

Voting over Redistribution and the Size of the Welfare State: The Role of Turnout

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Theories of redistribution inspired by the Downsian model receive little support from empirical investigation. In this article I argue that one of the possible explanations is that the standard Downsian theory, and the empirical specifications derived from it, ignore electoral turnout. Empirical evidence consistently shows 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 is generally 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 theory with current empirical evidence. A regression analysis on panel data for 41 countries in the period 1972–98 confirms the importance of turnout as an explanatory variable for social spending.

The introduction and evolution of welfare programmes can be explained by many factors of both an economic and political nature.¹ Among them, it is apparent that the expansion of the welfare state in Western countries follows quite closely the extension of democratic rights. A vast literature in political science and economics has focused 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 voting is thought to have generally increased the support for popular and left-wing parties and for redistributive electoral platforms.

Formal voting models have rigorously scrutinised this possibility. They have provided firm foundations for an old idea of de Tocqueville's 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 especially relevant 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 and education level, as well as with being a male citizen. It is quite

likely that such characteristics are correlated with 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 recognised that this has probably happened to an extent that is inferior to the predictions of standard public choice models. As will be shown later, considering turnout substantially alters some basic predictions of such models, restoring a compatibility with empirical evidence that is currently in considerable 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 scrutinise the limited empirical evidence available to conclude that this theory receives little support from data. I will then introduce turnout into 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 unidimensional and voters' utility functions are single-peaked over the policy dimension, then the voter whose ideal position is the median in the preference distribution will be pivotal in majority decision-making.² Anthony 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 Thomas Romer (1975) and Kevin Roberts (1977) and subsequently popularised by Allan Meltzer and Scott 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 unidimensional and equal to the tax rate. Given the condition of a 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. Hence, the tax rate chosen by majority voting will be that preferred by the citizen whose income is the median in the polity.

If t is the tax rate, N is the number of citizens in the polity and μ is the mean income then the total revenue will clearly be $tN\mu$ and the per capita benefit will

be μ . If we constrain the tax rate to be between zero and one (i.e. neither a negative tax nor a tax above 100 percent is 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 it 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 percent, i.e. complete expropriation of the rich. This is what Duncan 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 the lower classes during the nineteenth and twentieth 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 percent.*

In reality, transition to democracy has not been conducive to such extreme forms of expropriation. 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 productivity.⁴

In other words, taxes reduce the incentive for the rich to produce and the optimal labour supply is an inverse function of the tax rate.⁵ 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 internalise the disincentives faced by the rich and therefore be less than 100 percent (see Figure 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 (Figure 2). If the tax rate is zero then the revenue will obviously be zero. However, if the tax rate is 100 percent then the revenue will still 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

Figure 1: Voters' Preferred Tax Rate t as a Function of Their Income (m = Median Income; μ = Mean Income)

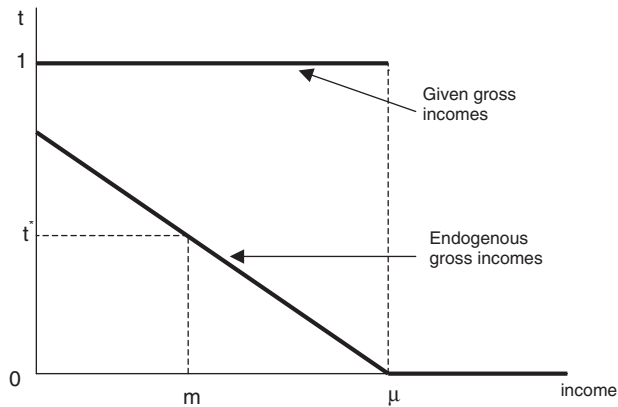
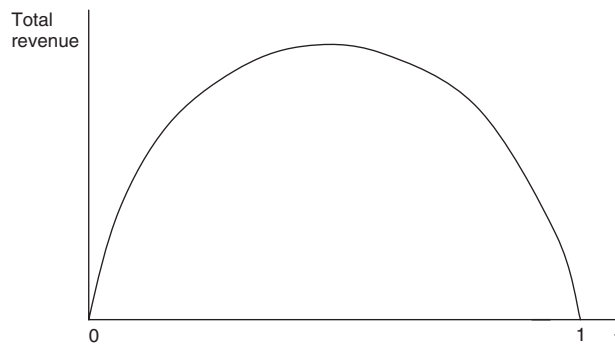


Figure 2: The Laffer Curve



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.⁶ The tax rate that maximises the welfare of the poor will therefore be lower than 100 percent.

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 at very little cost, as 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 to where it is less heavily taxed. This effect can be reduced by increasing the cost of transferring financial assets. This would make it less attractive to relocate them and would allow higher taxation to be implemented. In the end, 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.⁷ Along these lines, it is clearly possible to argue that globalisation is decreasing the possibility of implementing welfare systems by increasing their efficiency costs and therefore their desirability even by some poor voters. This does not imply any normative judgement on the desirability of either redistribution or globalisation, which would be a rather complex endeavour 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 Meltzer and Richard's model (1981), equilibrium income redistribution depends on the distance between the median voters' income and the mean income in society. Since, as noted earlier, real income distribution is skewed right 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 percent. 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 formalise an idea first developed by de Tocqueville: the 'extension of the franchise to include more voters below mean income increases votes for redistribution and, thus, increases the measure of the size of government' (Meltzer and Richard, 1981, p. 916).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 emerging desire of an increasingly poor electorate for redistributive policies. This effect, however, 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 rationalisation of the so-called Wagner's law, which states that the size of government tends to grow more rapidly

than national income. Simon 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 rise 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 Giuseppe Bertola (1993) and Alberto Alesina and Dani Rodrick (1994), also in this case by using the standard Downsian framework.⁹ 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. Torsten Persson and Guido Tabellini (1994) reach similar conclusions in a model with overlapping generations in which personal (and not factor) income distribution is considered.

To summarise, 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.

The 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.¹⁰ These limitations have resulted in using imperfect (although reasonable) proxies like total welfare spending. Another problem is related to data availability and reliability. Data on public sector aggregates are not always reliable or available in the desired form; for some countries, they are available only from 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 Rodrick

(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 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 it is legitimate to have doubts about the intermediate steps, namely the positive relationship between inequality and redistribution and the negative relationship between redistribution and investment. Roberto Perotti (1994; 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' (Perotti, 1994, p. 833). The first result he finds is that government transfers are positively and significantly correlated with investment. The second is that a higher income share of the third quintile (this captures the distance between the median and the mean) is positively correlated with the share of government transfers in gross domestic product (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 statistical significance 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' (Perotti, 1994, p. 834).

An analysis using panel data for OECD countries from 1960 to 1981 by Peter 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, p. 17).

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.¹¹ This theory is echoed by Gilles 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, then the mean income decreases, although the median remains 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 summarise, the various Downsian models of income redistribution appear to receive little support from empirical investigation. Although the Downsian

framework represents a useful benchmark for thinking about elections, it is fair to claim that it is too simple and parsimonious and it cannot pretend to explain satisfactorily real public policy formation.

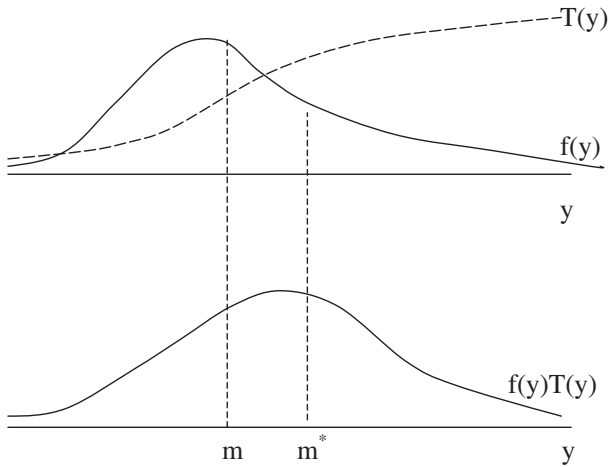
The (Neglected) Role of Turnout

The clear-cut predictions of the Downsian model are derived by using a number of strong assumptions like unidimensional policy space, single-peakness of preferences, full commitment to platforms, two-party system with no entry and 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 over 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 focusing on electoral behaviour. In fact, observed patterns of electoral turnout provide an obvious, although not unique, method of providing empirical support for 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 across the total voting-age population has rarely been above 50 percent in the last 50 years. Presidential elections show higher participation, but still rarely above 60 percent. In both cases turnout has been declining over time. European countries tend to have higher participation rates but, even so, 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 percent (1950) to 57.56 percent (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 was 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 socio-economic and demographic background and, therefore, in their needs and policy preferences (Verba, 1993; Wolfinger and Rosenstone, 1980). In a classic study of American voters, Raymond Wolfinger and Steven Rosenstone

Figure 3: The Weighted Median Voter



(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 Cox and Munger, 1989; Leighley and Nagler, 1992; Patterson and Caldeira, 1983) have focused on systemic characteristics and shown, in particular, that election closeness, registration laws and local socio-economic conditions (average income, unemployment rate etc.) have an impact on electoral participation.¹⁴

It is not surprising therefore that some scholars arrive at the suggestion that ‘low voter turnout means unequal and socioeconomically biased turnout’ (Lijphart, 1997, p. 2). In other words, low participation indicates precisely 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 case for the relevance of turnout is quite straightforward. In Figure 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 their 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, at least in theory, the tax preferred by voters is decreasing in their income: thus, the equilibrium tax rate (and redistribution) will be inferior to that 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.

When turnout is considered, inequality is no longer a predictor for redistribution. When inequality increases (for 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, greater 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.¹⁵ 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 over 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 developed in this section. Empirical evidence that aggregate turnout is a predictor of welfare spending has been provided by Paul Peterson and Mark Rom (1989) for US states and Alexander Hicks and Duane Swank (1992) for industrialised 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', p. 10.

Kim Quaile Hill and Jan Leighley (1992) and Hill *et al.* (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 mobilisation on welfare spending. Also, using US state-level data for the years 1950–88, Thomas Husted and Lawrence Kenny (1997) show how the extension of the voting franchise (thus favouring participation by the poor and minorities) has caused an increase in welfare spending, leaving all other spending unaffected. Finally, in a study conducted on nineteen developed democracies, Robert 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 the empirical predictions.

These results themselves provide some support for the Downsian model: to show that increasing participation by poorer voters increases welfare spending provides support for 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 the 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: 1972–98

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. This analysis, however, has the advantage of providing cross-country evidence using a fairly large longitudinal data set covering 41 countries. Previous studies that employed cross-country panel data (Franzese, 2002; Lindert, 1996; 2004) focused on developed democracies, and therefore on a much smaller set 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 caution.

I use data on social and welfare spending for 41 countries¹⁶ over the period 1972–98. 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 minimum time length 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:

$$Y_{it} = \alpha Y_{it-1} + \beta I_{it-2} + \gamma T_{it-2} + \delta Z_{it} + \epsilon_{it}$$

where i and t refer to country and year respectively, 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 variables¹⁹ and ϵ_{it} is an error term. Different assumptions on ϵ_{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 $\epsilon_{it} = \eta_t + u_{it}$ 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

Table 1: The Impact of Inequality (Gini) and Turnout on Social Spending

	(1)	(2)	(3)
Gini index	0.011* (1.91)	0.013** (2.19)	-0.006 (0.52)
Turnout		0.007*** (2.98)	0.014** (2.61)
Democracy indicator (PolityIV)	0.009 (0.44)	-0.006 (0.27)	0.012 (0.21)
Real GDP per capita (in logarithm)	-0.153* (1.64)	-0.094 (0.99)	-0.195 (0.44)
Percentage aged above 65	0.058*** (2.96)	0.059*** (2.99)	0.167* (2.01)
Percentage aged 15-64	0.024* (1.76)	0.018 (1.30)	0.011 (0.23)
Trade openness	-0.000 (0.49)	-0.000 (0.39)	-0.011* (1.71)
Observations	603	600	600
Number of countries	41	41	41
R-squared (within)	0.8279	0.8292	0.8373

*Notes: Dependent variable: social security and welfare spending as a percentage of GDP. All regressions include a constant and a lagged dependent variable. See note 19 for further details. 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%.*

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, with and without the turnout variable, respectively. These regressions show, quite surprisingly when compared to previous empirical literature, that an increase in inequality, controlling for a number of relevant variables, does in fact lead to more social spending: this is in line with the Downsian predictions. They also show that turnout has a positive impact on social spending. Moreover, 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 (equal to 9.94) leads to a 0.11 percent increase in the ratio between social spending and GDP, and in column 2 to a 0.13 percent increase. This effect is not huge, but neither is it negligible, since the average value of the dependent variable is just 7.42.²¹

One problem with this approach, however, is 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 $\varepsilon_{it} = \vartheta_i + \eta_t + u_{it}$. This shifts the

Table 2: The Impact of Inequality (Median/Mean Income) and Turnout on Social Spending

	(1)	(2)	(3)
Median/mean income	-0.310 (0.67)	-0.382 (0.83)	0.547 (0.87)
Turnout		0.007*** (2.73)	0.014** (2.50)
Democracy indicator (PolityIV)	0.015 (0.62)	-0.010 (0.37)	-0.033 (0.52)
Real GDP per capita (in logarithm)	-0.090 (1.00)	-0.032 (0.34)	0.036 (0.08)
Percentage aged above 65	0.037** (2.01)	0.037** (2.03)	0.219** (2.47)
Percentage aged 15–64	0.021 (1.43)	0.021 (1.44)	0.064 (1.02)
Trade openness	-0.000 (0.06)	-0.000 (0.38)	-0.013* (1.70)
Observations	454	452	452
Number of countries	36	36	36
R-squared (within)	0.803	0.8046	0.8130

*Notes: Dependent variable: social security and welfare spending as a percentage of GDP. All regressions include a constant and a lagged dependent variable. See note 19 for further details. 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%.*

focus of the estimates from cross-country variation to the variation within a country.²² 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 suggest that an increase by one standard deviation in turnout raises social spending by 1.89 percent (and the ratio between social spending and GDP by 0.25 percent).

Which estimates should we trust? The random effect model is certainly more efficient if the specification is correct. However, a Hausman test leads us clearly to reject the assumption that the country dummies are uncorrelated with the other explanatory variables.²³ 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 words, 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 article. In fact, Figure 3 does not say anything about cross-country comparisons; it does, however, tell us that, in each given country, an increase in inequality does not necessarily lead to more redistribution.

One possible objection to this analysis is that I have used the Gini index as an inequality measure, while the Romer-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.²⁴ 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, in the sense 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 Romer-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 article 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 this argument further 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 is often the case.

Using data on 41 countries for the period 1972–98 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: it is very likely that cultural and institutional elements 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 words, 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 common finding that higher turnout tends 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 as having no consequences for public policy.

(Accepted: 14 October 2005)

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Notes

I wish to thank Cristiana Vitale for very helpful comments and discussions and Bjorn Hoyland for dedicated research assistance. This article is part of the Polarisation and Conflict Project CIT-2-CT-2004-506084 funded by the European Commission-DG Research Sixth Framework Programme.

- 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-peakedness 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 Roberts' 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 being 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 tends 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 unidimensional (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 percent because there are competitive forms of allocating financial resources even within the boundaries of a country.
- 8 It is clear that the scope of the government in their analysis is limited to redistribution: there is no such 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 analysing dynamic problems and further assumptions are normally required for its usage in such a context.
- 10 However, the methodology for the evaluation of the redistributive impact of different programmes has been rapidly improving in recent years, thanks 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 this concept is apparently 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 the 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', p. 16.
- 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', p. 16. 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', p. 17.
- 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) and Larcinese (2006).
- 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 of identifying 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 proof of a causal relationship, it makes it less likely that turnout and income are only related through other covariates. A theory of the impact of income on turnout based on information acquisition is proposed in Larcinese (2005).
- 16 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 and Tobago, Uruguay, USA, Venezuela, Botswana, Mauritius, Japan, Malaysia, Nepal, Philippines, Sri Lanka, Thailand, Turkey, Australia and 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.
- 17 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 $\text{polityIV} > 0$. 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>.
- 18 For each country the most salient type of election (generally, the one with highest turnout) has been used.
- 19 The control 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 that has been first pointed out by Cameron (1978). Alesina and Wacziarg (1998) and Rodrick

(1998) provide rationalisations 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>.

20 See for example Wooldridge (2002).

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

22 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 and Bond (1991), have often been proved even more unsatisfactory than OLS estimators.

23 The corresponding Chi-square statistic has a value of 233.68 and the p -value of the test is zero.

24 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.

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