Voting over redistribution and the size of the welfare state: the role of turnout*

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Abstract

Political economy models of redistribution inspired by the Downsian model receive little support from empirical investigation. In this paper I argue that, among other possible reasons, this is the consequence of neglecting the role of electoral turnout. Empirical evidence shows quite clearly that higher income citizens are more likely to vote: office-seeking candidates should therefore include this probability in their objective function. As a consequence, the pivotal voter is not the median in the income distribution, but will generally be richer. Moreover, an increase in income inequality does not unambiguously increase the political demand for redistribution, as most literature takes for granted. Including turnout in the model restores the compatibility of the Downsian model with current empirical evidence. A regression analysis on panel data for 41 countries in the period 1972-1998 confirms the importance of turnout as an explanatory variable for social spending.

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The introduction and evolution of welfare programmes can be explained by many not mutually exclusive factors of both economic and political nature. Among them, it is immediate to notice that the expansion of the welfare state in western countries follows quite closely the extension of democratic rights. Thus, a vast literature in political science and economics has focussed on this relation and linked the growth of welfare spending to increased democratic representation of the poorer segments of the population. The removal of wealth or literacy requirements for having voting rights is thought to have generally increased the consensus for popular and left-wing parties and for redistributive electoral platforms.

Formal voting models have rigorously scrutinized this possibility. They have provided firm foundations for an old intuition of de Toqueville that the size of a government, measured by tax revenue and expenditure, depends essentially on the spread of the franchise and the distribution of wealth in a society. Voting rights determine the extent of democratic representation of the various interests, while wealth inequality generates the drive to use the government to redistribute resources in favour of the majorities.

Unfortunately this literature seems to have neglected the important role that turnout plays in determining election outcomes. This is an especially relevant factor as the identity of voters is on average quite different from the identity of abstainers. Turnout can be strongly predicted by a number of social, economic and demographic characteristics. In different countries and elections, empirical research consistently shows that the likelihood of voting is positively correlated with income, age, education level, as well as with being a male citizen. It is quite likely that such characteristics have also an influence on policy preferences, especially over redistributive issues. Thus, although the expansion of voting rights has certainly
changed the landscape of electoral competition and has probably increased the political demand for welfare programmes, it should be recognized that this has probably happened to an extent which is inferior to the predictions of standard public choice models. As it will be shown later, the consideration of turnout substantially alters some basic predictions of such models, restoring a compatibility with empirical evidence that is currently quite in doubt.

In the following I will first illustrate the logic of a basic rational choice model of redistribution and derive its main predictions. I will then scrutinize the limited empirical evidence available to conclude that such theory receives little support from data. I will then introduce turnout in the model and show how this affects the predictions, making them compatible with the available evidence. I will finally present new evidence from cross-country panel data and discuss the important role that turnout can play as an explanatory variable of social spending.

**Downsian analysis of redistribution**

The median voter theorem is one of the most celebrated results in public choice theory. It essentially states that, if the policy space is uni-dimensional and the utility functions of voters are single peaked over that policy dimension, then the voter whose ideal position is median in the preference distribution will be pivotal in majority decision-making. Downs (1957) uses this result to analyse electoral competition: he shows that two competing parties, able to pre-commit to their proposed platforms, will converge on the policy preferred by the median voter. Although under quite restrictive assumptions, this model delivers a clear prediction about the impact of electoral competition on public policy.

Applications of the median voter theorem have been used to interpret and
explain a very large number of issues in public-policy making. Among those, a vast body of research has used the Downsian model to explain income redistribution through fiscal policy. The basic models for this analysis have been developed by Romer (1975) and Roberts (1977) and subsequently popularized by Meltzer and Richard (1981). They assume that redistribution is achieved by using a flat tax rate on all incomes and by using the tax revenue to pay a lump sum benefit to all citizens such that the public budget is balanced. Although redistribution assumes much more complex forms in the real world, this simplification tries to capture the essential features and has a very important advantage: the policy space is uni-dimensional and equal to the tax rate. Given the condition of balanced budget, any change in the tax rate is reflected monotonically in the benefit and therefore, by voting on the tax rate, a citizen is also implicitly voting on the benefit to be distributed. Thus, the tax rate chosen by majority voting will be the tax rate preferred by the citizen whose income is median in the polity.

If \( t \) is the tax rate, \( N \) is the number of citizens in the polity and \( \mu \) is the mean income then the total revenue will clearly be \( tN\mu \) and the per-capita benefit will be \( t\mu \). If we constrain the tax rate to be between zero and one (i.e. neither a negative tax nor a tax above 100% are admitted) then any citizen with income above the mean will prefer a tax rate equal to zero\(^3\). Citizens with income below the mean, on the contrary, will vote for positive taxes and their preferred tax rate will be decreasing in income: poorer voters will find convenient to have higher tax rates since their contribution will be lower than what they receive.

The distribution of income, in virtually all countries, is skewed to the right, and therefore the median income lies below the mean. This implies that democratic decision-making will deliver positive redistribution in equilibrium. But how much
redistribution does the median voter desire? If pre-tax incomes are given, i.e. citizens are considered only as voters but not as economic agents and they do not react to changes in the tax rate, then the tax rate will be equal to 100%, i.e. complete expropriation of the rich. This is what Foley (1967) called a situation of “slavery of the rich”. It is not surprising therefore that this was also the worst fear of the wealthy western elites when, at different stages, the voting franchise was extended to lower classes during the XIX and XX centuries.

**Result 1:** If the rich cannot react to taxation and therefore total output is given, then the equilibrium tax rate is equal to 100%.

In reality, transition to democracy has not been conducive to such extreme forms of expropriations. There are a number of possible explanations for this, not all mutually exclusive, but a very important reason can be easily captured in the model just described: the rich can, in fact, react to taxation by producing less. Romer (1975) and Roberts (1977) first modelled this possibility by considering endogenous labour supply. This implies that governments can only use distortionary taxes. Roberts (1977) shows that if the redistributive preferences of voters are monotonically related to their productivity (which is the case if total pre-tax incomes are monotonically related to productivity), then a Condorcet winner exists and it is the redistributive tax preferred by the voter with median productivity4.

In other terms, taxes reduce the incentive for the rich to produce and the optimal labour supply is an inverse function of the tax rate5. Voters fully understand that they face a trade off between the overall size of the pie and the share they can redistribute via taxation. The ideal tax rate of voters with income below the mean will now internalize the disincentives faced by the rich and therefore be less than 100%. (see Fig. 1).
This can also be easily illustrated by using the so-called Laffer curve, which depicts the relationship between the tax rate and total revenue (Fig. 2). If the tax rate is zero then the revenue will obviously be zero. However, if the tax rate is 100% then the revenue will also be zero because all agents know that what they produce will not affect their own welfare: production becomes in this case a public good and, for a large population, free riding should be the prevalent behaviour. This means that, as $t$ increases, revenue will first increase and then, after reaching a maximum, will fall down again towards zero as a consequence of the disincentives. The tax rate that maximizes the welfare of the poor will therefore be lower than 100%.

From this analysis we obtain two very important results. The first is that the equilibrium tax rate depends on the elasticity of the tax base.

**Result 2:** If citizens can react to taxation, then total income (i.e. the tax base) is decreasing in the tax rate. The more elastic is the tax base (i.e. the heavier the
reduction in output when the tax rate increases), the lower will be the equilibrium tax rate.

This result does not depend on the particular mechanism that determines output reduction and is certainly not limited to the case of labour supply. Consider for example the mobility of financial assets. If it is possible to move assets to a foreign country with very little costs, as it is the case in many developed countries today, then high taxes can prove rather ineffective in generating revenue as the tax base will simply be transferred where it is less heavily taxed. This effect can be reduced by increasing the cost of transferring financial assets. This would make less attractive to relocate them and would allow higher taxation to be implemented. In the limit, if moving financial assets abroad was forbidden, the corresponding tax rate could be much higher because there would be no threat posed by competition with other countries. Along these lines, it is clearly possible to argue that globalization is decreasing the possibility to implement welfare systems by increasing their efficiency costs and therefore their desirability even by part of poor voters. It should be clear that

Figure 2: the Laffer curve
this does not imply any normative judgement on the desirability of either redistribution or globalization, which would be rather complex and is certainly beyond the scope of this article.

We are now ready to state a central result that stems from this model.

**Result 3.** *Inequality in pre-tax income drives the desire for redistribution. Therefore larger inequality will generate, in equilibrium, more redistribution.*

In the model of Meltzer and Richard (1981), equilibrium income redistribution depends on the distance between the median voters' income and the mean income in society. Since, as noticed, real income distribution is right skewed in virtually all countries (thus the median is below the mean), this model predicts positive tax rates in equilibrium. At the same time, since the model assumes perfect information, the median voter is aware that there is a negative link between the tax rate and the total gross income and finds it optimal to vote for a tax rate below 100%. However, for a given efficiency cost of taxation, higher inequality will increase the desire for redistribution of the median voter and therefore the equilibrium tax rate.

Meltzer and Richard also provide an explanation of the rapid growth of the public sector observed for most of the last century. They formalize an intuition first developed by de Toqueville: the “extension of the franchise to include more voters below mean income increase votes for redistribution and, thus, increase this measure of the size of government”\(^8\). With a right skewed income distribution, any voting rule that reinforces the role of individuals below the mean provides an incentive for redistribution from rich to poor citizens. Major changes in voting rights have occurred when wealth and income requirements for voting were reduced or abolished, and this provides an explanation for the increased desire of an increasingly poor electorate for redistributive policies. It is however clear that this effect cannot be isolated from
changes in the distribution of skills that may have worked in the opposite direction.

With their model, Meltzer and Richard provide a rationalization of the so-called Wagner's law, that the size of government tends to grow more rapidly than national income. Kuznets (1955) observed that economic growth may have the tendency to raise the level of inequality, in the sense that the income of skilled workers shows a tendency to raise relative to the income of the unskilled. Hence, according to Meltzer and Richard, growth will bring more redistribution as inequality increases.

Roberts (1977) and Meltzer and Richard (1981) use a static model to illustrate their arguments. However, it is possible that the disincentives introduced by redistribution last over time by affecting investment decisions and ultimately growth rates. This possibility has been examined, among others, by Bertola (1993) and Alesina and Rodrick (1994), also in this case by using the standard Downsian framework. They consider a population in which agents are alike in all respects except for their initial ownership shares in the economy's aggregate stocks of capital and labour. Taxes are levied on capital income and revenue is used either for pure redistribution (Bertola) or to enhance the productive capability of the economic system (Alesina and Rodrick). These papers show that the poorer the median voter's income relative to the mean income, the higher the capital tax rate and the lower the growth rate. Persson and Tabellini (1994) reach similar conclusions in a model with overlapping generations in which personal (and not factor) income distribution is considered.

To summarize, the Downsian analysis of redistributive policy-making delivers a number of testable predictions and in particular: 1) redistribution decreases with the elasticity of the tax base to the tax rate; 2) redistribution increases with the distance
between the mean and the median income. These results, coupled with standard economic analysis about the distortions of taxation, deliver a further prediction: 3) inequality decreases output and economic growth.

**Empirical evidence is not encouraging**

The theoretical predictions illustrated in the previous section have been used to analyse various dimensions of public policy where redistribution is involved, most notably progressive taxation, social security and education. Empirical investigation has been comparatively much more limited, although there are some valid reasons for this. One is that measuring redistribution is not straightforward. Although the theory uses a simple model with a linear tax-benefit system, it is true that evaluating the overall redistributive impact of public intervention in the economy is a complex task. These limits have pushed in the direction of using imperfect (although reasonable) proxies like total welfare spending. Another problem is related to data availability and reliability. Data on public sector variables (as well as on the private sector) are not always reliable or available in the desired form; for some countries, they are available only since quite recently. In addition, even when data are available, they are not always immediately comparable.

In spite of such difficulties, a few attempts have been made at testing the reliability of the Downsian model in explaining redistributive policies. Alesina and Rodrik (1994), for example, ask if inequality is harmful for growth. They claim that redistribution creates distortions and tends to reduce growth. Inequality increases redistribution and it consequently is harmful for growth. Analysing the relationship between inequality and growth across countries they find that it is significantly negative. However this only constitutes a reduced form estimation of their theoretical
predictions, and this could cast legitimate doubts about the intermediate steps, namely the positive relationship between inequality and redistribution and the negative relationship between redistribution and investment. Perotti (1994 and 1996) estimates a cross-country structural form of this class of models and finds that the "results concerning the two mechanisms examined here are conspicuously inconsistent with (indeed, opposite to) the theory and conventional wisdom". The first result he finds is that government transfers have a positive and significant effect on investment. The second is that a higher income share of the third quintile (this captures the distance between the median and the mean) increases the share of government transfers in GDP. Many countries considered in Perotti's analysis cannot properly be defined as democratic, and therefore we should not assume that the median voter theorem holds for them. It is however rather surprising to note that the positive effect of the third quintile share on transfers is even stronger in democracies. Although the significance level of Perotti’s estimates is questionable, this evidence can be considered enough to "cast some doubts on the empirical validity of the endogenous fiscal policy explanation of the relation between income and investment".

An analysis using panel data for OECD countries from 1960 to 1981 by Lindert finds that "wider inequality in pre-fisc incomes significantly reduces total government spending as a share of GDP […]. The anti-spending effect of inequality is spread across all […] spending categories except unemployment compensation, which tends to be the smallest of these spending categories" (Lindert, 1996).

There is a different theory linking income inequality and public spending that, according to Lindert's findings, receives better support from the data. This is the social-affinity theory which predicts more redistribution the closer middle-income voters are to the poor and the further they are from the rich\textsuperscript{11}. This theory is echoed by
Saint Paul (1994) who shows that more inequality is compatible with less distance between the median and the mean income. If agents with income below the median become poorer this will decrease the mean income, although leaving the median unaffected. This reduces the demand for redistribution of the decisive voter, leading to a situation of social exclusion in which the poor become poorer, but this does not lead the middle classes to support more redistributive programmes.12

To summarize, the various Downsian models of income redistribution appear to receive little support from empirical investigation. Although the Downsian framework represents a useful benchmark to think about elections, it is fair to claim that it is too simple and parsimonious and it cannot pretend to satisfactorily explain real public policy formation.

The (neglected) role of turnout

The clear-cut predictions of the Downsian model are derived by using a number of strong assumptions like uni-dimensional policy space, single-peakness of preferences, full commitment to platforms, two-party system with no entry, perfect information. The literature on voting and elections is today much more sophisticated and many models exist that have removed one or more of such assumptions, deriving new and different results.

Some works assume that the rich have more power and influence than the poor on political processes.13 It seems reasonable to argue that sources of power go beyond formal voting rights and that those who hold a high share of economic resources are capable of influencing both politicians and public opinion. This, however, remains an unsatisfactory theory if the mechanisms of political influence are not specified.
Even if one does not want to look at all possible sources of differentiated influence, it is rather immediate to find evidence of asymmetric influence by merely focussing on electoral behaviour. In fact, observed patterns of electoral turnout provide an immediate way, although not unique, to provide empirical content to the idea that the rich have more power.

Downsian models normally assume that everybody votes. In our case this implies that the median voter coincides with the median point in the income distribution. However, in real elections, a part of the electorate abstains. In US Congress elections, for example, the percentage of voters over the total voting age population has rarely been above 50% in the last fifty years. Presidential elections show higher participation, but still rarely above 60%. In both cases turnout has been declining over time. European countries tend to have higher participation rates, but, even there, one voter in five should be expected to abstain in most cases. Post-war general elections in the United Kingdom, for example, show participation rates that vary from 81.59% (1950) to 57.56% (2001). Even in this case there is increasing evidence of declining turnout.

Although low turnout is sometimes regarded as a problem for the legitimacy of democratic institutions, it does not necessarily affect the outcome of elections. If the population of voters and non-voters were identical, i.e. abstention were only an idiosyncratic shock, then the electoral mechanism would aggregate preferences independently of who votes, delivering substantially the same outcome that would obtain if everybody voted. It is however clear from available data that non-voters are not randomly distributed across the total population: a substantial body of empirical research has documented that voters and non-voters systematically differ in their socioeconomic and demographic background and, therefore, in their needs and policy
preferences (Wolfinger and Rosenstone, 1980; Verba, 1993). In a classic study of American voters, Wolfinger and Rosenstone (1980) show that turnout is strongly predicted by a number of individual demographic variables. Education typically displays the highest influence, followed by income, age, marital status, and occupation. These results have been systematically confirmed by most subsequent studies, independently of the particular election or country examined. Other empirical studies (see for example Patterson and Caldeira, 1983; Cox and Munger, 1989; Leighley and Nagler, 1992) have focussed on systemic characteristics and shown, in particular, that election closeness, registration laws, and local socioeconomic conditions (average income, unemployment rate etc.) have an impact on electoral participation

It is not surprising therefore that some scholars arrive to suggest that "low voter turnout means unequal and socioeconomically biased turnout" (Lijphart, 1997). In other terms, low participation indicates exactly the reduced representation in democratic decision-making of the most disadvantaged groups. Thus, if we expect democratic policy-making mechanisms to represent the instances and preferences of voters, turnout levels will certainly affect policy outcomes.

In terms of the Downsian model, the intuition for the relevance of turnout is quite straightforward. In Fig. 3 the top diagram shows a typical income density function \( f(y) \) with median income equal to \( m \). In the same diagram we also represent the probability of turnout \( T \) as a function of income \( y \): as we have seen, this will typically be an increasing function. Therefore the relevant population of expected voters is the one represented in the bottom diagram, where each voter is weighted by her probability of actually going to the polls. The resulting distribution will have its median point \( m^* \) to the right of the median of the income distribution \( m \). If candidates
are office-seeking, as assumed by Downs, then they should target voters with income $m^*$, who will in fact be pivotal, and not voters with income $m$ (the actual median). We also know that the tax preferred by voters is decreasing in their income: thus, the equilibrium tax rate (and redistribution) will be inferior to what predicted by a standard Downsian model where everybody votes. Empirical studies that include in their regressions the ratio of median to mean income (or other proxies for income inequality) are in fact testing the Downsian model as if everybody voted, thus assuming something which is plainly not true in reality.

![Fig. 4: The weighted median voter](image)

It is easy to see that, when turnout is considered, inequality is not anymore a predictor for redistribution. When inequality increases (with a given mean income) we have two contrasting effects: on one side the desire for redistribution of the median
voter will be increased (this is the standard Downsian effect); however, on the other side, more inequality implies a larger dispersion of turnout, with the rich more likely to vote and the poor less likely. The overall effect is undetermined and we should not therefore expect more inequality to lead unequivocally to more redistribution. Once again, empirical investigations that have been based on this relationship could be quite misplaced.

A casual observation of welfare spending across democratic countries is enough to cast serious doubts about the possibility that countries where income is more unequally distributed spend more in welfare. Accurate empirical analyses tend to confirm such doubts, as we have seen in the previous section. On the contrary, evidence on the impact of turnout on welfare spending supports the ideas we developed in this section. Empirical evidence that aggregate turnout is a predictor of welfare spending has been provided by Peterson and Rom (1989) for US states and Hicks and Swank (1992) for industrialized countries. Lindert (1996), analysing a panel of OECD countries, finds that "a stronger voter turnout seems to have raised spending on every kind of social program, as one would expect if one assumed that the social programs cater to the lower income groups whose voter turnout differs most over time and across countries".

Hill and Leighley (1992) and Hill, Leighley, and Hinton-Andersson (1995) use US survey data to derive aggregate measures of turnout by social class and combine them with state-level data to provide direct evidence of the effect of lower-class mobilization on welfare spending. Also, using US state-level data for the years 1950-1988, Husted and Kenny (1997) show how the extension of the voting franchise (thus favouring participation by the poor and the minorities) has caused an increase in welfare spending, leaving all other spending unaffected. Finally, in a study conducted
Franzese (2002) shows how public transfers as a fraction of GDP depend on an interaction effect between voter participation and income skew: when inequality is larger, the positive impact of participation on spending is magnified. This indicates that the difference in the preferences of participants and non-participants is larger when there is more inequality (which is compatible with the Downsian basic idea), but also that turnout can substantially alter empirical predictions.

These results are in themselves of some support for the Downsian model: showing that increasing participation by poorer voters increases welfare spending provides support to its basic behavioural assumption, namely that voters demand policies from their representatives and that low income implies a higher demand for redistribution. The problem lies instead in the implication that inequality in income distribution drives redistribution, which is plainly not supported by data. Considering that turnout is positively linked with income both provides a plausible explanation for this lack of support and adds an important feature to the benchmark model.

**Cross-country empirical evidence: 1972-1998**

In this section I will provide new empirical evidence on the link between inequality and redistribution and show how turnout can play an important role in explaining social spending. As discussed in the previous section, this is not a novel endeavour. Our analysis, however, has the advantage of providing cross-country evidence using a fairly large longitudinal dataset, including 41 countries. Previous studies that employ cross-country panel data (Franzese, 2002 and Lindert, 1996 and 2004) focus on developed democracies, and therefore on a much smaller number of countries. By using panel data, I will also be able to address some of the pitfalls of
cross-country empirical research and show how the results may crucially depend on
the specification adopted. Much of the empirical research on this subject, that often
uses simple cross country analysis, should therefore be approached with some
caution.

I use data on social and welfare spending for 41 countries\(^{16}\) over the period
1972-1998. However, some of the countries considered have not been democratic for
all this period. Hence, for each of these countries, I only include years in which it can
be classified as democratic\(^ {17}\). In addition, since it seems reasonable to assume that
some time is necessary to see an impact of a government on policy, I require a
country to have been democratic for at least the past two years before including its
observations. For the same reason, inequality and turnout enter in all regressions as
lagged variables (two years). I, therefore, estimate equations of this form:

\[
y_{it} = \alpha y_{i,t-1} + \beta I_{i,t-2} + \gamma T_{i,t-2} + \delta Z_{i,t} + \epsilon_{it}
\]

where \(i\) and \(t\) refer respectively to country and year, \(Y\) is public spending on
social services and welfare as a percentage of GDP, \(I\) is a measure of inequality in the
distribution of income, \(T\) is turnout in the previous election\(^ {18}\), \(Z\) is a vector of control
variables\(^ {19}\), and \(\epsilon_{it}\) is a disturbance factor. Different assumptions on \(\epsilon_{it}\) lead to
different estimation methods. Since I want to take into account the possibility of
shocks that are common to all countries, in all regressions I assume, at the very least,
that \(\epsilon_{it} = \eta_i + u_{it}\) and, therefore, introduce year dummies.

To focus on the cross-country variation one could either average all variables
and use simple OLS (between estimator) or use pooled OLS. However, a more
efficient approach consists in using random effect GLS\(^ {20}\). In table 1 the measure of
inequality adopted is the Gini coefficient: the first two columns report random effect
estimates of the dependent variable over the Gini coefficient, respectively with and
without the turnout variable. These regressions show, quite surprisingly when compared to previous literature, that an increase in inequality does in fact lead to more social spending, and are in line with the Downsian predictions. They also show that turnout has a positive impact on social spending in itself. Moreover, it can be seen that introducing turnout in the regression affects positively both the significance and the magnitude of the impact of the Gini index. In column 1, one standard deviation increase in the Gini coefficient leads to a 0.11\% increase in the ratio between social spending and GDP, and in column 2 to a 0.13\% increase. This effect is not huge, but it is also not negligible, since the average value of the dependent variable is just 7.42\%.

### Table 1. The impact of inequality (Gini) and turnout on social spending

<table>
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<th>(2)</th>
<th>(3)</th>
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<td>Gini index</td>
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<td>0.013**</td>
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<td></td>
<td>(1.91)</td>
<td>(2.19)</td>
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<td>Turnout</td>
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<td>(2.61)</td>
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<td>(PolityIV)</td>
<td>(0.44)</td>
<td>(0.27)</td>
<td>(0.21)</td>
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<td>Real DGP per capita</td>
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<td>-0.094</td>
<td>-0.195</td>
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<td>(in logarithm)</td>
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<td>(0.99)</td>
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<td>0.059***</td>
<td>0.167*</td>
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<td></td>
<td>(2.96)</td>
<td>(2.99)</td>
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<tr>
<td>Pct. aged 15-64</td>
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<td>0.018</td>
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<td></td>
<td>(1.76)</td>
<td>(1.30)</td>
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<td>Trade Openness</td>
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<tr>
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<td>(0.49)</td>
<td>(0.39)</td>
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<tr>
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<td>0.8292</td>
<td>0.8373</td>
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All regressions include a constant, a lagged dependent variable and other controls (see note 19). Columns 1 and 2 report GLS random effect estimates, column (3) reports OLS fixed effect estimates. Absolute value of z statistics in parentheses. Standard errors are robust, clustered by country. * significant at 10\%; ** significant at 5\%; *** significant at 1\%.
One problem with this approach is, however, that unobserved country heterogeneity could be correlated with the explanatory variables and this could bias our estimates. This problem can be addressed by introducing country fixed effects (as well as time fixed effects) and, therefore, assuming $\varepsilon_{it} = \delta_i + \eta_t + u_{it}$. This shifts the focus of the estimates from cross-country variation to the variation within a country. In column 3 of Table 2 I report the OLS fixed effects estimates of this revised specification, which reveal a quite different picture. The Gini index turns out to be insignificant and the sign of the coefficient is now negative. The turnout variable instead maintains its significance and its size is now double when compared with the random effect estimates. These estimates now suggest that an increase by one standard deviation in turnout rises social spending by 1.89% (and the ratio between social spending and GDP by 0.25%).

Which estimates should we trust? The random effect model is certainly more efficient if the specification is correct. However, performing a Hausman test leads us to clearly reject the assumption that the country dummies are uncorrelated with the other explanatory variables. Thus, fixed effect estimation appears to be the correct procedure. This analysis seems to suggest that the correlation found between inequality and social spending in cross country studies can be the consequence of unobserved heterogeneity. In other terms, it is possible that country-specific elements related to cultural features or institutional arrangements can drive both inequality and social spending, without there being a causal relationship between these two variables. The turnout variable, on the contrary, is robust to the introduction of country fixed effects, which suggests that, within each country (and therefore for a given cultural or institutional setting), an increase in turnout generates more social spending. These results are highly compatible with the theoretical developments.
proposed in this paper. In fact, Fig. 3 did not tell us anything about cross-country comparisons; it did, however, tell us that, in each given country, an increase in inequality does not necessarily lead to more redistribution.

Table 2. The impact of inequality (median/mean income) and turnout on social spending

| Dependent Variable: Social security and welfare spending as a percentage of GDP |
|---------------------------------------------|-----------------|-----------------|-----------------|
|                                            | (1)             | (2)             | (3)             |
| Median/Mean Income                         | -0.310          | -0.382          | 0.547           |
|                                            | (0.67)          | (0.83)          | (0.87)          |
| Turnout                                    | 0.007***        | 0.014**         |                 |
|                                            | (2.73)          | (2.50)          |                 |
| Democracy indicator                        | 0.015           | -0.010          | -0.033          |
| (PolityIV)                                 | (0.62)          | (0.37)          | (0.52)          |
| Real DGP per capita                         | -0.090          | -0.032          | 0.036           |
| (in logarithm)                             | (1.00)          | (0.34)          | (0.08)          |
| Pct. aged above 65                         | 0.037**         | 0.037**         | 0.219**         |
|                                            | (2.01)          | (2.03)          | (2.47)          |
| Pct aged 15-64                             | 0.021           | 0.021           | 0.064           |
|                                            | (1.43)          | (1.44)          | (1.02)          |
| Trade Openness                             | -0.000          | -0.000          | -0.013*         |
|                                            | (0.06)          | (0.38)          | (1.70)          |
| Observations                               | 454             | 452             | 452             |
| Number of countries                        | 36              | 36              | 36              |
| R-squared (within)                         | 0.803           | 0.8046          | 0.8130          |

All regressions include a constant, a lagged dependent variable and other controls (see note 19). Columns 1 and 2 report GLS random effect estimates, column (3) reports OLS fixed effect estimates. Absolute value of z statistics in parentheses. Standard errors are robust, clustered by country. * significant at 10%; ** significant at 5%; *** significant at 1%.

One possible objection to this analysis is that I have used the Gini index as an inequality measure, while the Roberts-Meltzer-Richard model refers to the ratio between median and mean income. Hence, in Table 2, I repeat all previous regressions replacing the Gini index with the ratio between the average income of the third quintile and the average income of the whole population. The new regressions
are even less supportive of the standard Downsian model: the new inequality index is not significant in any of the specifications. The results previously obtained on the relationship between turnout and social spending are, on the contrary, all confirmed. Moreover, the parameter of the turnout variable is surprisingly stable, by which I mean that the size of the coefficient is basically the same in the two tables. This seems to suggest that the impact of turnout on social spending is very robust to changes in the empirical specification.

Conclusion

Public choice scholars and political economists often take for granted that inequality increases redistribution. This is a consequence of the enormous influence of the Roberts-Meltzer-Richard analysis of redistributive politics: this model is elegant, simple and delivers clear and intuitive predictions. Unfortunately, to quote Aldous Huxley, “the great tragedy of science” is “the slaying of a beautiful hypothesis by an ugly fact”, and to continue to believe that inequality increases redistribution despite contrary empirical evidence should be considered a small tragedy of science too. To argue, for example, that poor countries do not grow because of an excess of social spending due to income inequality, represents a theoretical possibility and establishes a fine logical relationship; however, it could be rather misleading to derive any real policy implication from such a theory.

In this paper I argue that it is possible to learn something new about what determines redistribution by considering that turnout is positively correlated with income. The extension of voting rights was, in fact, an important reason given by Meltzer and Richard to justify the increase in the size of the public sector. Unfortunately they have not pursued further this argument to consider that, in spite of
having equal voting rights, citizens do not all vote with equal probability, as turnout is linked to a number of social and economic individual characteristics. Hence, the fact that turnout is correlated with income implies that the pivotal voter will normally have an income which is higher than the median income in the population. More importantly, an increase in income inequality can increase the demand for redistribution of the middle classes but can also change the identity of the pivotal voter if poor and deprived citizens do not participate in elections, as it is often the case.

Using data on 41 countries for the period 1972-1998 it appears that the relationship of inequality with redistribution and social spending is far from clear. In particular, the inclusion of country-specific features can substantially alter the results, as it seems very likely that cultural and institutional elements can drive both inequality and social spending, thus rendering cross-country analysis very sensitive to the empirical specification adopted. On the contrary, I show that political participation is important both across and within countries. In other terms, if countries with higher turnout tend to redistribute more, this is only partially due to country-specific features as variations in turnout within a country have a strong relationship with social spending. This result is compatible with the very common finding that higher turnout tend to favour left-wing parties, and highlights the importance that political participation can have in determining public policies.

I therefore conclude that, at the very least, the Downsian model needs to be augmented with a simple turnout equation, for it to be of any relevance in explaining social spending. More broadly, this analysis shows that the changing patterns of political participation should not be considered without consequences for public policy.
1 The interested reader can consult Mueller (2003), ch. 21, for a survey and further references.

2 More formally, the median voter is a Condorcet winner. A Condorcet winner is defined as an alternative that can beat any other alternative in the policy space in pairwise comparison and by using majority voting. Unidimensionality and single-peakness are sufficient but not necessary conditions for the existence of a Condorcet winner.

3 Any positive tax rate would imply a loss since the tax liability would be higher than the benefit received.

4 Roberts calls this monotonicity condition "hierarchical adherence". Recently Gans and Smart (1996) have shown that Robert's condition is substantially equivalent to the Spence-Mirrlees condition of single-crossing indifference curves.

5 Technically, this is not necessarily true and depends on the substitution effect (the tax decreases the returns from working: this should induce less labour supply) dominating the income effect (the tax, other things equal, decreases people's income: this should induce more labour supply in an attempt to maintain the same living standard). It is however reasonable to assume (and empirical research tend to confirm this) that this is the most common case. Moreover, hierarchical adherence only requires that taxes do not induce re-ranking of individuals on the income scale, which is a weaker requirement.

6 Incidentally, this shows how the assumptions for the validity of the median voter theorem are satisfied: the policy space is uni-dimensional (the tax rate) and preferences are single-peaked (being a monotonic transformation of the Laffer curve).

7 The tax rate would still not be 100% because there are competitive forms of allocating financial resources even within the boundaries of a country.

8 Meltzer and Richard (1983). It is clear that the scope of the government in their analysis is limited to redistribution: there is no such a role as enhancing the productive capability of the economic system or correcting market failures. There might have been other factors therefore that have contributed to the expansion of the public sector that are not considered here.

9 It should be noted that the Downsian model is technically less suited to analyse dynamic problems and further assumptions are normally required for its usage in such context.

10 However, the methodology for the evaluation of the redistributive impact of different programmes has been rapidly improving in recent years, thanks also to the increasing availability of survey data. This is especially the case for the analysis of taxation. Public expenditure poses more problems because it is not always clear who benefits from what, especially when benefits are in kind.

11 Even though apparently this concept is similar to that of Roberts, it involves a different specification of the explicative variables. Here we do not consider the mean/median ratio, but two gap variables: income of the top quintile over income of middle quintile (upper income gap) and middle over bottom quintiles (lower income gap). As stressed by Lindert "the social affinity hypothesis could, but need not, be narrowed to predict a positive effect of income skewness [...] on progressive social spending. It makes no prediction about the effect of inequality on social spending". 

12 Lindert's analysis shows that the social-affinity hypothesis receives support from the data. "The coefficient of the upper gap is positive, and that of the lower gap is negative, for clearly progressive redistributions". However, this result does not hold for pensions and health. Hence "all of the results would be consistent with the social affinity hypothesis if the progressivity ranking of the different clusters of tax-based social spending were, and were perceived to be, [total-social, welfare, unemployment, and education]>[pensions and health]. Yet it is not clear that education belongs in that more progressive category, nor is it clear that the pension and health programs are much less progressive. With this disclaimer, the overall pattern of social spending results appears to support the social-affinity hypothesis".

13 This possibility is for example considered in Benabou (2000) and Saint Paul and Verdier (1997).

14 In addition, a number of studies have also shown that disposition variables, such as party identification, ideological motivation and sense of civic duty, strongly affect the level of participation. See for example Palfrey and Poole (1987).

15 It is important to note that this argument requires some form of causality that goes from income to turnout. Imagine that there was some other variable driving both income and turnout (for example education) and that instead income had no effect on turnout per se, then an increase in income inequality that does not derive from a change in education inequality should not affect turnout and therefore leave the Downsian effect intact. This consideration could in fact be used in empirical investigations as a further possibility to identify the Downsian effect. However, it should also be noted that income tends to display a positive coefficient in turnout regressions even when controlling for a number of other socio-demographic individual characteristics, such as education. Although this is not
in itself a proof of a causal relationship, it makes less likely that turnout and income are only related through other covariates.

The countries we consider are the following: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, United Kingdom, Argentina, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Trinidad & Tobago, Uruguay, USA, Venezuela, Botswana, Mauritius, Japan, Malaysia, Nepal, Philippines, Sri Lanka, Thailand, Turkey, Australia, New Zealand. The choice has simply been dictated by the availability of data and by restricting attention only to countries that can be classified as democratic, at least for a certain period.

To classify a country as democratic or not, I use an indicator (polityIV) that takes into account features of the electoral competition process as well as the constraints imposed on the executive. This is the same indicator used in Persson and Tabellini (2003). This variable assumes values between -10 (strongly autocratic) and 10 (strongly democratic) and I consider a country as democratic if polityIV>0. At the same time, not all democracies guarantee the same level of representation. For this reason I also use polityIV as a control variable in the regressions. Source: Polity IV Project, http://www.cidcm.umd.edu/inscr/polity/index.htm.

For each country the most salient type of election (generally, the one with highest turnout) has been used.

The variables included are: logarithm of real GDP per capita, share of the population in working age (between 15 and 64), share of the population in retirement age (above 65) and a measure of trade openness (sum of exports and imports of goods and services as a share of GDP). The need to control for GDP per capita and the age distribution is fairly obvious. That trade openness is positively correlated with the size of governments is a well established fact has been first pointed out by Cameron (1978). Alesina and Wacziarg (1998) and Rodrick (1998) provide rationalizations for this empirical regularity. All data, apart from the inequality measures and the turnout, are taken from Persson and Tabellini (2003). The Gini indices and the share of income of the third quintile (which is used to reconstruct the average income of the third quintile) are taken from Deininger and Squire (1996). Information on turnout is available from the International Institute for Democracy and Electoral Assistance (IDEA), http://www.idea.int/vt/index.cfm.

See for example Wooldridge (2002).

This implies that a standard deviation increase in the Gini index can lead to a raise of up to 1.8% in social spending.

In all regressions I include a lagged dependent variable, to consider the incremental nature of public policy-making. Having a lagged dependent variable together with fixed effects creates a bias of magnitude proportional to 1/T, where T is the number of years considered. The average T per country in our sample is 14.6, which suggests that this bias should not be extremely large. At the same time, alternative estimators, like the one proposed by Arellano & Bond (1991), have often been proved even more unsatisfactory that OLS estimators.

The corresponding Chi-square statistics has a value of 233.68 and the p-value of the test is zero. See Wooldridge (2002).

Unfortunately, information on the income share of the third quintile is not available for all countries. The number of countries falls therefore from 41 to 36.
References


