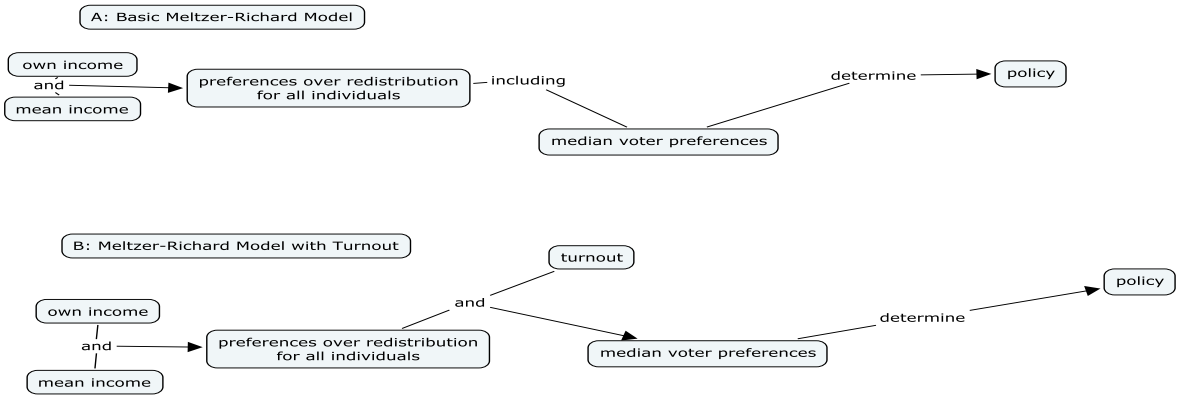

Figure 1: In the basic model, the median voter is 'automatically' determined by individual income. In model B, who the median is will depend on who turns out to vote. This will mean that the preferences of the actual median voter may not be the preferences of the individual with median income. The latter we would still expect to be increasing in equality, but the effect of inequality on the former would depend on how inequality affects turnout and the income bias to turnout. Thus we would see a divergences of the preferences of the MV from the median person. This is in contrast to a model where voting is egalitarian but the rich have other ways to influence policy. There the bias toward the rich would intervene between 'median voter preferences' and 'policy', and we would not necessarily see a divergence of preferences between the median voter and the median individual.

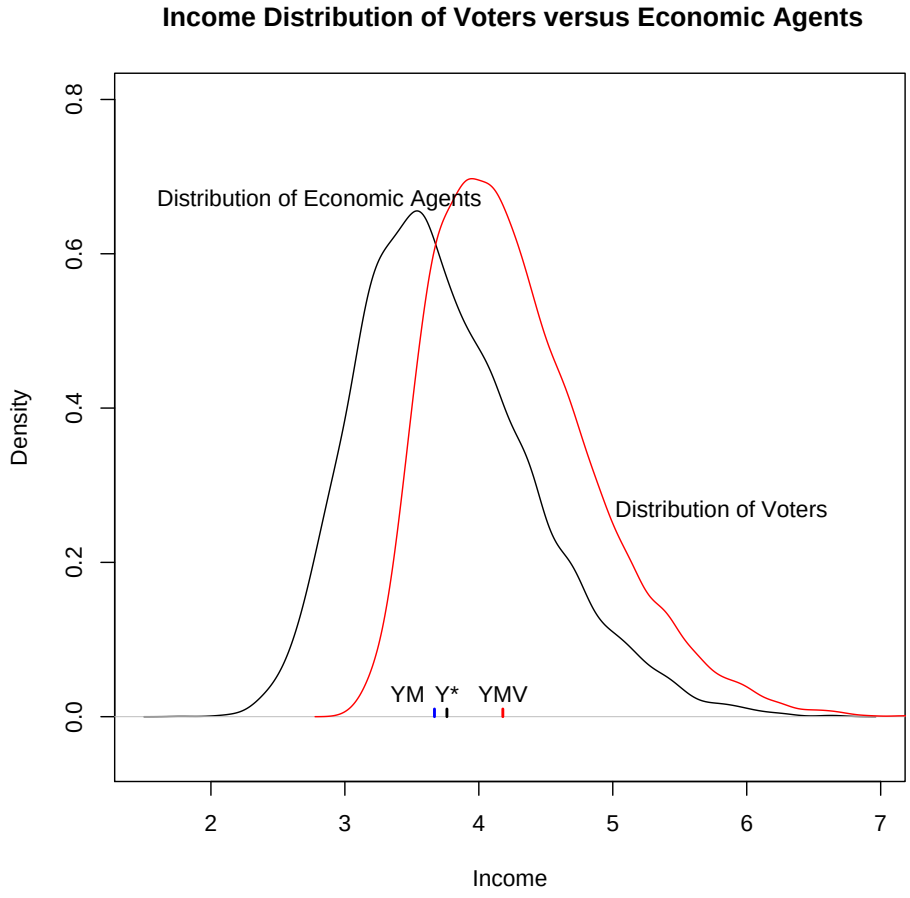

Figure 2: The Difference Between Median Income and Median Voter Income in (Approximate) Skewed Normal Distributions Where Income of Voters is More Skewed than Population Income. YM is median income of the population, Y^* is population mean income, and YMV is the income of the median voter.

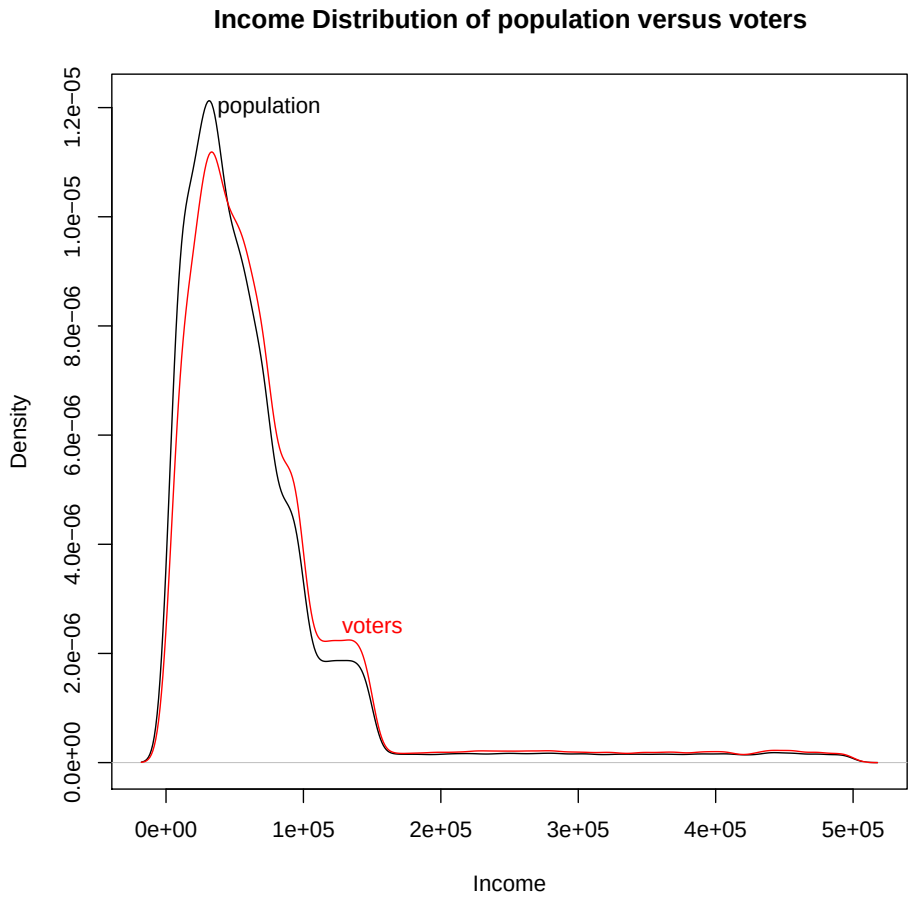

Figure 3: US distributions of income for voters and the population as a whole. Data: CPS November Voting Supplement, 2004

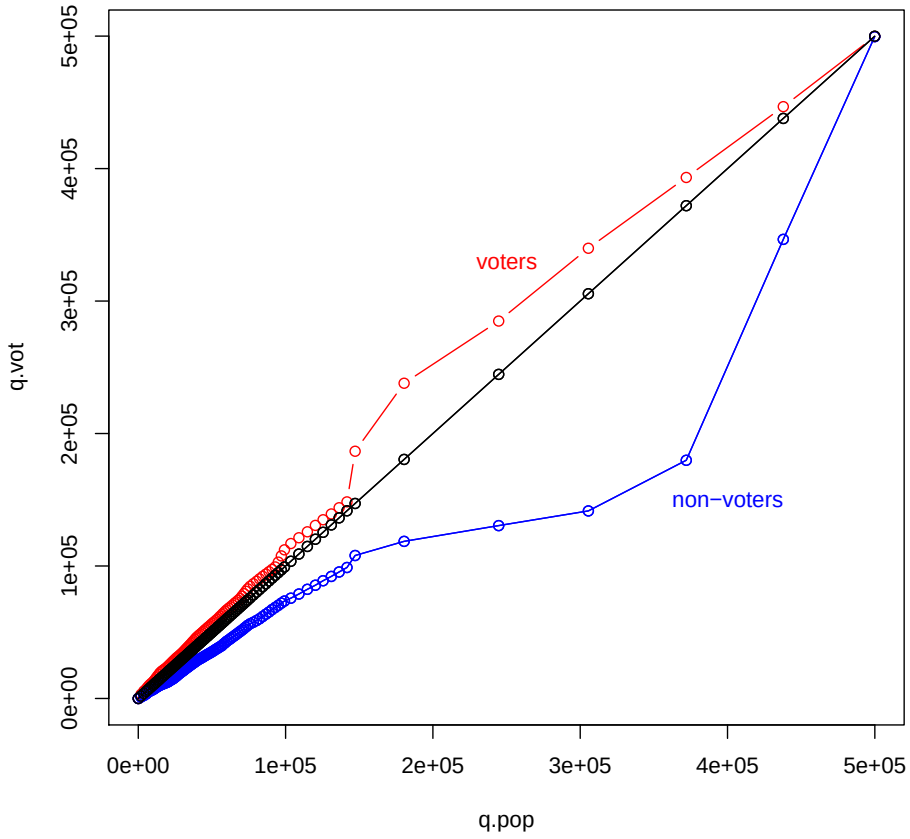

Figure 4: Quantile-quantile plot of incomes: population versus voters and non-voters. Data: CPS November VotingSupplement, 2004. Note that the real divergence between voters and non-voters (and the population as a whole) occurs only at the very highest quantiles of the distribution- above about the 90th percentile.

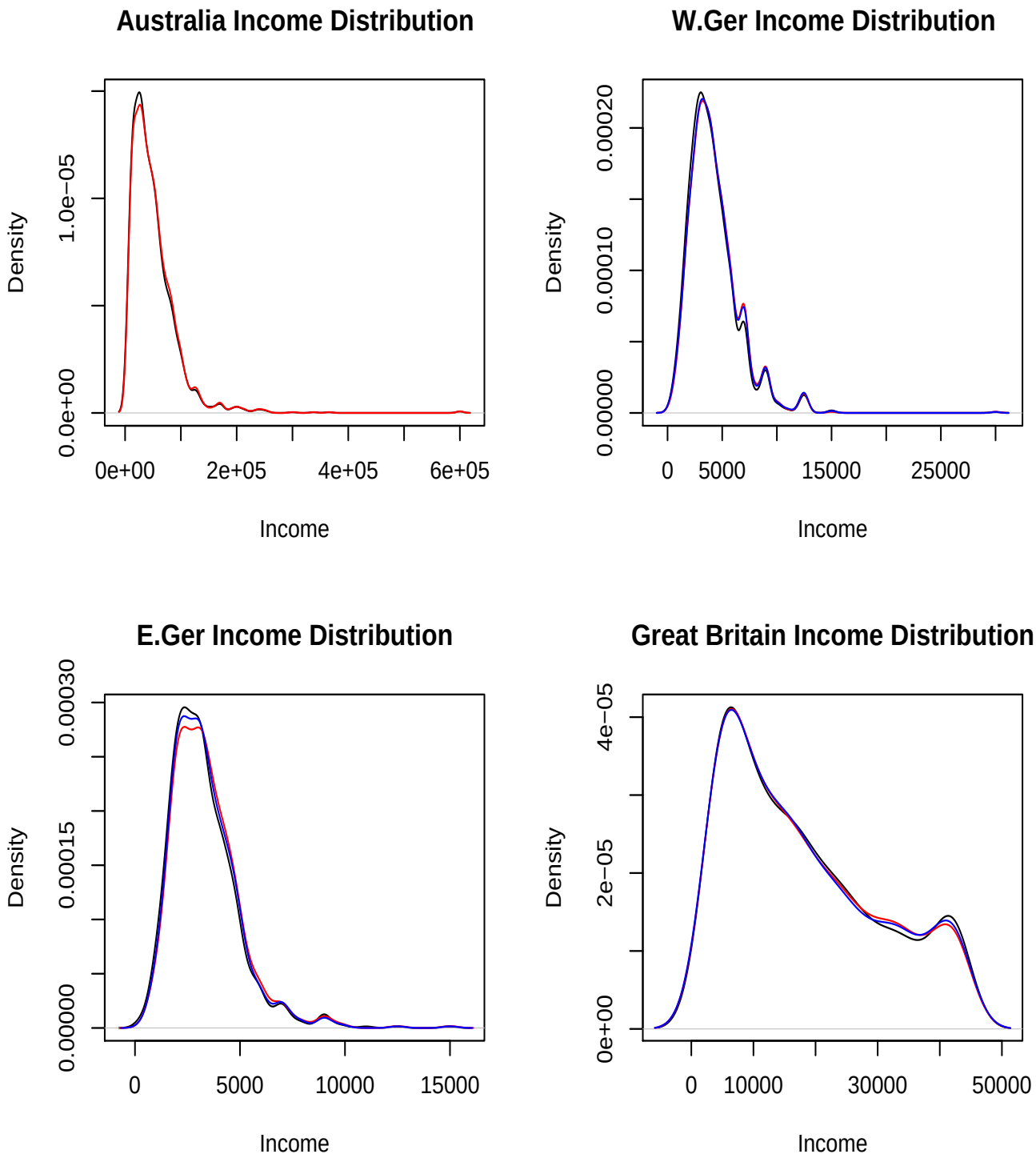

Figure 5: Black lines indicate the distribution of income in the population as a whole; red lines the distribution of those classified as voters by the 'reasons for not voting' question; blue lines those who voted according to the 'what party did you vote for' question.

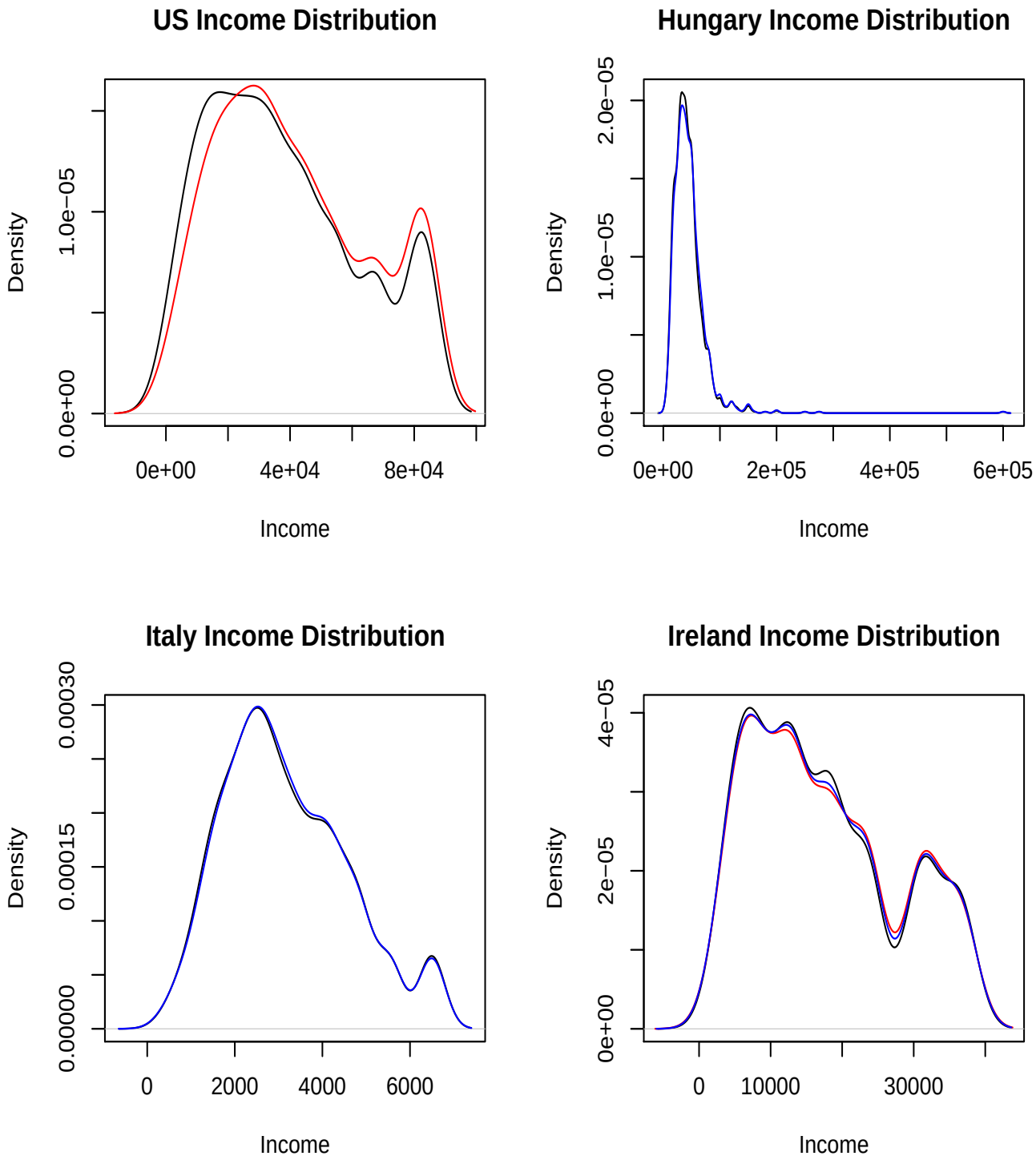
US Income Distribution
Density
0.0e+00
1.0e−05
0e+00
4e+04
8e+04
Income
Hungary Income Distribution
Density
0.0e+00
1.0e−05
2.0e−05
0e+00
2e+05
4e+05
6e+05
Income
Italy Income Distribution
Density
0.00000
0.00015
0.00030
0
2000
4000
6000
Income
Ireland Income Distribution
Density
0e+00
2e−05
4e−05
0
10000
30000
Income

Figure 6:

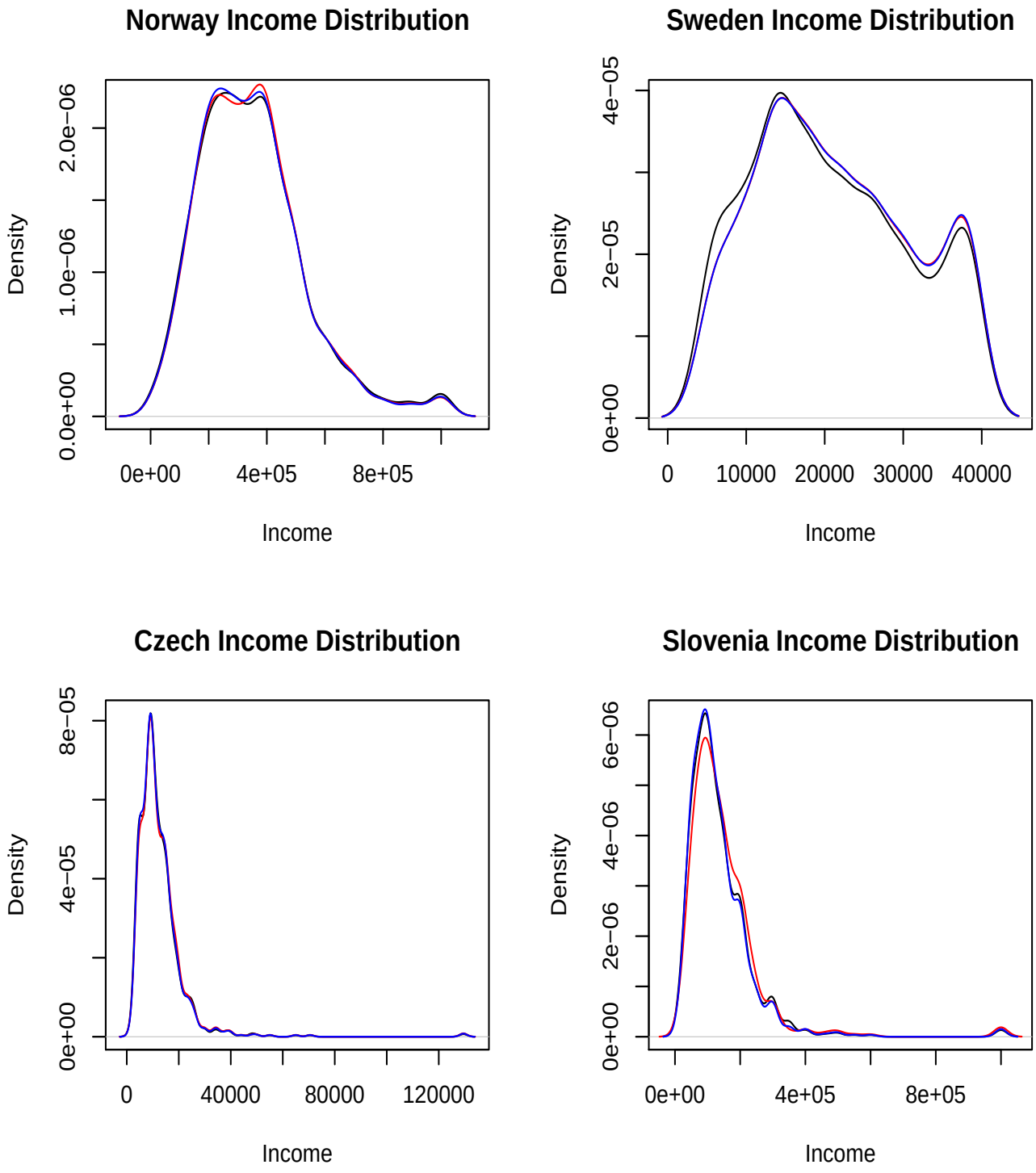
Norway Income Distribution
Density
0.0e+00
1.0e−06
2.0e−06
0e+00
4e+05
8e+05
Income
Sweden Income Distribution
Density
0e+00
2e−05
4e−05
0
10000
20000
30000
40000
Income
Czech Income Distribution
Density
0e+00
4e−05
8e−05
0
40000
80000
120000
Income
Slovenia Income Distribution
Density
0e+00
2e−06
4e−06
6e−06
0e+00
4e+05
8e+05
Income

Figure 7:

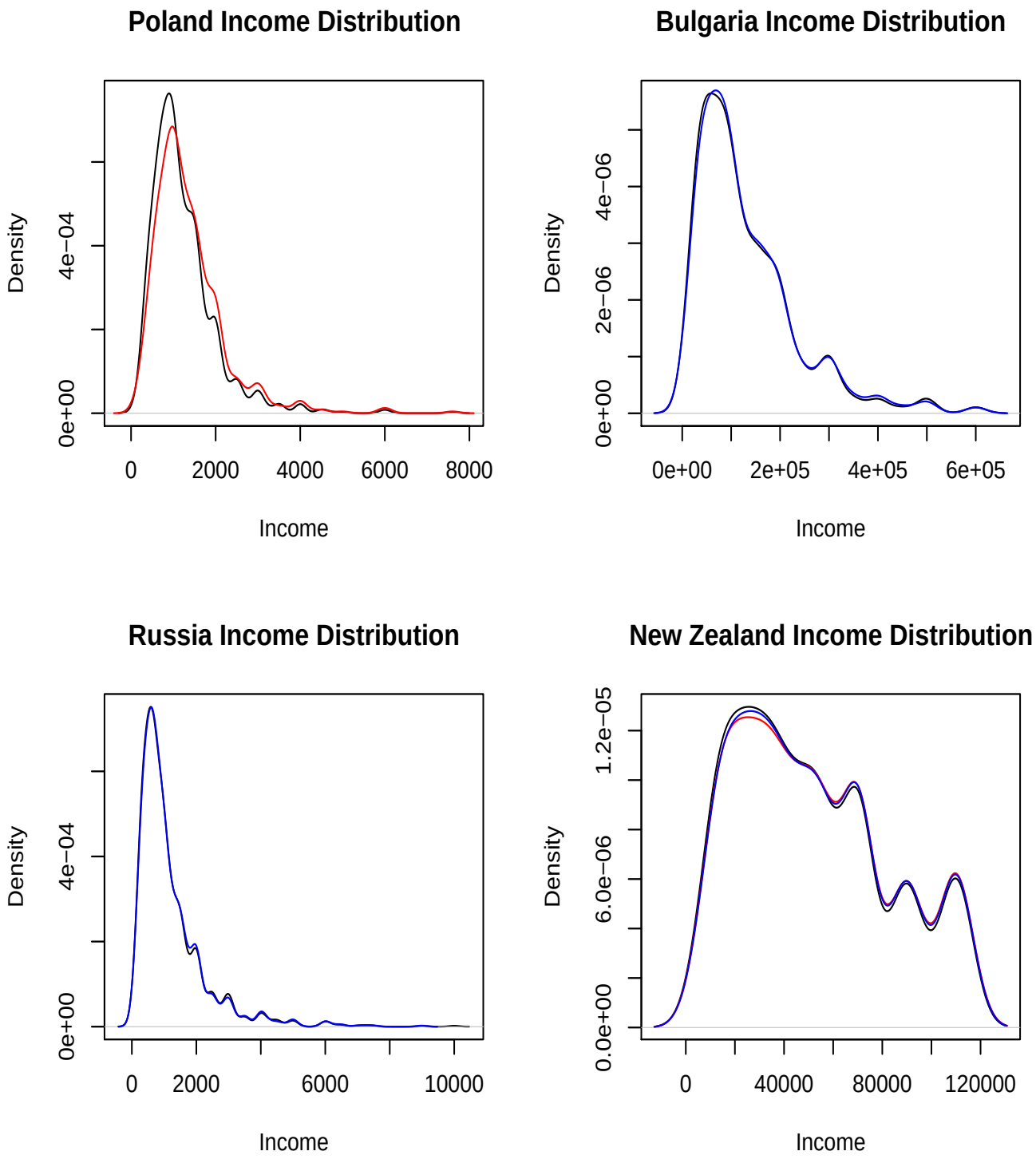
Poland Income Distribution
Density
0e+00
4e−04
0
2000
4000
6000
8000
Income
Bulgaria Income Distribution
Density
0e+00
2e−06
4e−06
0e+00
2e+05
4e+05
6e+05
Income
Russia Income Distribution
Density
0e+00
4e−04
0
2000
6000
10000
Income
New Zealand Income Distribution
Density
0.0e+00
6.0e−06
1.2e−05
0
40000
80000
120000
Income

Figure 8:

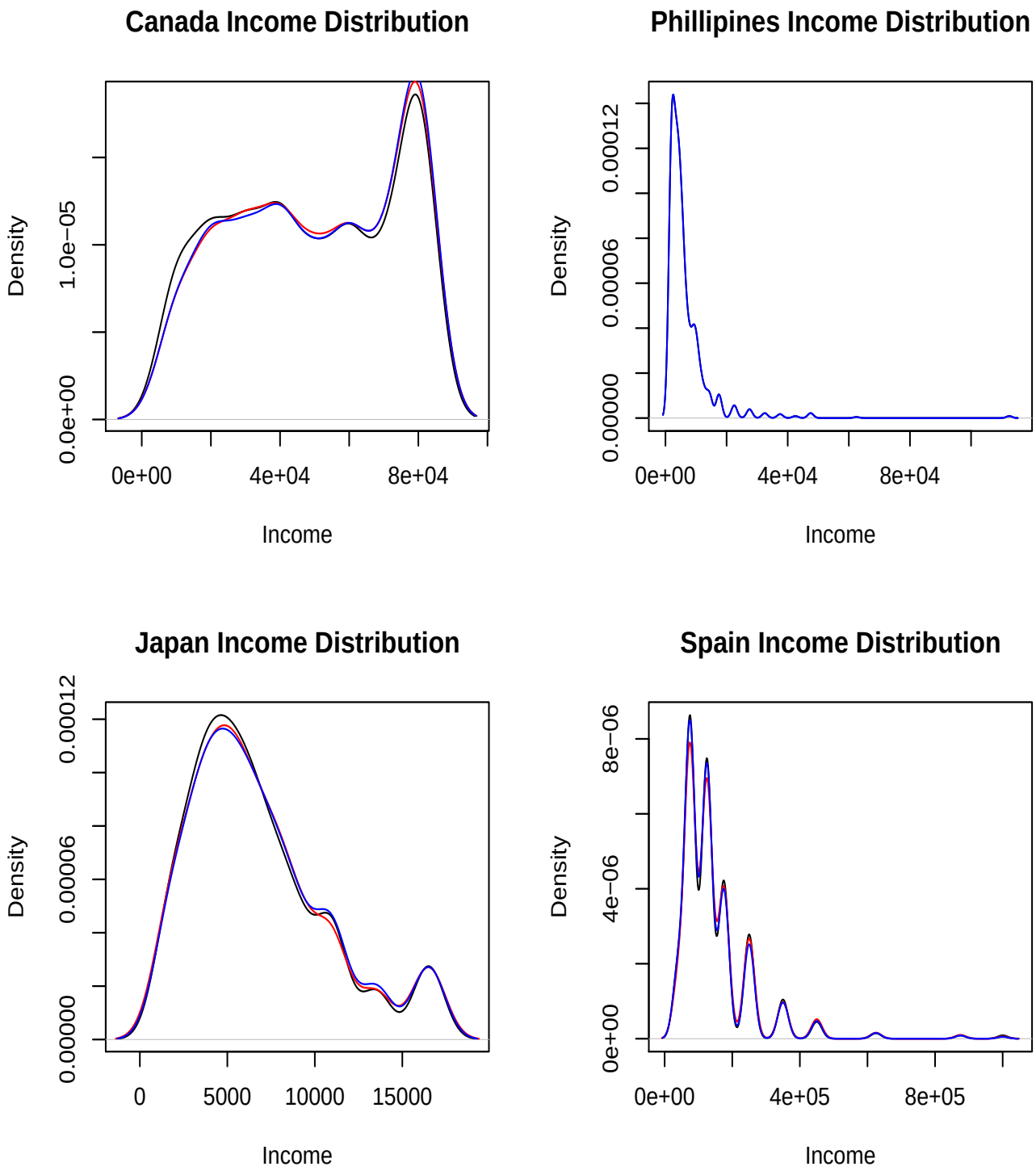
Canada Income Distribution
Density
0.0e+00
1.0e−05
0e+00
4e+04
8e+04
Income
Phillipines Income Distribution
Density
0.00000
0.00006
0.00012
0e+00
4e+04
8e+04
Income
Japan Income Distribution
Density
0.00000
0.00006
0.00012
0
5000
10000
15000
Income
Spain Income Distribution
Density
0e+00
4e−06
8e−06
0e+00
4e+05
8e+05
Income

Figure 9:

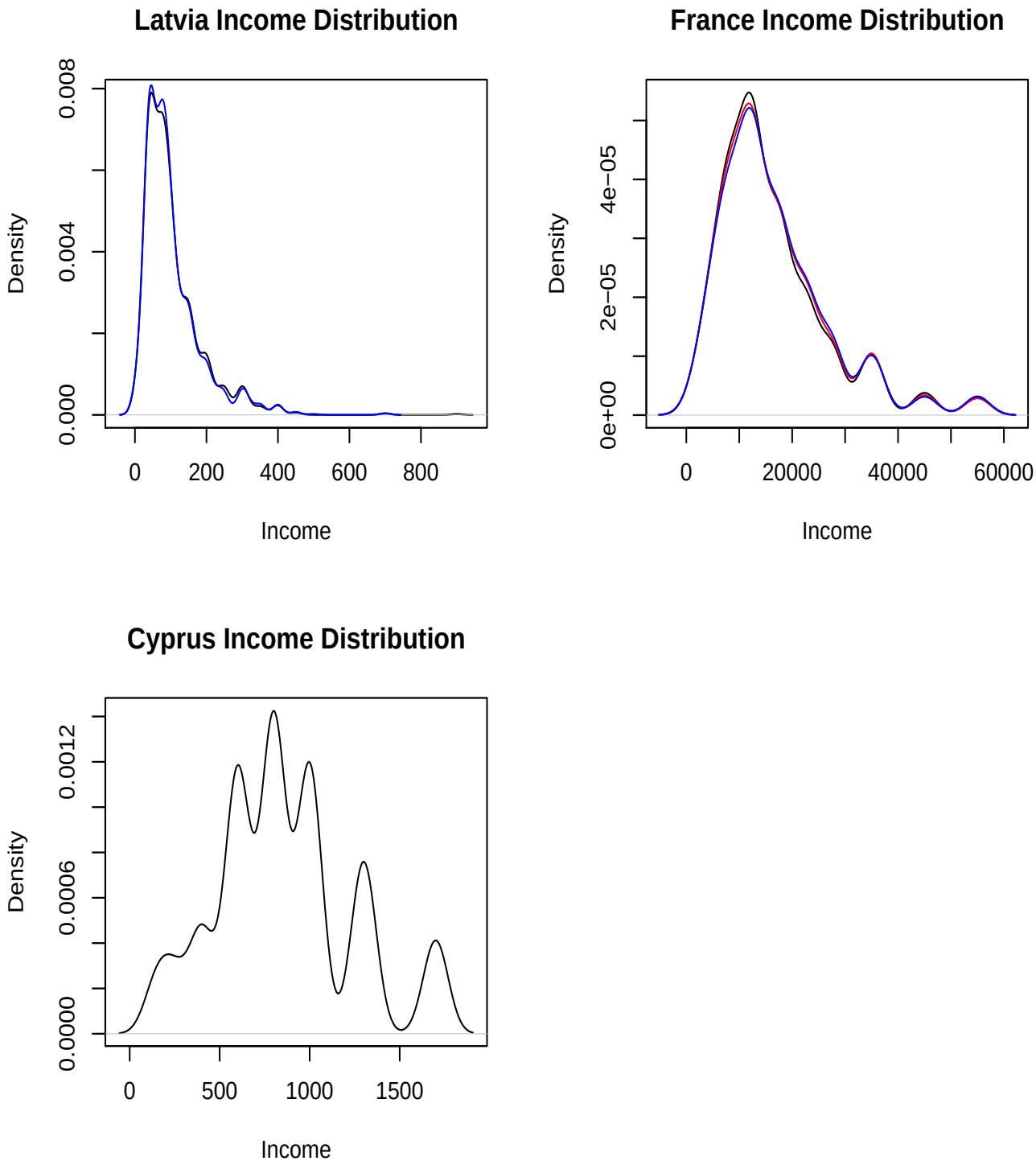
Latvia Income Distribution
Density
0.000
0.004
0.008
0
200
400
600
800
Income
France Income Distribution
Density
0e+00
2e−05
4e−05
0
20000
40000
60000
Income
Cyprus Income Distribution
Density
0.0000
0.0006
0.0012
0
500
1000
1500
Income

Figure 10:

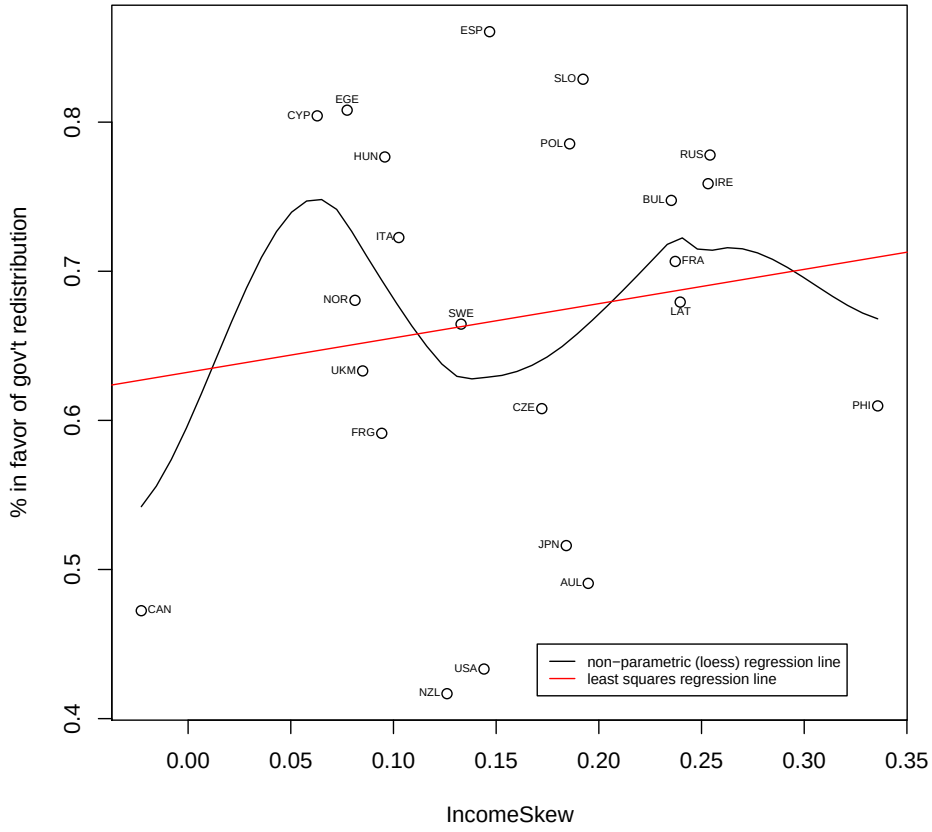
ESP
SLO
EGE
CYP
POL
HUN
RUS
IRE
BUL
ITA
FRA
NOR
SWE
LAT
UKM
CZE
PHI
FRG
JPN
AUL
CAN
USA
NZL
non−parametric (loess) regression line
least squares regression line
% in favor of gov't redistribution
IncomeSkew
0.4
0.5
0.6
0.7
0.8
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35

Figure 11:

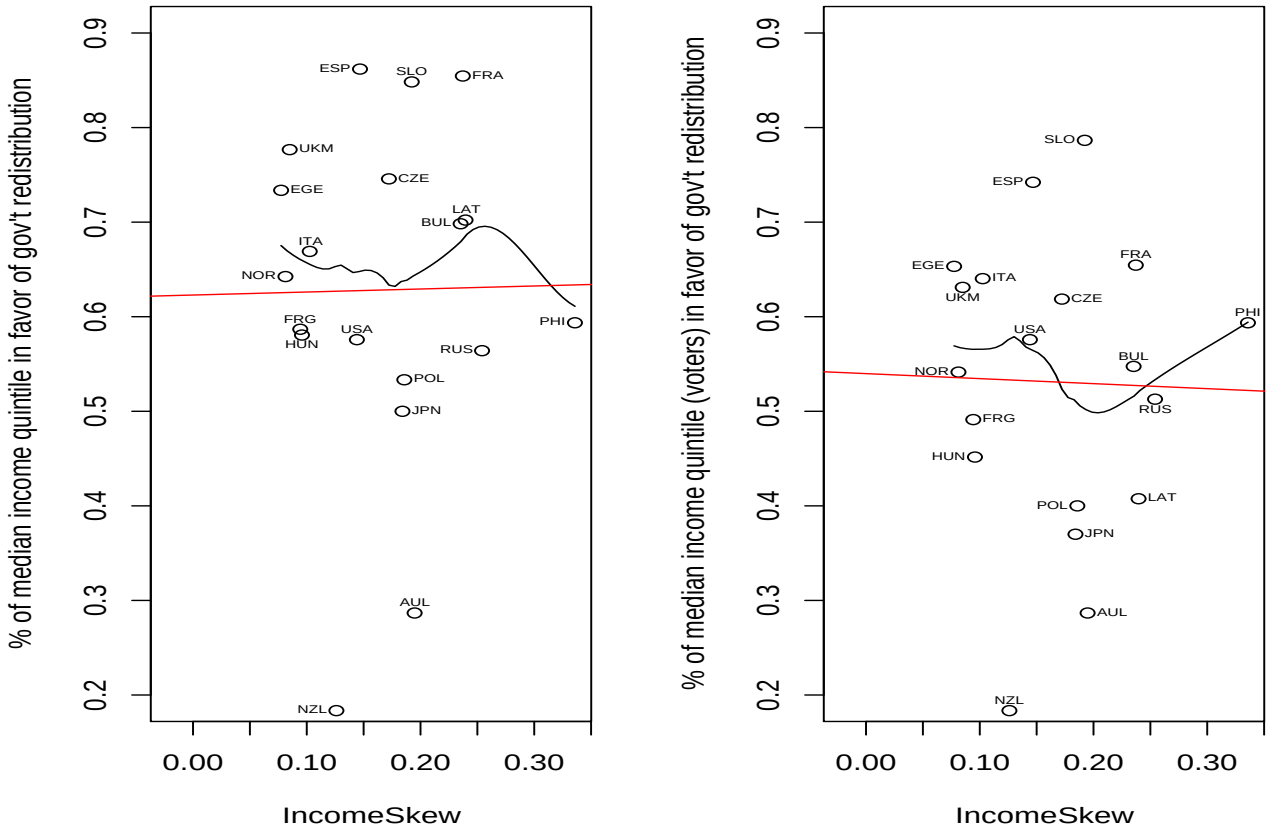
% of median income quintile in favor of gov't redistribution
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
ESP
SLO
FRA
UKM
CZE
EGE
LAT
BUL
ITA
NOR
FRG
HUN
USA
PHI
RUS
POL
JPN
AUL
NZL
0.00
0.10
0.20
0.30
IncomeSkew
% of median income quintile (voters) in favor of gov't redistribution
SLO
ESP
FRA
EGE
ITA
UKM
CZE
PHI
USA
BUL
NOR
RUS
FRG
HUN
LAT
POL
JPN
AUL
NZL
0.00
0.10
0.20
0.30
IncomeSkew

Figure 12:

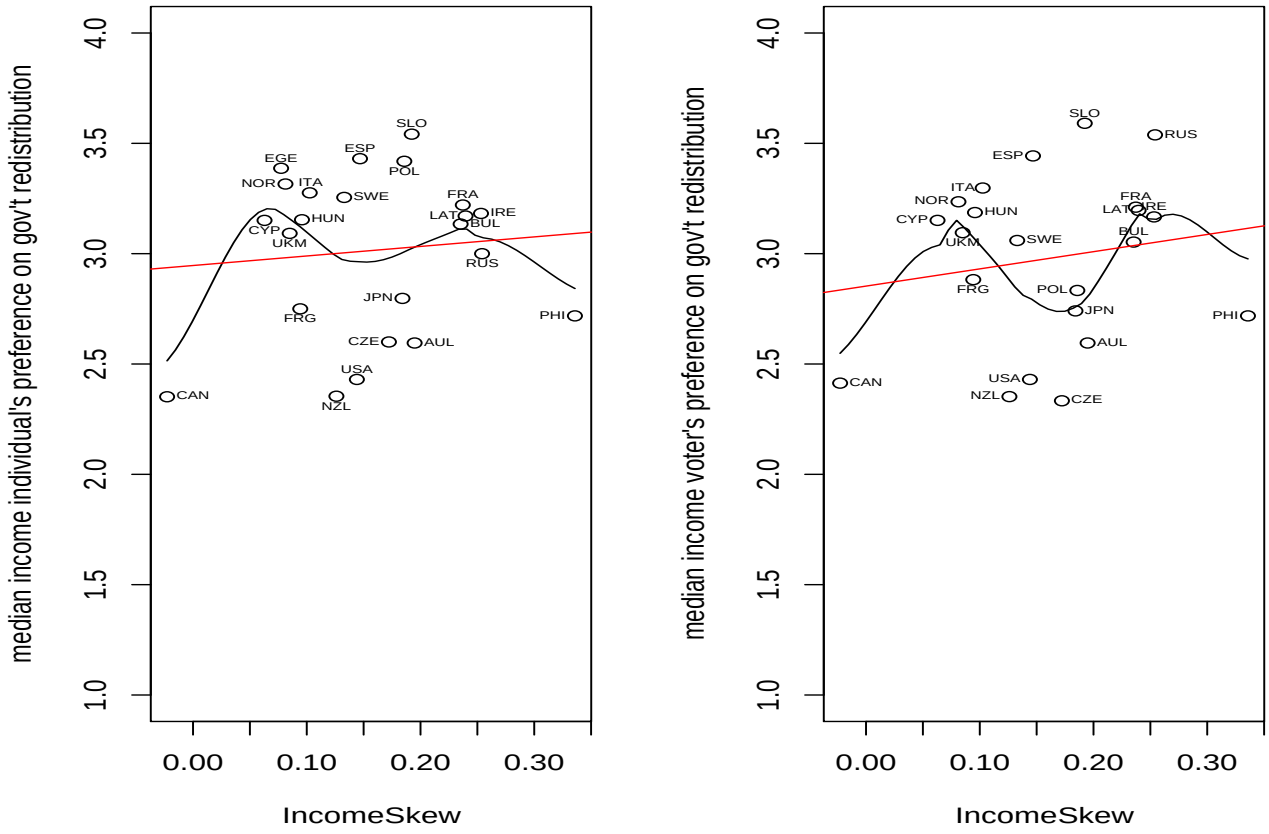
median income individual's preference on gov't redistribution
median income voter's preference on gov't redistribution
IncomeSkew
IncomeSkew
1.0
1.5
2.0
2.5
3.0
3.5
4.0
0.00
0.10
0.20
0.30
SLO
ESP
EGE
POL
NOR
ITA
SWE
FRA
LAT
IRE
BUL
CYP
HUN
UKM
RUS
JPN
FRG
PHI
CZE
AUL
USA
CAN
NZL
RUS
ITA
SWE
POL
AUL
CZE

Figure 13:

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