

Ideology and the Growth of Government

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Abstract

We analyze the impact of ideology on the size of government. In a simple model the government sets redistribution and provision of public services according to the preferences of the median voter, for whom private consumption is a necessity. Ideology is defined on preferences for public services and the impact of ideology upon the size of government increases with mean income. In empirical work ideology is measured using data based on party manifestos. Much of the increases and divergence in government size observed across OECD countries can be explained by the interaction of ideology and mean income.

Keywords: ideology, Wagner's law, size of government

JEL Codes: D72, H10

1 Introduction

Over the post-war years total government spending as a fraction of GDP increased in all OECD countries. However, growth rates have differed markedly. In 1960 "the size of the public sector was pretty much the same in almost all of the Western developed economies" (Henrekson and Lybeck, 1988): the OECD average stood at 27.2%. By the late 1990s total government spending stood around 60% in Sweden and well above 50% in many other countries of continental Europe and around 35% in Japan, Switzerland and the United States (Persson and Tabellini, 2003). This divergence is remarkable not least because over this same time period there was substantial convergence in overall economic development across OECD members, for example measured in GDP per capita. In this paper we ask whether and how cross-country differences in ideology, as captured by the ideological positioning of the median voter, can determine these phenomena. We argue theoretically for, and find empirically, a sizable and significant impact of ideology, and most importantly the interaction of ideology and the level of GDP per capita. The observed growth, and divergence of government size is largely explained by ideology, and its interaction with income.

The size of the state has a venerable history as a subject for academic discourse. Theoretical studies have offered numerous explanations for the growth of government, although to date empirical work has not been conclusive.¹ Holsey and Borchering (1997) make a distinction between 'apolitical' and 'political' explanations. The former relate to issues pertaining to the demand and supply of public services. The latter relate to explanations based on the political power of particular members of the electorate and perhaps more malevolently

¹The following review draws in part from excellent surveys by Holsey and Borchering (1997) and Lybeck (1988).

the incentives facing politicians under alternative constitutional rules.

On the apolitical side Wagner (1893) proposed a "law of increasing state activity" which is now known as Wagner's law. Whilst researchers have proposed alternative definitions of this law (e.g. see Peacock and Scott, 2000) the standard interpretation now seems to be that the income elasticity of demand for publicly provided goods is greater than one (Holsey and Borcharding, 1997). Peacock and Scott (2000) distinguish between 'traditional' government services such as defence and law and order, and 'newer' functions such as education, health and welfare services including employment insurance and state pensions. According to Wagner's law the demand for these services in aggregate increases more than one-for-one with advances in economic development. However, and perhaps surprisingly, Holsey and Borcharding find that the empirical support in favour of Wagner's law is "mixed at best". Nonetheless we take Wagner's law seriously: One particular concern is that Wagner's law has not been formalized within an economic model - an omission which we correct in this paper. In our model income elasticity is positive but diminishing as income rises, and importantly is different across countries given differing underlying parameters. In particular, income elasticity is highly dependent upon ideology - and previous empirical work has all but completely neglected this aspect in determining government size.

Whilst Wagner's law focuses on the demand side, Baumol's (1967) cost disease represents a supply side explanation. In this theory the public sector suffers from cost disease because by assumption only the private sector enjoys technological progress. As wages rise the relative cost of the public sector must therefore increase and given price-inelastic demand for government goods the public-sector expenditure share must increase. The literature provides some evidence in support of aspects of Baumol's hypothesis (see Holsey and Borcharding,

1997), though whilst this is a persuasive story we argue that it does not explain the full *variation* in the observed growth of the state in the comparative context. For example, the cost disease explanation would attribute the greater public sector share in Sweden to higher relative costs of publicly provided goods in that country. However, the theory asserts that whilst expenditure increases, the actual quantity of the public services delivered in equilibrium falls. It is abundantly clear that the actual quantity of public provided services in the shape of redistribution, healthcare etc. is significantly larger in Scandinavia than in the US so we conclude that the Baumol explanation cannot fully explain the observed differences: there is something else going on.

On the political side a seminal contribution is that of Meltzer and Richard (1981). The role of government in their model is solely to redistribute, and voters have distinct preferences over the tax rate given their position in the before-tax income (i.e. productivity) distribution. The poor (rich) prefer higher (lower) taxes in this one-dimensional policy setting and in equilibrium the median voter prevails. Because income distributions in practice are always right-skewed the median voter chooses a positive tax rate, though this is less than unity because voters rationally anticipate the disincentive effect of higher taxes. Their central result therefore is that greater inequality as captured by the difference between mean and median income leads to bigger government. Unfortunately the Meltzer and Richard (1981) hypothesis has not fared at all well when confronted with the data. An obvious example, again, compares Scandinavian countries with quite equal income distributions, yet large governments against the US with the reverse. Our view is that cross-country comparisons of this sort are subject to omitted variable bias, and clearly there are important cultural and ideology variables that need to be taken into account. It is also the case that Meltzer

and Richard understate the complexity of the activities of government. As already alluded the government's role in the economy is multi-faceted, including provision of services that don't fit neatly into the definition of pure redistribution. By including public goods, and furthermore ideology in the shape of appetite for these public goods, as well as redistribution we find a potential resolution of this empirical failing.

Recent work has focused on the impact of constitutional rules upon the size of government. Theoretical work by Persson and Tabellini (1999, 2000), Lizzeri and Persico (2001) and Milesi-Ferretti et al (2002) argues for a strong effect of the electoral rule, and in particular whether voting is aggregated proportionally or according to majoritarian systems, upon the composition of public spending. The theory also is suggestive that proportional representation leads to larger overall government. Persson et al (2000) argue theoretically that parliamentary as opposed to presidential government will lead to a larger State. Empirical work by Persson and Tabellini (2003, 2004) finds that differences in government size across countries (measured as an average through the 1990s) are significantly explained by these two constitutional rules.² This represents a substantial body of work which we aim to improve upon in two directions. Firstly, as pointed out by Acemoglu (2005), there is a potential problem of omitted variable bias, and indeed Acemoglu suggests "differences in culture" amongst other variables as an important underlying factor that potentially co-determines the constitutional rule as well as the choice of government size. Gabel and Hix (2005) also make this point, and indeed find that ideology³ is significant in the cross-section. However, unlike Gabel and Hix we construct a model of the demand for government and argue for an

²The bottom line in Persson and Tabellini (2004, p. 39) is that presidential regimes and majoritarian elections are found to each cut the size of government by about 5% of GDP.

³In their study ideology measures are constructed using data from the World Values Survey.

interaction of ideology and GDP per capita. Furthermore our empirical analysis uses panel data, hence we can control for country-specific factors that are fixed through time. Secondly, and following on from this, we also note that Persson and Tabellini's underlying theories are essentially static: the predictions for government size hold regardless of the state of development (i.e. the level of GDP per capita). However Persson and Tabellini (2004) report (in column 5 of table 2) that there is no evidence of any constitutional effects using data from the 1960s. By allowing for a positive income elasticity of demand for public services, that varies with ideology we derive and estimate a model that can explain the observations of the 60s as well as those of the 90s.

In sum there are a great many well-articulated theories explaining the growth of government. However, empirical work has been far from conclusive. We believe the elephant in the room is the impact of tastes, culture or ideology.⁴ Indeed Holsey and Borcharding (1997) write that "few deny that ideology matters in the size and composition of government spending" (ibid, p. 587).

In the theory below our interpretation of ideology is that it represents preferences for publicly provided goods and services, broadly defined: leftist cultures are keener on state provision, and especially of Wagnerian newer functions such as health, education, social insurance and indeed what might be termed altruistic redistribution. Rightist cultures are keener on provision by the market.⁵ However, and importantly, these preferences are tempered by income. When incomes are low, the pain of taxation in terms of lost utility from

⁴An exception is Kau and Rubin (2002), who report that the Poole-Rosenthal measure of Senate ideology has a small impact on government revenues within the US.

⁵This is a reasonably consensual view of what is meant by "left" and "right". For example Gabel and Hix (2005) write that "In general, voters on the left prefer higher taxes and higher levels of public spending than voters on the right".

reduced private consumption is high. Even if the ideological climate is statist (i.e. left-wing), the median voter in circumstances of low income will not tolerate big increases in taxes. Consequently at low levels of income we would not expect to see much dispersion across countries, and ideologies, in terms of government size. However, as income grows, statist inclinations may be indulged. In terms of utility the pain of taxation is reduced at higher levels of income and so the left-leaning median voter mandates higher taxes to fund the Wagnerian goods she desires. The theory thus can predict what is observed in the data: increases, and divergence in the size of government as GDP levels rise.

In our empirical work we employ the ideology measures of Budge et al (2001). These data describe comparable ideological positions of political parties along a left-right dimension for most OECD countries over the period 1945-1998. Using these data Kim and Fording (2001) derive estimates of the ideological position of the median voter in the country, and find plausible results: Scandinavians are more 'left-wing' on average, Anglo-Saxon countries exhibited a right-ward drift through the 1980s and so on. A key advantage of these data is that they vary through time as well as across space, allowing for analysis of how ideology has affected the size of government within as well as across countries. The approach taken here is to regard ideology as exogenous. Fundamentally ideology in our context represents tastes, and economics traditionally takes these as given. Nonetheless, as with everything, ideology may well itself have its own deeper determinants and there is an extremely interesting literature exploring the related question of why some societies are more egalitarian than others.⁶ However, because we employ panel data our empirical analysis focuses on within-country

⁶For example Alesina et al (2001) attribute the absence of a welfare state in the US to racial heterogeneity. Alesina and Angeletos (2005) describe how redistributive policy changes depending on differences in beliefs on the extent to which income is determined by luck, birth and connections as opposed to merit.

variation, and so deeper cultural causes are controlled for in the fixed effects. Furthermore, because we would expect substantial lags between preferences and enacted policy the ideology measure used in the empirical analysis is constructed as an average of lagged ideology data. We are therefore confident that the relationship that we find between government size and ideology, and especially the interaction of ideology and income is causal.

In the next section we derive the model. Section 3 contains our empirical work and section 4 concludes.

2 The Model

The basic premise is that preferences for public goods and services, in other words ideology, help to determine the size of government. In order to analyze this formally we modify the political-economic model in the seminal paper by Meltzer and Richard (1981) (MR) to include spending on a generic public good,⁷ defined as the Wagnerian components of government spending. In MR the purpose of government is solely to redistribute, thereby financing private consumption. The self-interested voter votes for redistribution so long as it exceeds the lost consumption from taxation. However as argued above the functions of government are much more diverse than just narrow redistribution hence in this paper taxation finances both redistribution and other public services. In fact it is conceivable that redistribution desired for altruistic reasons may be thought more of as a Wagnerian public good rather than redistribution in the MR sense. In order to derive an explicit solution for the size of the government we follow Meltzer and Richard (1983) and employ the Stone-Geary utility

⁷Note that 'public goods' here may be rivalrous and excludable thus are not necessarily pure-public goods in the Samuelsonian sense.

function, which as they note is capable of showing whether the share of income taxed remains constant, increases, or decreases as income changes.

The objective function therefore is written as

$$u_i(c_i, g) = \ln(c_i - \mu) + \beta \ln(g + \mu) \quad (1)$$

where c_i is consumption of person i and g is the per capita level of publicly provided goods and services. As already discussed g represents a substantial component, and probably the bulk of total government spending (although this is not necessary for our results to go through). g represents the Wagnerian components of the government activity such as health, education, and indeed part of redistribution, when it is demanded for insurance purposes or even altruistic reasons. The public clearly likes these services, but they are separable from private consumption in the utility function. $\beta > 0$ is a preference parameter that reflects liking for publicly provided goods and services, which as argued above characterizes society's ideological position. The larger this is, the more left-wing the culture. Finally $\mu \geq 0$ is the Stone-Geary parameter. In the spirit of Wagner's law we model private consumption as a necessity and public goods as a luxury, so μ is interpreted as the subsistence level of consumption.

Income, y_i , differs across individuals and is taxed at a linear rate, t . As in MR consumption is augmented by lump-sum redistribution, r :

$$c_i = (1 - t) y_i + r \quad (2)$$

Taxation revenue finances both redistribution and the public good and given a balanced

budget

$$t\delta\bar{y} = g + r. \quad (3)$$

where \bar{y} is mean income, and $0 < \delta \leq 1$ is a parameter capturing public sector efficiency (high δ) or waste (low δ). This waste could be due to the argument that higher taxes reduce incentives to work hence reducing mean income from what it would otherwise be, as well as representing tax revenue expropriated or spent on non-productive ego-projects etc. Defining $0 \leq \varphi \leq 1$ as the share of tax revenue spent on public services, then

$$g = \varphi t\delta\bar{y} \quad (4)$$

$$r = (1 - \varphi)t\delta\bar{y}. \quad (5)$$

The utility function can therefore be rewritten as

$$u_i(c_i, t) = \ln(y_i(1 - t) + (1 - \varphi)t\delta\bar{y} - \mu) + \beta \ln(\varphi t\delta\bar{y} + \mu). \quad (6)$$

An assumption made here is that φ is fixed exogenously thus reducing the policy space to one dimension.⁸ The gain in doing this is that, as shown by Roberts (1978) the political equilibrium exists and is characterized by the choice of the median voter. It is well known that a Condorcet winner generally will not exist given two policy variables. A possible justification for making this assumption could be public sector inertia: if various departments of government have particular power in claiming shares of the overall tax revenue pot then changes in relative spending may at least be slow. Voters would therefore take this as given

⁸An alternative would be to set $\varphi = 1$, which would be a special case of the model analysed.

when identifying their preferred tax rate. It can be seen from (6) that when $\varphi = 0$ the model reduces to the case considered by Meltzer and Richard. In this environment the poor are increasingly keen to tax and redistribute. In the case of $\varphi = 1$ we have a purely Wagnerian model, and in this case it is the rich that are keener to tax given the utility function (note either way and for all points in between the median voter is still the Condorcet winner). By considering the general case we can identify whether and how the spending pattern of government alters the impact of ideology upon government size.

The optimal choice of the median voter is given by differentiating (6) and solving for t giving

$$t^* = \frac{\beta\varphi\delta\bar{y} - [1 - (1 - \varphi)\delta m]\mu - \beta\varphi\delta m\mu}{\varphi\delta\bar{y}(1 + \beta)[1 - (1 - \varphi)\delta m]} \quad (7)$$

where $m = \bar{y}/y_m > 1$ is the ratio of mean income to median income (y_m). In order to ensure $0 \leq t^* < 1$ two conditions are formally required:

$$\bar{y} \geq m\mu + \frac{[1 - (1 - \varphi)\delta m]\mu}{\beta\varphi\delta} \quad (8)$$

$$[1 - (1 - \varphi)\delta m] > \frac{\beta}{1 + \beta} \quad (9)$$

Condition (8) ensures that $t^* \geq 0$ and can be described as a minimum development requirement: mean income must be sufficiently large relative to subsistence (μ) such that there are incentives for the median voter to tax at a positive rate. Since our focus is on OECD countries we argue this is a reasonable assumption. Condition (9) ensures that $t^* < 1$. This will obtain as long as the level of waste is high (i.e. δ is quantitatively small) enough to dissuade the median voter from increasing taxes further. Given that it is plausible that δ

would approach zero as t approaches 1 due to the increasing disincentive effect of taxation this condition would be satisfied for any value of β . Formalizing the exact relationship between δ and t substantially complicates the model, and more importantly is unnecessary for our objective.

Given equation (7) and conditions (8) and (9) we have the following proposition, for which formal details are available in the appendix.

Proposition 1 *(i) Ideology. Holding \bar{y} , m and the other model parameters constant, a higher value of β entails a larger state. The more left-wing a country's ideology, the larger its government.*

(ii) Wagner's law. Holding β , m and the other model parameters constant, government grows with mean income. Furthermore the income elasticity of the demand for government is positive, but diminishing.

(iii) Interaction. Given $\delta m > 1$ differences in government size due to ideology will increase with income.

Part (i) of proposition 1 is straightforward and unsurprising: given our definition of Left-wing ideology as an increased liking for state provision, then a higher value of β corresponds to relatively left-wing preferences, and a larger state, holding other variables constant.

Part (ii) of proposition 2 formalizes Wagner's law. From 'take-off' GDP, \bar{y}_0 (i.e. that level of \bar{y} defining (8) with equality) taxes increase from zero to some limit. Nonetheless in this set up policy does not suffer from Peacock and Scott's (2000) 'reductio ad absurdum',

that the state will eventually absorb the entire economy. From (8) and (7) we have,

$$\bar{y}_0 = m\mu + \frac{[1 - (1 - \varphi) \delta m] \mu}{\beta \varphi \delta} \quad (10)$$

$$\lim_{\bar{y} \rightarrow \infty} t = \frac{\beta}{(1 + \beta) [1 - (1 - \varphi) \delta m]}. \quad (11)$$

Equation (10) defines the level of development at which the state takes off. Equation (11) is less than unity given (9). In a world of positive economic growth at the limit the public sector converges to some 'steady State' which is increasing in left-wing ideology and government efficiency (i.e. characterized by high values of δ). The 'steady State' also is increasing in inequality (m) for precisely the reasons given by Meltzer and Richard (1981) - the further away the median from mean income, the greater the extent of redistribution from the rich to the poor, all else equal.

The income elasticity of the demand for overall government size is positive, although diminishing as the economy grows. The fact that the growth of government is at first rapid is due to the functional form of the utility function: once subsistence has been achieved, the median voter then allocates a constant proportion of her marginal income to both private consumption and the public good, g . Overall the proportion of total income devoted to public sector activities (redistribution and provision of public goods) increases and converges towards some level that is in large part determined by tastes for public provision or ideology as characterized by the parameter β .

Finally, part (iii) of proposition 1 establishes that the impact of ideology upon government size is state-dependent. If $\delta m > 1$ then the difference in government size between two countries of alternative ideological persuasion will expand as their economies grow, otherwise

the difference will fall. We argue this condition is likely to be met within OECD countries: as long as waste is not too serious (i.e. δ not too low), for a sufficiently skewed income distribution the impact of given ideological differences increases as mean income increases. Thus, differences in government size in leftist and rightist countries at low levels of income tend to be small. As incomes rise the capacity for state expansion rises and differences in ideology manifest themselves more concretely.

In figure 1 we calibrate the model for archetypal left- and right-leaning countries (think of Sweden vs the US). The model parameters are enumerated as follows: $\mu = \$2000$, $\varphi = 0.75$, $m = 2$, $\delta = 0.8$ (though the general argument is robust to alternative parameterizations). For the left- (right-) wing country we parameterize ideology as $\beta_L = 0.6$ ($\beta_R = 0.3$). As would be expected take-off happens somewhat sooner in the left-wing country (at a mean income of \$7333 instead of \$10667), although given the reasonably large difference in ideologies the difference is not that vast. For example if the left-wing country (again think Sweden) has a larger subsistence requirement (e.g. food & heating) then this could shift take-off to the extent it happens earlier in the right-wing country. Numerically if μ is increased to \$3000 then take-off in the left-wing country is put back to \$11000. However, once income starts to grow then the State in the left-wing country grows faster (because $\delta m = 1.6 > 1$) and the ideological difference between the two countries manifests itself increasingly strongly. At the limit the left-wing country's government grows to 62.5% whereas in the right-wing country the state share of GDP grows to no more than 38.5%. It is this interaction between GDP levels and ideology that we argue explains much of the growth, and divergence across OECD countries in the latter half of the last century.

En passant we revisit Meltzer and Richard's line of enquiry and examine the relationship

between government size and inequality. Differentiating (7) with respect to m yields

$$\frac{\partial t^*}{\partial m} = -\frac{\beta \{\mu - (1 - \varphi) \delta \bar{y}\}}{\bar{y} (1 + \beta) [1 - (1 - \varphi) \delta m]^2} \geq 0. \quad (12)$$

According to equation (12) the size of the state may be increasing or decreasing with respect to inequality. The condition for this is whether or not $(1 - \varphi) \delta \bar{y} - \mu$ is greater or less than zero. The Meltzer and Richard case corresponds to $\varphi = 0$ and $\delta = 1$ hence (12) is positive for all of the relevant income range. In the general setting this holds once \bar{y} becomes sufficiently large and as apparent from equation (11) taxation must eventually be increasing in inequality. Given positive economic growth eventually the Meltzer and Richard hypothesis that inequality leads to larger government, will preside. However, at low levels of GDP it is feasible that the median voter's preferences are for lower taxes, given a sufficiently wasteful government (small δ) or a sufficient weight on public goods in the budget (large φ). Marginal utility of consumption is high at low income levels, and increased taxes only come back partially as finance for additional consumption due to spending on public services and waste. We make these observations because empirical evidence on the Meltzer and Richard hypothesis has on the whole been quite weak. The argument presented here refines their argument by saying the relationship between inequality and government size is potentially ambiguous at low levels of income when concerns over subsistence may dominate concerns over (partial) redistribution in circumstances where the government spends money outside of redistribution on Wagnerian public services and indeed may also be wasteful. In figure 2 we consider how the size of government evolves under equal ($m = 1.5$) and unequal ($m = 2.5$) income distributions⁹ and find that at low levels of income, there is barely any difference

⁹Here β is set equal to 0.5 and the other parameters are set as for figure 1.

between the two. Indeed at mean income levels below \$10,000 the preferred tax rate is higher for the equal distribution. This is because at these low income levels the pivotal voter is poorer under the unequal income distribution than the egalitarian income distribution, and is more concerned with subsistence than the fruits of public spending.

Before proceeding to the empirical work it is worth considering how robust the central proposition is to relaxing the assumption of exogeneity of φ . One possible conjecture would be that φ increases with mean income (again holding the distribution of income constant). The electorate, as it grows richer would have more of the 'luxury' aspects of state provision than pure redistribution, as the marginal utility of consumption would surely be falling. Given a higher value of φ as income rises, then the increased impact of ideology is likely to be further increased as g becomes a larger fraction of government spending.

3 Evidence

The empirical analysis focuses on 17 OECD countries that have been democracies throughout the post-war era. The countries are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, the Netherlands, Norway, Sweden, Switzerland, the UK and the US.¹⁰

The dependent variable is total government outlays as a percentage share of GDP, from the OECD Economic Outlook database. Figure 3 depicts these data, which show considerable anti-cyclicalities as would be expected, and more relevantly over the long run an upward trend in all countries. The increasing dispersion across countries is also noteworthy, especially

¹⁰These countries were chosen purely on the criteria of their being democracies throughout the period and there being available data for both total government outlays and ideology.

so given the convergence in GDP per capita and more broad development terms across OECD members over this time horizon. Our argument is that the impact of ideology on the median voter's preference for public goods increases as marginal utility of consumption of private goods declines. The median voter thus becomes increasingly liberated to exercise her preferred public-sector outcome with increases in the level of economic development.

In figures 4-6 the dependent variable is graphed against GDP per capita in constant 1985 dollars for each country. These graphs make clear a number of facts central to our argument. Firstly over the sample there is a positive relationship between government size and GDP per capita in all countries. Second, the relationship often appears to be non-linear. In second-order polynomial trend regressions the linear term is positive, whilst the quadratic term is negative in most cases.¹¹ The only countries for which the quadratic term is positive are Finland and France and in both cases these estimates are statistically insignificant: Given the small sample size this provides reasonable support for the argument made above, that the income elasticity of the demand for government is positive, but diminishing. Third, income elasticity differs substantially across countries. For example the Scandinavian countries and some of the countries of mainland Europe exhibit fairly steep slopes, whereas in countries like Australia, Iceland, Switzerland and the US government size is apparently less income elastic. In recent years government size has fallen to an extent in a number of countries (Ireland, the Netherlands and the UK are notable cases). This may be attributable to cyclical factors, though might also be due to a rightward shift observed in the ideology data during the 1990s.

For our ideology data we utilize the Manifesto Research Group (MRG) data of Budge et al (2001). These data summarize left-right ideology at the level of the party, and following Kim

¹¹This finding is robust to the inclusion of the control variables as used in the regression analysis below.

and Fording (2001) annual series are constructed for the median voter ideological position in each country. Country level averages of these data are presented in figure 7 showing, as would be expected, that the Scandinavian countries are on average substantially more left-wing than say the US or Australia. It is perhaps surprising that the UK is left of the Netherlands and Denmark on average through this time period, but as would be expected the UK exhibits a marked drift to the right in the 1980s and the period 1945-1979 (i.e. prior to Thatcher) constitutes around 2/3 of the data set.

Figure 8 illustrates the ideology series over time averaging over countries with Proportional Representation (PR) and Majoritarian electoral rules respectively. Following Persson and Tabellini's (2003) definition the majoritarian countries are Australia, Canada, France, the UK and the US. In the 1950s and 1960s both sets of democracies if anything exhibit a trend to the left, though during this period neither is consistently different from the other. Things change markedly in the late 1970s with the right-ward shift in the Anglo-Saxon countries. In the 1990s median voters in the PR countries have also apparently shifted to the right, though they remain on average left of their colleagues in the Majoritarian countries.

Because in reality there are substantial lags between preferences as expressed in the ideology data, and policy enacted by government, in the regression analysis below we use a moving average of the previous 10-years' MRG data for each country to construct a measure of the current aggregate ideological position for that country. This procedure also mitigates against concerns of endogeneity - the ideology measures now substantially predate the observations on government size, and are thus pre-determined. This measure is then transformed¹² to facilitate inference, so that our final ideology measure, $ideo_{it}$ are scaled from

¹²The MRG median voter data takes values from -100 (extreme left) to +100 (extreme right). We transform

minus unity (extreme right) to unity (extreme left). In figure 9 averages of these data are plotted against average government size in the 1990s. The correlation coefficient between these two variables is 0.7, and the figure shows that ideology can potentially explain a lot of the observed variation in government size across countries.

To examine the relationship between government size, income and ideology more systematically we now turn to panel data analysis. The econometric analysis follows Persson and Tabellini (2003) (PT), except the analysis here is restricted to just the OECD countries for which we have ideology data and which have been democracies throughout. Their analysis (out of necessity given their wider scope) focused on central government expenditure only. However, for the OECD countries it is possible to use total government outlays as the dependent variable (following the notation used in section 2 denoted t), which is preferable in that it includes expenditures made by local government. We employ the same control variables¹³ used as standard by PT, and in addition, use their cyclical control variables¹⁴, as these are in most cases significant in the case of the OECD countries. Finally, the lagged dependent variable is also included as a regressor throughout because of the substantial persistence in this variable.

In table 1 total government outlays (t) are regressed upon income, ideology and the interaction of ideology and income. Columns (1a) and (2a) show the results for the full

the data according to $ideo_{it} = (-\overline{MRG}_{it})/100$ where \overline{MRG}_{it} is the mean of the past 10 years median voter position constructed as in Kim and Fording (2001).

¹³Specifically 'PROP1564' - the percentage of the country's population between 15 and 64 year of age in the total population, 'PROP65' - the percentage of the country's population over the age of 65 in the total population, 'TRADE' - the sum of exports and imports measured as a share of GDP,

¹⁴The cyclical control variables are 'YGAP' - the deviation of aggregate output from its trend value in percent, 'OIL_EX' - the oil price multiplied by a dummy variable equal to 1 if net exports of oil are positive and 'OIL_IM' - the oil price multiplied by a dummy variable equal to 1 if net exports of oil are negative.

sample using fixed effects but without common time effects. Given the presence of the lagged dependent variable the parameter estimates in these columns reflect the current-period (or short-run) impact upon t of the explanatory variables. In columns (1b) and (2b) corresponding 'long-run' parameters estimates are presented,¹⁵ illustrating the impact of particular levels of income and ideology upon the long-run steady state level of t - which we denote t^* .

In column (1) the direct impact of income upon government size is positive and statistically and economically significant. In this sample a one standard deviation (\$3300) increase in Y would increase outlays by about 4.4% of GDP in the long run. Perhaps surprisingly the direct impact of ideology in column (1) is estimated to be negative - contrary to expectation. However, the overall impact of ideology turns out to be positive because of the interactive effect with income. The full impact of ideology is modelled as a linear function of income, and what we term here the direct impact is the intercept of that function. Because the slope (interaction) term is always sufficiently large, the full impact of ideology is positive as would be expected.¹⁶

To assess the impact of ideology through time consider the increase in the size of the State in what we term an archetypal left-wing country (say Sweden) compared with that in

¹⁵Given the regression $t_t = \alpha t_{t-1} + \beta Y_t + \gamma I_t + \delta Y_t I_t + \dots$ the long-run level of t is taken as $t^* = \frac{\beta}{1-\alpha} Y_t + \frac{\gamma}{1-\alpha} I_t + \frac{\delta}{1-\alpha} Y_t I_t + \dots = \lambda Y_t + \mu I_t + \nu Y_t I_t + \dots$. The long-run parameters, λ , μ , and ν and their standard errors are estimated iteratively using the Delta method.

¹⁶Nonetheless, the negative direct effect, even if in economic terms quite small (the standard deviation of the ideology variable is 0.12) is an interesting finding. One possible rationale could be that electorates are inclined towards left-wing regimes when the economy is on the upslope of the business cycle, but inclined towards right-wing regimes after the economy has peaked. Given the anti-cyclical nature of t this would lead to the negative direct relationship observed in the data. However, and most importantly, the interaction term itself is estimated to be positive and statistically significant at the 1% level, and is economically sizeable as well.

an archetypal right-wing country (say the US). The left- (right-) wing country has constant ideology set equal to one standard deviation (0.12) above (below) the mean ideology score (0.04) in the sample. In 1960 mean income was \$6185, and in 1998 means income was \$15881. Given this increase in income in both countries, and holding other controls constant, the overall increase in the steady-state level of the size of government (t^*) in the right-wing country is 9.41% of GDP, whereas the increase in the left-wing country is 20.32%. This is a sizeable difference and may explain why Persson and Tabellini (2004) find that the electoral rule has an impact on the size of government in the 1990s but not in the 1960s: If majoritarian countries are typically right-wing, and countries with PR electoral rules are typically left-wing (and Figure 8 is at least suggestive of this), then our model would predict the data - but of course the mechanism is now straightforward median-voter demand, rather than due to the constitutional rule itself.

As a further experiment to examine the impact of ideology upon t column (2) drops the interactive term. Now the ideology variable becomes positive and significant at the 1% level - giving further credence to the argument that the negative (and insignificant) estimate of the direct effect in column (1) needs to be understood in the context of the presence of the interaction term. If we take the switch from being archetypally right to archetypally left (a two-standard deviation change in ideology), then long run impact of this switch is an increase in the size of government of 5.76%. Nonetheless, this is we argue a crude estimate of how ideology impacts upon the size of government, because its impact, both theoretically and empirically, depends strongly on the level of economic development.

Table 2 contains regression results when common time effects are also included. This table also contains regression results for reduced samples depending on the electoral rule.

Whether looking at the full sample or either of the sub-samples the direct impact of income now becomes insignificant as the time effects now do a better job of capturing the common trend than income itself. The direct impact of ideology is again estimated to be negative, and in the cases of the PR countries (column 2) this relationship is statistically (if not economically) significant. Nonetheless, once again the interactive term is in all three regressions estimated to be positive and significant at the 1% level, and sizeable. The parameter estimates are comparable with the results in table 1, and leftist and rightist regimes would diverge substantially given representative income increases. A striking conclusion from table 2 is that there are not substantial differences across electoral rules in how government size responds to income and ideology.

The finding of a statistically, and economically significant impact of the interaction of ideology and income holds up in all of our econometric specifications. It can explain a substantial component of the growth, and divergence of government size in OECD countries over the latter half of the twentieth century.

4 Conclusion

This paper asks how ideology affects the size of government. We define left (right) ideology as relative (dis-)liking for public provision over private consumption, and in a simple model where private consumption is a necessity, and public services are luxury goods, then the impact of ideology increases with the level of income. Using data from party manifestos, time-varying measures for the median-voter's ideological position are constructed. These data have a significant impact upon government size, but most critically, this impact increases

with the level of economic development. At 1960s income levels the impact of ideology on government size is small. At 1990s income levels the impact is large. Our model, and the ideology data we use can thus explain observations in the 1960s and 1990s and indeed why there has been such divergence over the OECD countries through this period.

Part of the motivation for the paper was as an investigation of Persson and Tabellini's (2004) finding of significant effects of constitutional rules. We would not argue that the results presented here are sufficient to negate their argument. For one thing their data set is much larger; we are restricted due to the limited availability of ideology data. For another it is not possible to separate out the non-time-varying constitutional rule from the fixed effect in panel analysis. Nonetheless, we do feel that ideology casts an important shadow over their results. Our theory can explain the 1960s observations as well as the 1990s observations, and it does appear that ideology is correlated with electoral rules, at least in the smaller set of countries studied here.

Appendix - Proof of Proposition 1

part (i)

Differentiating (7) with respect to β gives

$$\frac{\partial t^*}{\partial \beta} = \frac{\varphi \delta \bar{y} + \mu (1 - \delta m)}{\varphi \delta \bar{y} (1 + \beta)^2 [1 - (1 - \varphi) \delta m]}.$$

Proposition 1 requires this expression to be positive. The denominator of this expression is positive from (9), hence we require $\varphi \delta \bar{y} > \mu (1 - \delta m)$. From (8) this holds a fortiori if $\varphi \delta \left\{ m\mu + \frac{[1 - (1 - \varphi) \delta m] \mu}{\beta \varphi \delta} \right\} > \mu (1 - \delta m)$. Rearranging, this implies $\beta m\mu + [1 - (1 - \varphi) \delta m] \mu > \beta \mu \delta m - \beta \mu m$. Using again (9) the first and second terms on the LHS are respectively greater than those on the RHS.

part (ii)

Differentiating (7) with respect to \bar{y} gives

$$\frac{\partial t^*}{\partial \bar{y}} = \frac{\mu \{ [1 - (1 - \varphi) \delta m] + \beta \varphi \delta m \}}{\varphi \delta \bar{y}^2 (1 + \beta) [1 - (1 - \varphi) \delta m]}. \quad (\text{A1})$$

Given (9) this is positive by inspection. The second derivative is negative, thus establishing the second part of the proposition:

$$\frac{\partial^2 t^*}{\partial \bar{y}^2} = - \frac{2\mu \{ [1 - (1 - \varphi) \delta m] + \beta \varphi \delta m \}}{\varphi \delta \bar{y}^3 (1 + \beta) [1 - (1 - \varphi) \delta m]}.$$

part (iii)

Differentiating (A1) with respect to β gives

$$\frac{\partial^2 t^*}{\partial \bar{y} \partial \beta} = \frac{\mu [\delta m - 1]}{\varphi \delta \bar{y}^2 (1 + \beta)^2 [1 - (1 - \varphi) \delta m]}.$$

Given (9) the sign of this expression depends on the sign of $\delta m - 1$.

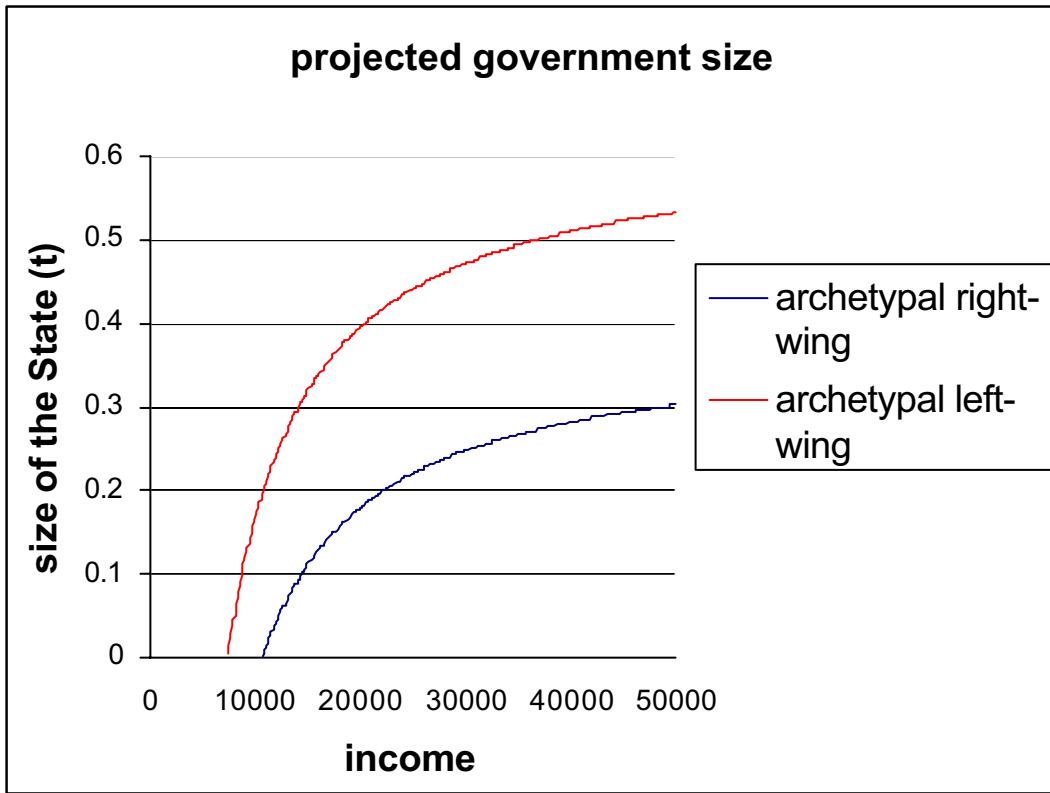


Figure 1: Projected government size for archetypal left- and right-wing regimes

Calibration: $\varphi = 0.75, m = 2, \mu = 2000, \delta = 0.8, \beta_L = 0.6, \beta_R = 0.3$

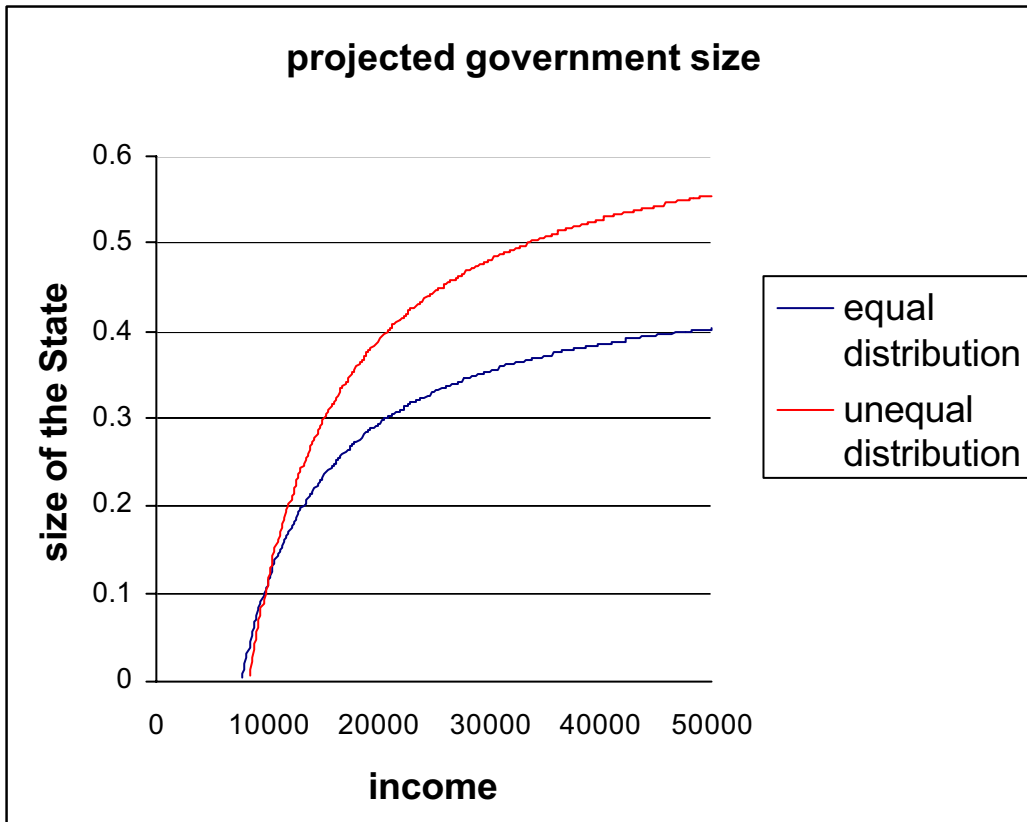


Figure 2: Projected government size and income for equal and unequal income distributions

Calibration: $\varphi = 0.75, \mu = 2000, \delta = 0.8, \beta = 0.5, m_{equal} = 1.5, m_{unequal} = 2.5$

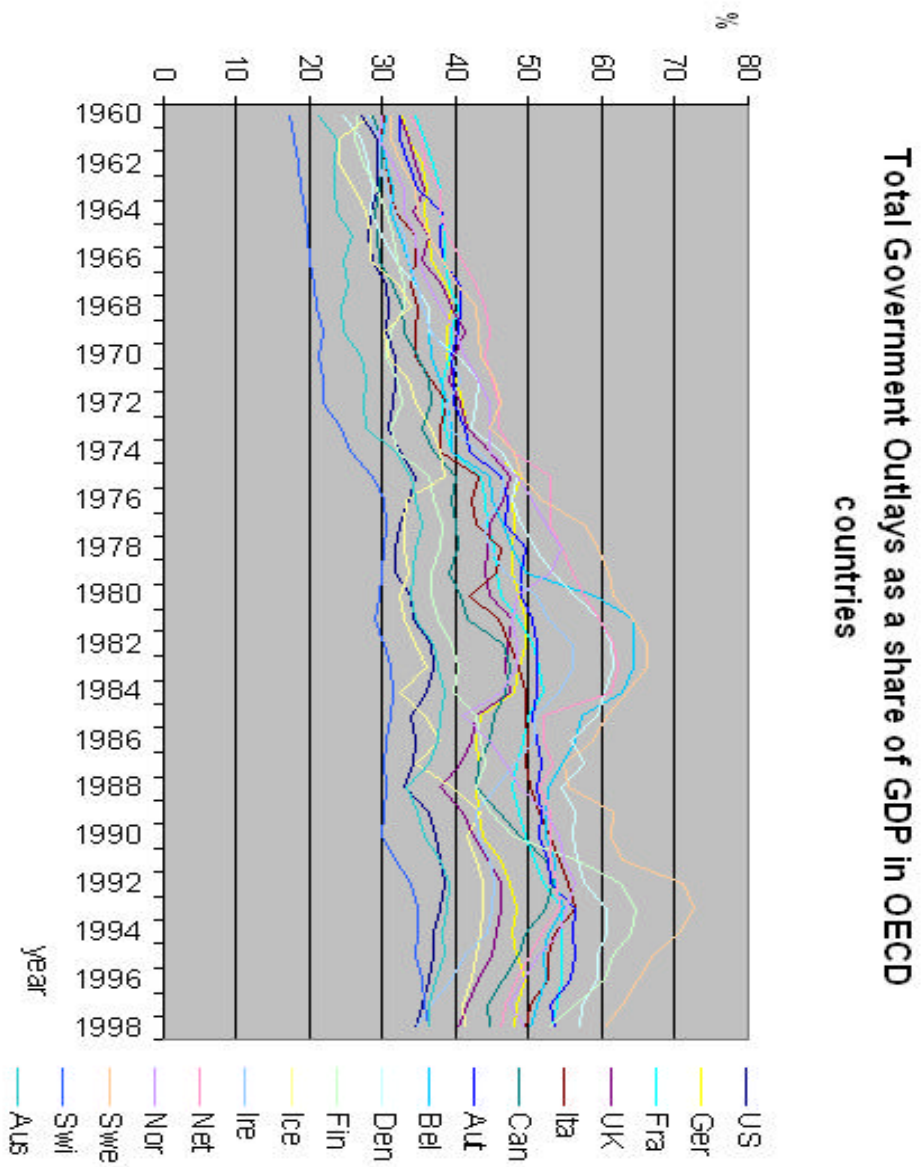


Figure 3: Total Government Outlays as a share of GDP. Source: OECD Economic Outlook database

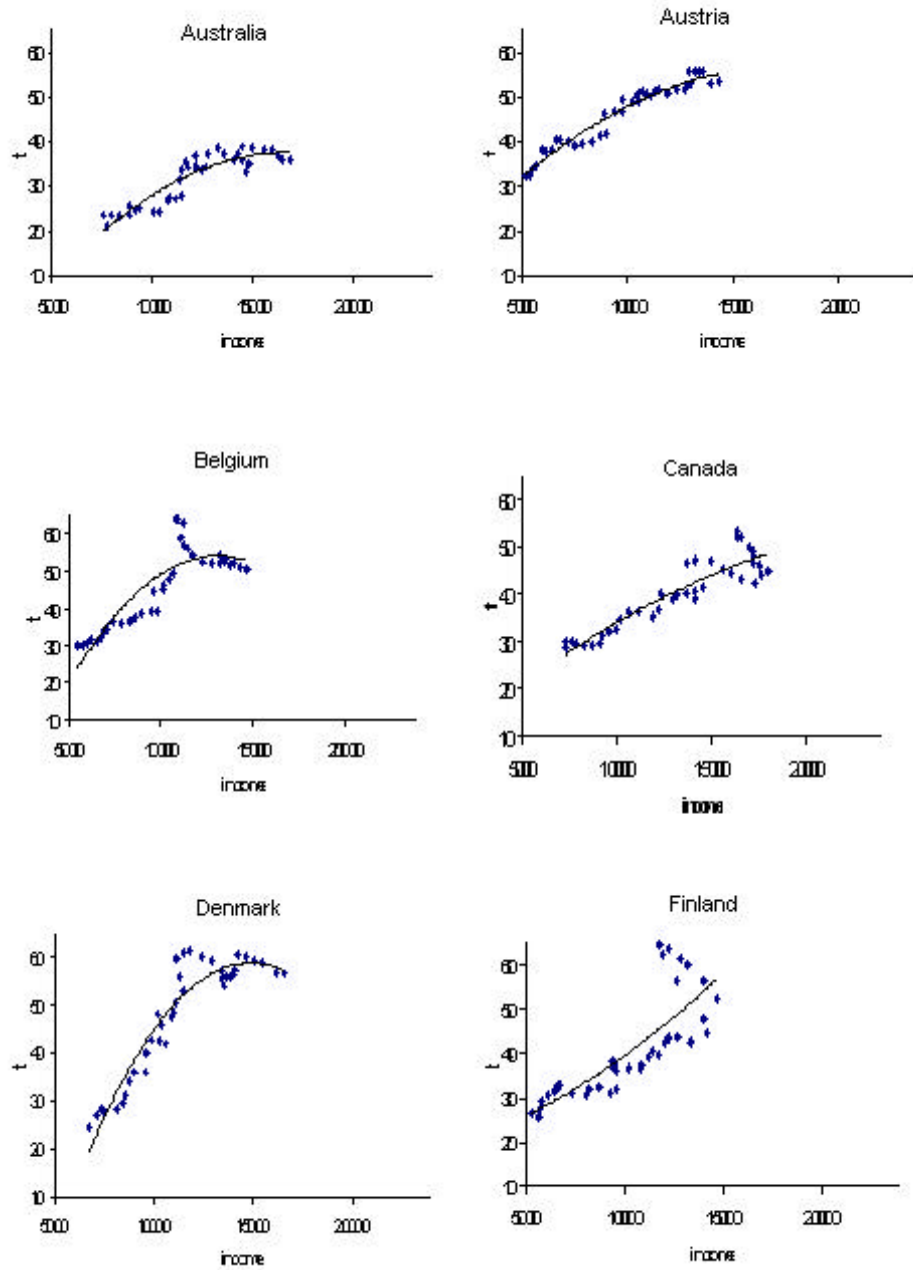


Figure 4: Size of government (t) and real GDP per capita (1985 PPP). Source: OECD Economic Outlook and Persson and Tabellini (2003) - from Penn World Tables.

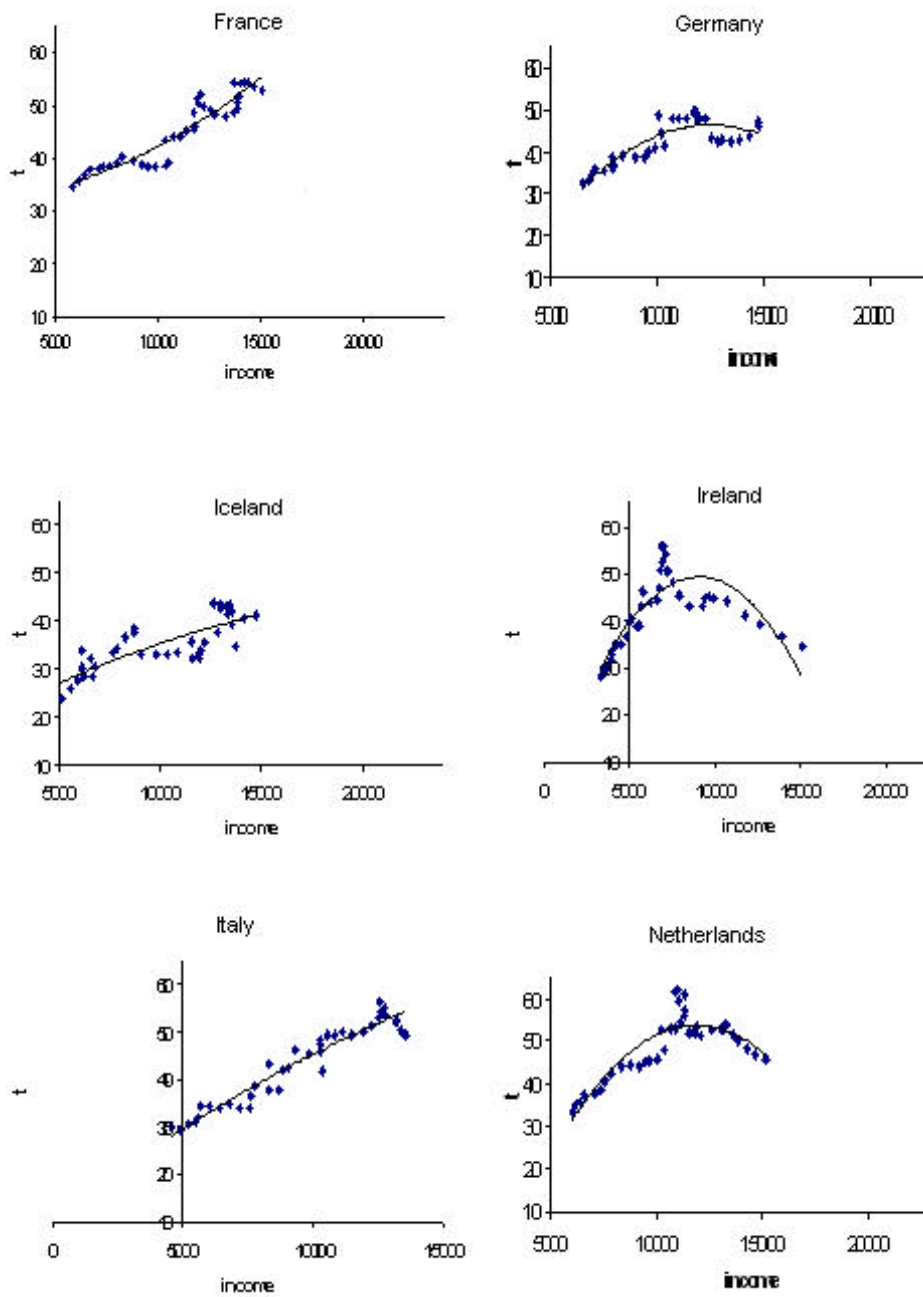


Figure 5: Size of government (t) and real GDP per capita (1985 PPP). Source: OECD Economic Outlook and Persson and Tabellini (2003) - from Penn World Tables.

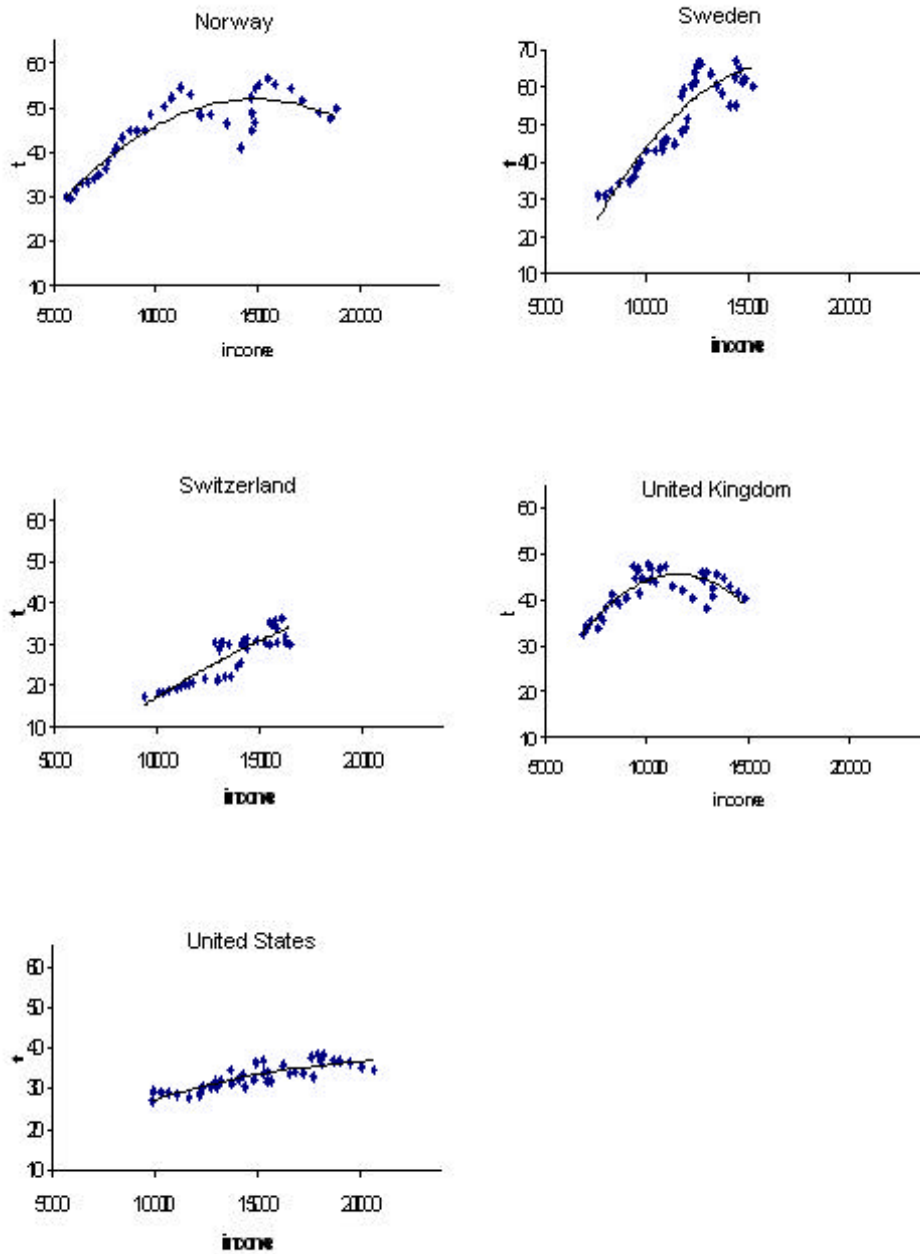


Figure 6: Size of government (t) and real GDP per capita (1985 PPP). Source: OECD Economic Outlook and Persson and Tabellini (2003) - from Penn World Tables.

Average median voter ideological position by country, 1945-1998

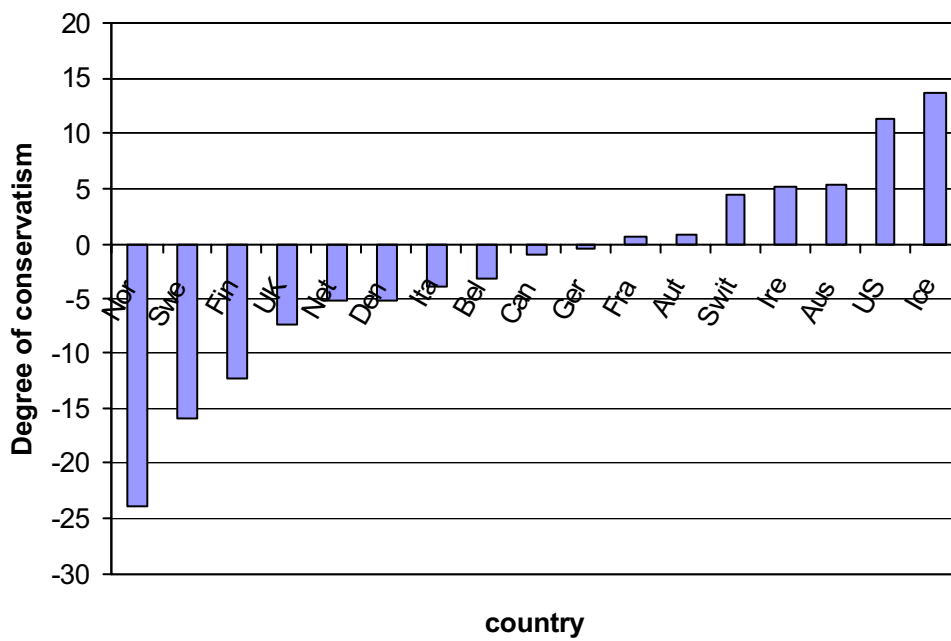


Figure 7: Average median voter ideological position by country 1945-1998. Source: Budge et al (2001).

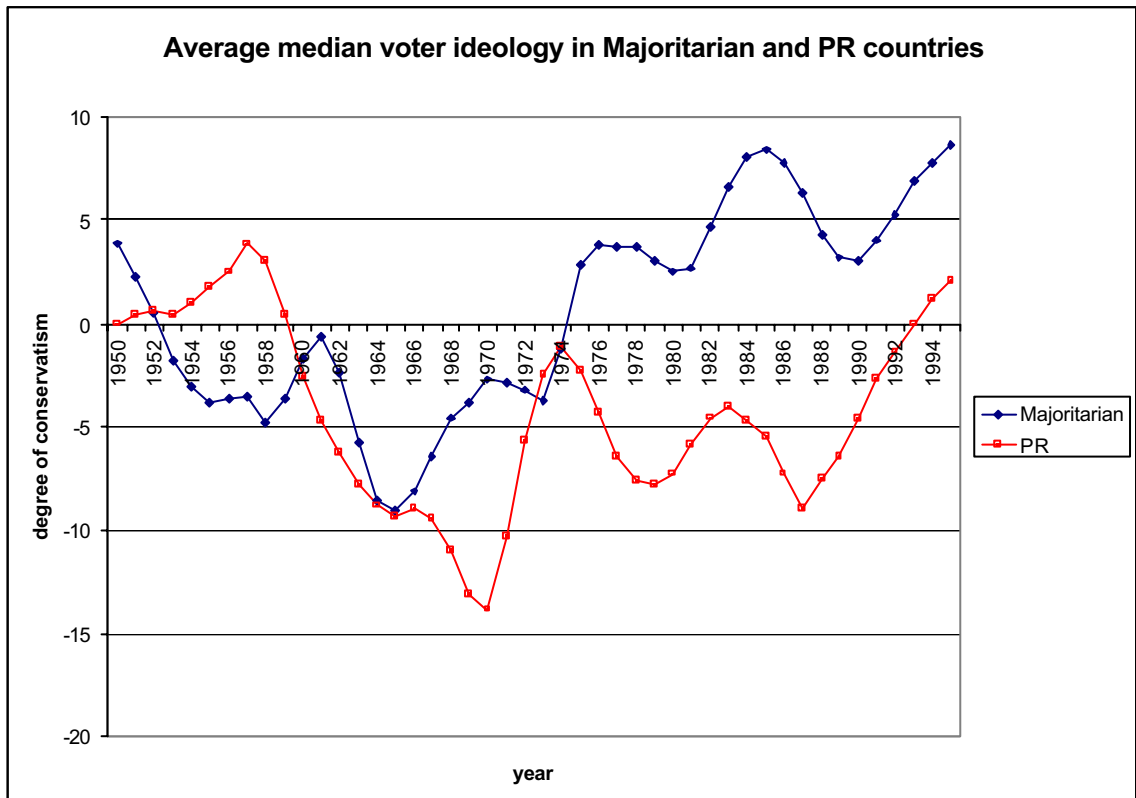


Figure 8: Average Median Voter ideology in majoritarian and PR countries. Author's calculations using data from Budge et al (2001).

average government size in the 90s versus average median voter ideology 1945-98

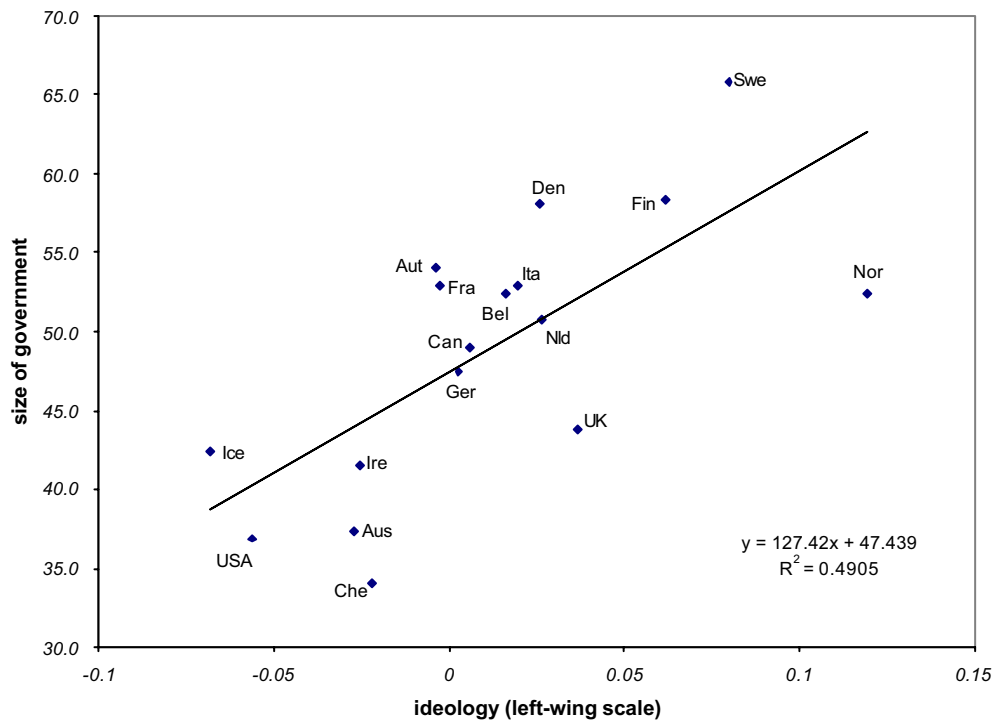


Figure 9: Average government size in the 90s versus average median voter ideology 1945-1998.

	(1a)	(1b)	(2a)	(2b)
L.Outlays	0.883 (0.017)***		0.892 (0.017)***	
Y	0.157 (0.048)***	1.345 (0.351)***	0.150 (0.048)***	
Ideo	-2.772 (2.552)	-23.68 (21.16)	2.663 (1.209)***	24.351 (12.35)**
Y-I	0.548 (0.228)***	4.685 (1.923)***		
Sample	OECD	OECD	OECD	OECD
Number of Observations	625	625	625	625
Number of Countries	17	17	17	17
R^2 (within)	0.95		0.95	

Table 1: Dynamic panel estimation with fixed effects

Notes: Panel regressions of Government Outlays as a percentage share of GDP including PROP1564, PROP65, TRADE, YGAP, OIL_EX, OIL_IM as control variables. OECD comprises the entire data set. L.Outlays is the lagged dependent variable. Y is income per capita in \$000s of 1985 0prices (PPP), ideo is the ideology variable described in the text, Y-I is the interaction (product) of Y and ideo. Standard errors are shown in parentheses. Columns (1b) and (2b) contain ‘long-run’ parameter estimates - see the text for details on how these are estimated.

	(1)	(2)	(3)
L.Outlays	0.913 (0.017)***	0.913 (0.023)***	0.892 (0.017)***
Y	-0.091 (0.109)	-0.131 (0.154)	0.308 (0.186)
Ideo	-4.071 (2.153)*	-7.469 (2.871)***	-4.555 (3.872)
Y-I	0.471 (0.191)***	0.806 (0.275)***	0.572 (0.298)***
Sample	OECD	PR	Maj
Number of Observations	625	437	188
Number of Countries	17	13	5
R^2 (within)	0.97	0.97	0.98

Table 2: Dynamic panel estimation with fixed effects and time effects

Notes: As for table 1. PR comprises the subset of observations with Proportional Representation electoral rules, Maj the subset of observations with Majoritarian electoral rules

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