IDEOLOGY AND THE GROWTH OF GOVERNMENT

Andrew Pickering and James Rockey*

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. Ideology is defined in terms of preferences for public services, and the impact of ideology on the size of government is shown to increase with mean income. This idea is tested using measures of ideology based on party manifestos. We show that the interaction of ideology and mean income has a major role in explaining the increase and divergence in government size observed across OECD countries.

I. Introduction

OVER the postwar years, total government spending as a fraction of GDP increased in all OECD member 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 & Lybeck, 1988): the OECD average stood at 27.2% of GDP. By the late 1990s, total government spending was 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 & 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.

In this paper we ask whether and how cross-country differences in ideology, as captured by the ideological positioning of the median voter, have played a role in explaining these phenomena. We argue theoretically for, and find empirically, a sizable and significant impact of ideology on the size of the state. In particular, the interaction of ideology and the level of GDP per capita can explain both the growth and divergence in government size in OECD countries. Given representative income growth from 1960 to 1998, we find that a median voter ideology that is 1 standard deviation right of the mean leads to government growth of around 10 percentage points of GDP. Ideology that is 1 standard deviation left of the mean leads to government growth of around 20%.

The size of the state has a venerable history as a subject of 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 Borcherding (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 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. While researchers have proposed alternative definitions of this law (see Peacock & Scott, 2000), the standard interpretation now seems to be that the income elasticity of demand for publicly provided goods is greater than 1 (Holsey & Borcherding, 1997). Peacock and Scott (2000) distinguish between traditional government services such as defense 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 aggregate demand for these services increases more than one-for-one with advances in economic development. However, and perhaps surprisingly, Holsey and Borcherding find that the empirical support in favor of Wagner's law is "mixed at best."[2]

Nonetheless, we take Wagner's law seriously. One criticism of existing empirical research is that it examines the relationship atheoretically and assumes an unconditional relationship between government size and economic development. In this paper, we formalize Wagner's law, which first has the advantage of avoiding Peacock and Scott's reductio ad absurdum that the state will eventually absorb the entire economy. In particular, in our model, the state starts to grow with income once the median voter's marginal utility of consumption has diminished to the point where it equals marginal utility from publicly provided services. Thereafter, the income elasticity of the demand for government services is positive but diminishing as income rises and the state grows as a percentage of GDP, converging to an ideal (the steady state) that varies according to underlying parameters. Importantly, the model generates the result that income elasticity is highly dependent on ideology, defined as the preference of the median voter for public services. Previous empirical work has neglected this aspect in determining government size even though empirical measures for ideology are now available.

While 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 (labor-intensive) public sector will 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 & Borcherding, 1997), but we argue that it does not explain all the cross-sectional variation in the observed

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* Pickering: University of Bristol; Rockey: University of Leicester.

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

[2] For example, see Ram (1987).

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growth of the state. For example, the cost disease explanation would attribute the relatively large public sector share in Sweden to higher relative costs of publicly provided goods in that country, but it is not clear how such marked cost differences could arise.

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 (that is, 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. For example, Scandinavian countries have quite equal income distributions yet large governments, while the United State has an unequal income distribution with a small government. Our view is that cross-country comparisons of this sort are subject to omitted variable bias, and clearly there are important cultural and social norms that need to be taken into account. It is also the case that Meltzer and Richard understate the complexity of the activities of government. Many public services are not purely forms of redistribution, and our model addresses this by giving voters preferences over public goods, as well as private consumption. 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.

Boix (2001) develops Meltzer and Richard's (1981) insight and provides an alternative theoretical explanation for Wagner's law and divergence in government size. His main thesis is that democracies, as distinct from autocracies, will experience growth of government. As democratic economies develop, given certain changes in the structural makeup of the economy (in particular, relating to heterogeneity of risk and demography), there is greater pressure for redistribution when policy is determined by the median voter, hence public sector growth. The state is not expected to grow under autocracy with economic development because the pivotal decision maker here is from the upper end of the income distribution. More relevant for our own work, Boix (2001) proposes a secondary hypothesis in which the size of the state can vary across democracies due to variations in turnout. Given higher abstention rates among the poorest income groups, redistributive pressures are weaker when turnout is low. For a given level of development a democracy with a high turnout would be expected to have a larger state than a democracy with a low turnout rate. Boix finds empirical support for this hypothesis using pooled cross-sectional time-series of annual data for the period 1970 to 1990. In our empirical analysis, we revisit this hypothesis and find that our measure of ideology has more explanatory power than turnout when interacted with the level of development in determining the size of the public sector.

Recent work has focused on the impact of constitutional rules on the size of government. Theoretical work by Persson and Tabellini (1999, 2000), Lizzeri and Persico (2001), and Milesi-Ferretti, Perotti, and Rostagno (2002) argues for a strong effect of electoral rules, and in particular whether voting is aggregated proportionally or according to majoritarian systems, on the composition of public spending. The theory also suggests that proportional representation leads to larger overall government. Persson, Roland, and Tabellini (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.[3] However, these new political economy theories are all essentially static: the predictions for government size hold regardless of the state of development (the level of GDP per capita). Indeed 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. Furthermore, as Acemoglu (2005) pointed out, there is a potential problem of omitted variable bias, and "differences in culture" might potentially codetermine the constitutional rule as well as the choice of government size. Holsey and Borcherding (1997) write that "few deny that ideology matters in the size and composition of government spending" (p. 587). Gabel and Hix (2005) also make this point and find empirically that ideology is significant in the cross-section.[4] We address this question differently by modeling ideology in terms of relative preferences for public goods, which vary across countries. Furthermore, we also find evidence that once ideology is controlled for, the impact of the electoral rule is substantially reduced.

This paper also extends an empirical literature directly investigating the relationship between ideology and the size of government. Cameron's (1978) pioneering research investigated variation across countries depending on the extent to which parties defined as leftist were in power during the period under investigation (1960–1975). Tavits (2004) analyzed a data set containing two data points per country (averages for 1974–1983 and 1986–1995) using a similar construction for ideology. Both papers found a relationship between the size of government and ideology but do not rule out country-specific unobserved heterogeneity. Kau and Rubin (2002) find that the Poole-Rosenthal measure of Senate ideology has a small impact on government revenues

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

[4] In their study, ideology measures are constructed using data from the World Values Survey.

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in time series data for the United States.[5] Cusack (1997) examines changes in government outlays using annual data for the period 1955 to 1989 and uses fixed expert judgments of party ideology. Time-varying ideological data for both the government and the electorate are generated using variation in electoral performance and subsequent government formation of parties across general elections. Our work differs in that we use ideological data, described in more detail below, which vary through time at the level of the party, in addition to changes in the electoral performance of different parties. For example, no one would argue that the U.K. Labour party has stood still ideologically over four decades, and this is particularly important given that we analyze a longer time horizon, 1960 to 1998.

In the theory below, our interpretation of ideology is that it represents relative preferences for publicly provided goods and services, broadly defined: leftist cultures are keener on state provision, especially of services such as health, education, and social insurance that partly reflect egalitarian values. Right-leaning cultures are keener on market provision.[6] But the central mechanism proposed in this paper is that these preferences are tempered by income. When incomes are low, the pain of taxation in terms of lost utility from reduced private consumption is high. Even if the ideological climate is statist (that is, 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. The marginal utility of private consumption is reduced at higher levels of income, and so the left-leaning median voter mandates higher taxes to fund the Wagnerian goods she increasingly desires. The theory thus can predict what is observed in the data: increases in the size of government as GDP levels rise, and divergence, since relative preferences for public goods are different across countries.

Of course, ideology will itself have its own deeper determinants, and indeed an emerging literature explores the related question of why some societies are more egalitarian than others.[7] Ideology may not be randomly assigned and may be correlated with unobservables, necessitating caution in inference. However, because we employ panel data, our empirical analysis focuses on within-country variation, and so deeper cultural and historical 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. Indeed, no evidence of a contemporaneous relationship between ideology and development is found; the significant results all relate to ideology data that predate policy outcomes. In addition, we examine the interaction of alternative (fixed) ideology measures with income as a robustness check of the results. Finally, we also establish strong evidence that the sensitivity of government size to income depends positively on ideology and negatively on economic development, as predicted by the theory. In sum, the use of fixed effects and the clear dynamical relationships in the data make us confident that the relationship found between government size and ideology, and especially the interaction of ideology and income, is causal.

In the next section, we derive the model. Section III contains our empirical work, and section IV concludes.

II. The Model

This section lays out a basic model incorporating the premise that preferences for public goods and services—in other words, ideology—determines the size of government. In order to analyze this formally, we modify the political-economic model developed in the seminal paper by Meltzer and Richard (1981) (MR) to include spending on a generic public good,[8] 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, and in this paper, taxation finances both redistribution and other public services.

The model is first outlined using an additive and separable functional form and, following this, an explicit solution for the size of the government is derived, following Meltzer and Richard (1983), by employing a Stone-Geary utility function. As they note, this function is capable of showing whether the share of income taxed remains constant, increases, or decreases as income changes, and in particular whether public goods may be viewed as a luxury.

The objective function is written as

$$u_i(c_i, g) = F(c_i) + \beta G(g), \tag{1}$$

where c_i is consumption of person i, g is the per capita level of publicly provided goods and services, and F and G are concave in their arguments. g represents the Wagnerian components of government activity such as health, education, and, indeed, part of redistribution, when it is demanded for

[5] As with all other previous studies, Kau and Rubin (2002) analyze only unconditional ideological effects. As they argue in their abstract, "Further research on the role of ideology in changing policies over time is clearly warranted."

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

[7] For example, Alesina, Glaeser, and Sacerdote (2001) attribute the absence of a welfare state in the United States 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. Other important work includes Benabou (2008) and Piketty (1995).

[8] Note that "public goods" here may be rivalrous and excludable and so are not necessarily pure public goods in the Samuelson sense.

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insurance purposes or egalitarian reasons. $\beta > 0$ is a preference parameter that reflects tastes for publicly provided goods and services, and this forms our index of society's ideological position. Greater values of β characterize more left-wing cultures. The functions F and G exhibit diminishing returns and may be restricted so that private consumption is modeled as a necessity and public goods as a luxury.[9]

Income, y_i, differs across individuals[10] and is taxed at a linear rate, t. As in MR, consumption is augmented by lump-sum redistribution, r:

$$c_i = (1 - t)y_i + r. \tag{2}$$

Taxation is used to finance both pure redistribution and the public good, and the budget is balanced, hence,

$$t\bar{y} = g + r, \tag{3}$$

where $\bar{y}$ is mean income. In order to derive an interior solution, mean income is modeled to be declining in redistribution in the spirit of MR. More specifically,

$$\bar{y} = y^* \left(1 - \delta \left(\frac{r}{y^*}\right)^2\right), \tag{4}$$

where y^* is potential income and δ captures the sensitivity of actual income to redistribution.[11]

The appendix provides more details on the model solution, and a first result is that the median voter chooses redistribution,

$$r^m = \frac{(m-1)}{2\delta} y^*, \tag{5}$$

where $m \equiv \frac{\bar{y}}{y_m} > 1$ is the ratio of mean to median voter income y_m capturing the extent of inequality.[12] The choice of r is independent of the functional forms F and G, ideology (β) and the level of government spending, and hence will be a Condorcet winner given single peaked preferences (which follow from the concavity of F). Election-oriented policymakers are thus obliged to choose r^m whatever their decision on public good provision. Redistribution is increasing in inequality (m) and decreasing in δ, as would be expected. Substituting equation (5) into equation (4) yields

$$\bar{y} = y^*(1 - \delta\rho^2), \tag{6}$$

where $\rho \equiv \frac{(m-1)}{2\delta}$, and hence the proportionate level of waste in the economy is constant and the fraction of income used for redistribution is constant, and independent of the level of income. These findings are in line with Meltzer and Richard (1981).

Equation (5) defines the popular choice of redistribution, but in the general setting, it is not possible to find an explicit solution for public good provision. The individual voter's preferred choice for g, denoted g^m, is implicitly defined by the first-order condition,

$$F'(c^m) = m\beta G'(g^m), \tag{7}$$

where F' and G' are the marginal utilities of private and public good consumption, respectively. The preferred level of the public good is monotone in income;[13] hence, the median voter's choice will be preferred in any pair-wise election and thus is a Condorcet winner. Equation (7) shows that the desired level of government spending is increasing in β. In order for this equation to hold with equality, any increase in β must be met with a commensurate increase in F' (through higher taxes), together with a decrease in G' (hence, greater public spending).

In this setting, the question of how the size of the government evolves with income depends on the curvature of both F and G. One version of Wagner's law is that as incomes rise and consumption of both private and public goods increases, the marginal utility derived from the public good diminishes more slowly than the marginal utility of private consumption. Equalization of marginal utilities will therefore imply an increasing share of the public sector.[14] A possible foundation for this would be to model private consumption as a necessity, with low levels of consumption initially yielding very high marginal utility that declines relatively quickly once subsistence has been achieved. Following Meltzer and Richard (1983), we employ a Stone-Geary utility function, which exhibits this property and, as they note, can generate results with the share of income taxed changing with income. Our functional form will be

$$u_i(c_i, g) = \ln(c_i - \mu) + \beta \ln(g + \mu), \tag{8}$$

[9] This is made explicit below in the case of the Stone-Geary functional form.

[10] We are assuming that the underlying productivity distribution is exogenous.

[11] In Meltzer and Richard (1981), the labor supply is endogenous, and the formulation proposed here can be seen as capturing this as a reduced form. The key mechanism is that when redistribution is high, labor supply and mean income are reduced. In our model, a simple way of underpinning equation (4) is to assume that all workers proportionately reduce their labor supply in response to particular redistribution levels. Plausible solutions require restrictions on the parameter δ, and these are discussed below.

In equation 4, mean income is assumed to be independent of taxes. Technically there is an income effect from an increase in r. The corresponding increase in t (required to balance the budget) leads to income and substitution effects, which are assumed to cancel. Hence, labor supply, and therefore mean income, are reduced if r increases but are independent of t.

[12] Because we are assuming an exogenous pretax income distribution, m is fixed.

[13] To see this, denote the preferred level of the public good for any individual i as g_i^*, and note that the first-order condition identifying an individual's g_i^* is $F'(c_i) = m_i\beta G'(g_i^*)$ where $m_i = \frac{\bar{y}}{y_i}$ (recall we are assuming that the pretax and redistribution income distribution is independent of policy). Differentiating both sides with respect to y_i gives $\frac{\partial g_i^*}{\partial y_i} = \frac{F''(c_i)(1-t)}{m_i\beta G''(g_i^*)} > 0$.

[14] How individuals' relative preferences over private consumption and public goods change with income has been the subject of considerable attention. See, for example, Epple and Romano (1996), who discuss such a trade-off and refer to evidence that individuals are increasingly willing to sacrifice private consumption for goods such as health care and crime prevention as their incomes rise.

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where $\mu \geq 0$ is the Stone-Geary parameter.[15] 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. In this instance, the choice of g is diminishing in income, and the median voter's choice is pivotal. The median voter's preferred policy is derived in the appendix and consists of equation (5) above and

$$g^m = \frac{\beta(4\delta + (m-1)^2)}{4\delta(1+\beta)} y^* - \frac{(1+\beta m)\mu}{1+\beta}. \tag{9}$$

It is clear from equation (9) that the proportion of income spent on the public good increases with income. Combining equation (9) with equations (3) to (6) yields

$$t^m = \frac{4\beta\delta + (m-1)(\beta m + 2 + \beta)}{(1+\beta)(4\delta - (m-1)^2)} - \frac{(1+\beta m)\mu}{(1+\beta)\bar{y}}. \tag{10}$$

In order to ensure that $g^m \geq 0$ and $t^m < 1$, two conditions are formally required:

$$\bar{y} \geq \frac{(1+\beta m)(4\delta - (m-1)^2)}{\beta(4\delta + (m-1)^2)}\mu, \tag{11}$$

$$\delta > \frac{(m-1)(2\beta m + 1 + m)}{4} \tag{12}$$

Condition (11) ensures that $g^m \geq 0$ 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 rate to supply public goods as well as redistribution. Since our focus is on OECD countries, we argue this is a reasonable assumption. Condition (12) ensures that $t^m < 1$. This will obtain as long as the sensitivity of mean income to redistribution, governed in equation (4) by δ, is high enough to dissuade the median voter from increasing taxes further.

Given equation (10) and conditions (11) and (12), which follow from the Stone-Geary utility function, we have propositions 1 and 2, for which details are available in the appendix.

Proposition 1. (i) Ideology. $\frac{\partial(t^m/\bar{y})}{\partial\beta}$. Holding $\bar{y}$, m, and the other model parameters constant, a higher value of β entails a larger state. The greater the relative preference for public goods, the larger the government.

(ii) Wagner's law. $\frac{\partial(t^m/\bar{y})}{\partial\bar{y}}$. 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.

Part i of proposition 1 is straightforward and unsurprising. Part ii of proposition 1 formalizes Wagner's law. While for any given level of inequality, the proportion of income redistributed is independent of mean income, taxes nevertheless start to increase once income passes a critical threshold ($\bar{y}_g$), at which the median voter starts to mandate the provision of public services. This threshold is defined where equation (11) holds with equality:

$$\bar{y}_g = \frac{(1+\beta m)(4\delta - (m-1)^2)}{\beta(4\delta + (m-1)^2)}\mu. \tag{13}$$

At income levels below this threshold, taxes are set purely to redistribute, as dictated by equation (5), and $g = 0$. Beyond $\bar{y}_g$, the median voter's income becomes sufficiently high that her marginal utility from private consumption has declined to the point at which it equates the marginal utility derived from the public good. Thereafter, the marginal utility of the public good declines more slowly than the marginal utility of private consumption, and taxes start to increase to pay for the public goods as well as redistribution. Nonetheless, in this model, policy does not suffer from Peacock and Scott's (2000) reductio ad absurdum discussed in section I. From equation (10) we have

$$\lim_{\bar{y}\to\infty} t = \frac{4\beta\delta + (m-1)(\beta m + 2 + \beta)}{(1+\beta)(4\delta - (m-1)^2)}. \tag{14}$$

Equation (14) is less than unity given equation (12). 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 the efficiency of redistribution (declining in 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 initially rapid is due to the form of the utility function: once subsistence has been achieved, the median voter 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 toward some level that is in large part determined by tastes for public provision or ideology as characterized by the parameter β.

Proposition 2. Interaction. $\frac{\partial(t^m/\bar{y})}{\partial\bar{y}\partial\beta}$. The impact of ideology on government size will increase with income.

Proposition 2 establishes that the impact of ideology on government size is context dependent. The difference in government size between two countries of alternative ideological persuasion will expand as their economies grow. Thus, differences in government size in leftist and rightist countries at low levels of income tend to be small. As incomes rise, the

[15] In what follows, we assume that all $c_i > \mu$ in equilibrium; otherwise, equation (8) is not defined. That is, the productivity level of the poorest individual is sufficiently high such that his income net of tax and including redistribution covers necessary consumption. A sufficient condition for this would be if redistribution were high enough to meet necessary consumption (a stated objective of some welfare states).

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FIGURE 1.—PROJECTED GOVERNMENT SIZE

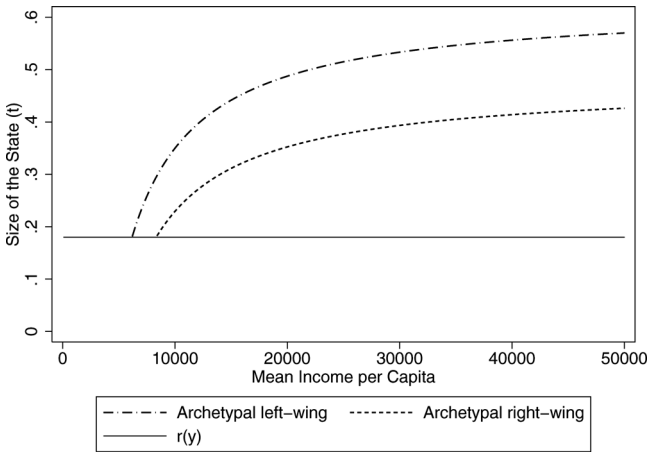
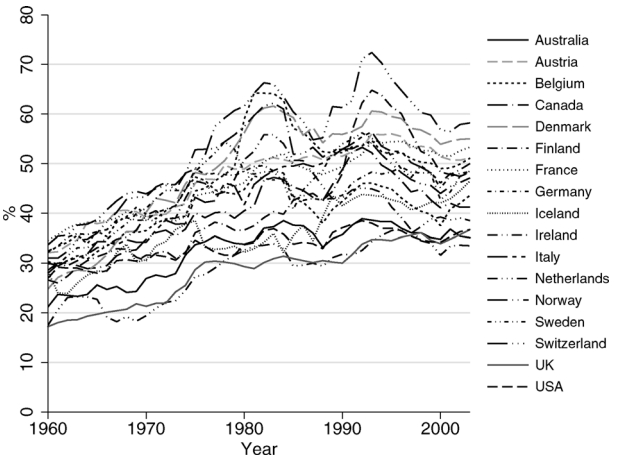


FIGURE 2.—TOTAL GOVERNMENT OUTLAYS AS A SHARE OF GDP IN OECD COUNTRIES



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 (we think of Sweden versus the United States). The model parameters are set as follows: $\mu = \$2000$, $m = 2$, $\delta = 3$ (though the general argument is robust to alternative parameterizations). For the left- (right-) wing country, we parameterize ideology as $\beta_L = 0.6$ ($\beta_R = 0.3$). The proportion of income that is directly redistributed (denoted $r(y)$ in the figure) can be calculated from equation (5) and, as with Meltzer and Richard, is a clear function of the level of inequality—for this parameterization, a value of 18%. This is the size of the state at low levels of income. As would be expected, public sector growth starts to occur somewhat sooner in the left-wing country, in which threshold income is \$6,205, whereas the threshold is \$9,026 in the right-wing country. The threshold at which government growth commences clearly depends on the subsistence requirement, and if the left-wing country (again, we think of Sweden) has a larger subsistence requirement (for example, for food and heating), then this could shift the threshold to the extent it happens earlier in the right-wing country. Numerically if $\mu = \$3,000$, then the income threshold in the left-wing country is put back to \$9,307. However, once income starts to grow beyond the threshold, the state in the left-wing country grows faster, 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 45.5%. It is this interaction between GDP levels and ideology that we argue explains much of the growth and divergence of government size across OECD countries in the latter half of the twentieth century.

III. Evidence

In this section, we test the implications of the model. The empirical analysis focuses on seventeen OECD countries that have been democracies throughout the postwar era and have data on total outlays and ideology: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, the Netherlands, Norway, Sweden, Switzerland, the United Kingdom, and the United States.

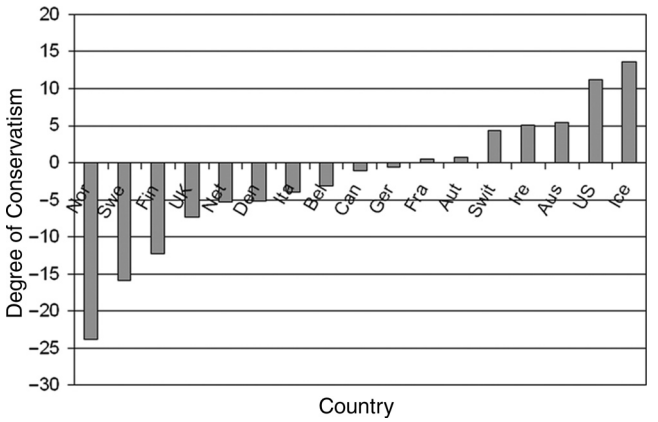
The dependent variable is total government outlays as a percentage share of GDP, from the OECD Economic Outlook database. These data are available from 1960 and were chosen because they include all forms of government expenditure at all levels of government. As such, they include both redistribution and expenditure on public goods, and both civilian and military expenditure. Figure 2 depicts these data, which show considerable anticyclicality, as would be expected, and a secular upward trend in all countries. The increasing dispersion across countries is also noteworthy, especially given the convergence in GDP per capita 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 the marginal utility of consumption of private goods declines. The median voter thus becomes increasingly willing to exercise her preferred public sector outcome with increases in the level of economic development.[16]

The principal ideology measures used in this paper come from 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 and Fording (2001), annual series are constructed for the median voter ideological position in each country by weighting party ideologies according to their vote received. Country-level averages of

[16] Ideally the above theory would be best investigated empirically, examining different types of spending, but there are substantial definitional issues. First, there are many items that in literal terms would be classed as redistribution, but in the context of our model would conceptually be part of Wagnerian public goods—services that the electorate wants more of at greater levels of economic development. For example, social security payments would in literal terms be redistribution but would also be desired for insurance purposes. The desire to insure would likely be increasing with economic development. Similarly there are elements of all types of public goods—education, health, defense, law and order, and so on—that arguably can be thought of as payment in kind—in other words, redistribution.

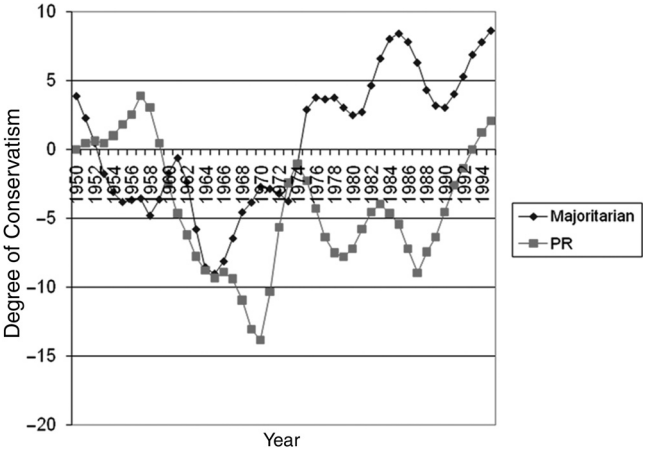
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FIGURE 3.—AVERAGE MEDIAN VOTER IDEOLOGICAL POSITION, BY COUNTRY, 1945–1998



Source: Budge et al. (2001).

FIGURE 4.—AVERAGE MEDIAN VOTER IDEOLOGY IN MAJORITARIAN AND PR COUNTRIES



Author's calculations using data from Budge et al. (2001).

these data are presented in figure 3, showing, as would be expected, that the Scandinavian countries are on average substantially more left wing than, say, the United States or Australia. It is perhaps surprising that the United Kingdom is to the left of the Netherlands and Denmark on average through this time period, but, as would be expected, the United Kingdom exhibits a marked drift to the right in the 1980s (as do other Anglo-Saxon countries), and the period 1945 to 1979 (prior to Thatcher) constitutes around two-thirds of the data set. Gabel and Huber (2000) argue that the MRG data accurately reflect differences and trends in ideology, and they correspond well with other data sources, such as expert surveys (Castles & Mair, 1984) and data from the World Values Survey (WVS). To the best of our knowledge the MRG data are the only time-varying, cross-country measure of party positions, and these characteristics have obvious advantages for the empirical approach taken in this paper.[17] Nonetheless, it is important to verify that results obtained with alternative measures are not meaningfully different, and to this end, we also examine interaction effects using data from the WVS.

Figure 4 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 United Kingdom, and the United States. In the 1950s and 1960s, both sets of democracies, if anything, exhibited a leftward shift, though during this period, neither group was consistently different from the other. Things changed markedly in the late 1970s with the rightward shift in the Anglo-Saxon countries. In the 1990s, median voters in the PR countries also apparently shifted to the right, though they remain on average to the left of voters 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 ten years of MRG data, with $\overline{MRG}_{it}$ denoted as this moving average term. Quantitatively, the Kim and Fording (2001) median voter data take values from -100 (extreme left) to $+100$ (extreme right), so to ease inference, the data are transformed according to $\overline{ideo}_{it} = (\overline{MRG}_{it})/100$, ensuring that the variable $\overline{ideo}_{it}$ is scaled from minus unity (extreme right) to unity (extreme left). Taking the average of the past ten years of data helps to lessen concerns about endogeneity; the ideology measures now substantially predate the observations on government size. In figure 5, 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, drawing on the specifications used in Persson and Tabellini (2003) (PT). 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 (denoted by t in section 2), which is preferable in that it includes expenditures made by local government. We employ the same control variables[18] used as standard by PT,

[17] Blais, Blake, and Dion (1993) investigate whether the changing party composition of cabinets can predict changes in government spending. However, unlike here, their analysis relies on a fixed classification of parties being of the left, center, or right. They suggest that in some specifications, a majority of left-wing parties in a cabinet is associated with a small increase in government spending.

[18] Specifically PROP1564—the percentage of the country's population between 15 and 64 years of age in the total population, PROP65—the percentage of the country's population over the age of 65 in the total population; and TRADE—the sum of exports and imports measured as a share of GDP. Rodrik (1998) proposes a theoretical explanation for the observed correlation between openness and the size of government.

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FIGURE 5.—AVERAGE GOVERNMENT SIZE IN THE 1990S VERSUS AVERAGE MEDIAN VOTER IDEOLOGY, 1945–1998

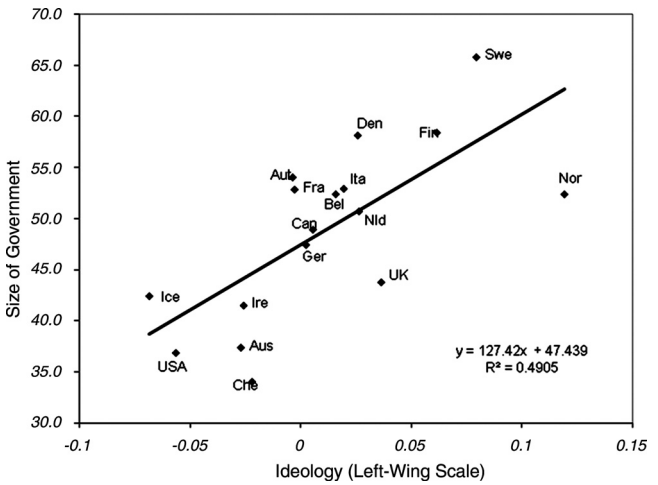


TABLE 1.—DYNAMIC PANEL ESTIMATION WITH FIXED EFFECTS

	(1a)	(1b)	(2a)	(2b)
L.Outlays	0.857		0.853	
	(0.039)***		(0.040)***	
income	0.315	2.206	0.338	2.305
	(0.154)*	(0.913)**	(0.158)**	(0.812)**
$\overline{ideo}$	2.997	20.97		
	(1.116)**	(7.884)**		
ideo			−0.136	−0.925
			(1.064)	(7.262)
Sample	All	All	All	All
Number of observations	608	608	608	608
Number of countries	17	17	17	17
R^2 (within)	0.95		0.95	

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 prices (PPP), $\overline{ideo}$ is the ten-year moving average ideology variable described in the text, and *ideo* is the contemporaneous ideology variable. Robust standard errors are shown in parentheses. Columns 1b and 2b contain long-run parameter estimates, with standard errors estimated by the delta method. *Significant at *10%, **5%, ***1%.

and in addition, use their cyclical control variables,[19] as these are in most cases significant in the case of the OECD countries. Finally, the lagged dependent variable is also generally included as a regressor because of the substantial persistence in government size. The time dimension of the panel is sufficiently long that the dynamic panel bias should be negligible (Nickell, 1981).

Table 1 contains fixed-effects panel estimation results for regressions examining the impact of ideology on government size under the assumption that the impact of ideology is independent of the level of economic development. These results are hence comparable to the previous empirical literature examining this relationship. In column 1a, ideology is positive and significant at the 5% level, as would be expected and consistent with the first part of proposition 1. Given the presence of the lagged dependent variable, the parameter estimates in column 1a reflect the current-period (or short-run) impact on *t* of the explanatory variables. Column 1b presents the corresponding long-run parameter estimates,[20] illustrating the impact of particular levels of income and ideology on the long-run steady-state level of *t*, which we denote t^*. The *p*-value for the estimated long-run coefficient for ideology is 1.7%, and the effect is sizable. Consider the size of the state in an archetypal right-wing country (say, the United States) compared with that in an archetypal left-wing country (say, Sweden). The right- (left-) wing country has ideology set equal to 1 standard deviation (0.12) below (above) the mean ideology score (0.04) in the sample. If we take the switch from being archetypally right to archetypally left (a 2-standard deviation change in ideology), then the long-run impact of this switch is an increase in the size of government of 5.03%, all else equal. Nonetheless, we argue this is a crude estimate of how ideology affects the size of government, because its effect may vary with the level of economic development.

A potential concern in this analysis is that ideology may be endogenous. As observed in section I, ideology may have deeper cultural determinants, such as historical, legal, or other socioeconomic characteristics considered in the literature referenced in note 7. However, such variables are in large part time invariant (or at least highly persistent), and the analysis here controls for fixed effects as well as conditioning on lagged government size. An alternative form of endogeneity could relate ideology to the size of the state. For example, large governments might engender a belief in large governments or, more generally, both might be outcomes of a single underlying process. In columns 2a and 2b, the estimation is repeated for the contemporaneous ideology measure ($ideo_{it}$) rather than the moving average of the previous ten years ($\overline{ideo_{it}}$). Notably there is no meaningful relationship detected whatsoever with an incorrectly signed coefficient estimate that is statistically insignificant. The evidence is that ideology affects government size with a lag, giving credence to the use of the moving average and in some sense establishing Granger causality from ideology to the size of the government. That is, within countries, ideology has forecasting power for predicting subsequent changes in the size of government but not vice versa.[21] Moreover, our inclusion of the lagged dependent variable further mitigates such concerns.

Table 2 turns to consideration of the interaction of ideology and income on total government outlays. For comparison purposes, column 1a uses the same specification as that used by

[19] The cyclical control variables are YGAP—the deviation of aggregate output from its trend value in percentage; 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.

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

[21] Of course, Granger causality does not imply true causality. It remains possible that an unknown third dynamic process drives both ideology and the size of the state. The candidate explanations examined in the literature endogenizing ideology thus far have focused on variables that are not time varying, but we cannot rule out this possibility.

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TABLE 2.—DYNAMIC PANEL ESTIMATION INCLUDING INTERACTION TERMS

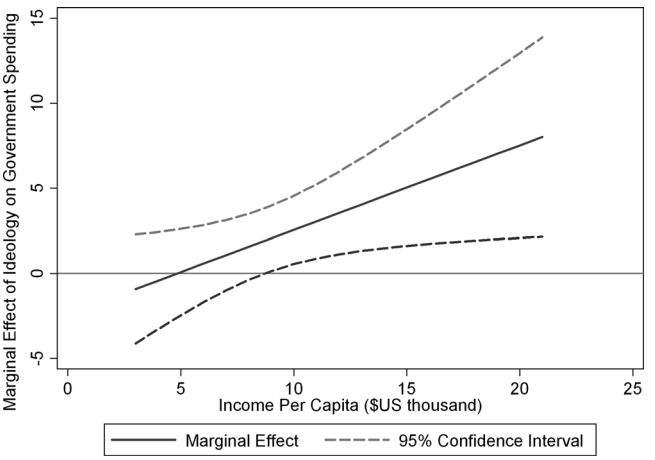
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)
L.Outlays			0.885		0.916	
			(0.038)***		(0.027)***	
income	0.024	0.690	0.164	1.433	−0.075	−0.891
	(0.874)	(0.785)	(0.101)	(0.531)	(0.163)	(1.762)
turnout	−0.042	0.097				
	(0.214)	(0.238)				
income × *turnout*	0.021	0.012				
	(0.012)*	(0.010)				
$\overline{ideo}$		−34.76	−2.415	−21.07	−3.784	−45.16
		(13.88)**	(2.223)	(19.39)	(2.198)*	(19.74)**
income × $\overline{ideo}$		2.935	0.497	4.333	0.410	4.892
		(0.927)***	(0.230)**	(2.032)**	(0.216)*	(2.414)*
Sample	All	All	All	All	All	All
Number of observations	608	608	608	608	608	608
Number of countries	17	17	17	17	17	17
R^2 (within)	0.71	0.73	0.94		0.97	

As for table 1 excluding the demographic controls *PROP*1564 and *PROP*65. Columns 1 and 2 present results for fixed effects regressions and column 3 additionally includes time effects. Significant at *10%, **5%, ***1%.

Boix (2001), confirming his finding of a positive and statistically significant relationship between the size of government and the interaction of turnout and income.[22] However, in column 1b, using this same specification and including ideology and its interaction with income the turnout-income interaction becomes insignificant, while the interaction of ideology and income is highly significant. From this we argue that the mechanism proposed in this paper has greater explanatory power than that in Boix (2001), at least within democracies.

Columns 2a and 3a reintroduce the lagged dependent variable and, respectively, show the results using fixed effects only and using both fixed effects and time effects. As before, columns 2b and 3b contain long-run parameter estimates. At first glance, the impact of ideology in column 1 is estimated to be negative—contrary to expectation. However, the overall impact of ideology is always positive in this sample because of the interaction with income. In order to interpret the findings in column 2, consider the growth of government in the archetypal left- and right-wing countries defined above. In 1960, mean income was $6,185, and in 1998, it was $15,881. 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 10.53% of GDP, whereas the increase in the left-wing country is 20.62%—a sizable and important divergence. As discussed by Braumoeller (2004), inference is more complex in the presence of interaction terms, and one approach he advocates is to plot the marginal effect of ideology conditional on income, contained in figure 6. In line with the theoretical analysis, this plot suggests an insignificant impact of ideology at low levels of income and an increasing impact as incomes rise.[23]

FIGURE 6.—MARGINAL EFFECT OF IDEOLOGY ON GOVERNMENT SPENDING CONDITIONAL ON INCOME PER CAPITA



Columns 3a and 3b in table 2 display regression results when common time effects are also included. The direct impact of income now becomes insignificant as the time effects do a better job of capturing the common trend than income itself. However the parameter estimates pertaining to ideology are comparable to the results in column 2, with government size in leftist and rightist regimes diverging substantially given representative income increases.

The results reported thus far suggest sizable differences in the size of government depending on ideological differences 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 4 is suggestive of this), then our model can explain their results—but of course the mechanism is now straightforward median-voter demand rather than due

[22] In particular, the lagged dependent variable is omitted. In other regressions (not reported) with the lagged dependent variable included, turnout and its interaction with income were in all cases found to be insignificant.

[23] The Y-intercept is at around $5,000, implying an estimated negative effect of leftist ideology on the size of government in Japan, Italy, and Iceland at the start of the 1960s and Ireland until around 1970. Nonetheless, at these low levels of income, the impact is statistically insignificant from 0.

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TABLE 3.—PANEL ESTIMATION OF SUBSAMPLES DIVIDED BY ELECTORAL RULE

	(1)	(2)	(3)	(4)
L.Outlays	0.916	0.878	0.992	0.975
	(0.041)***	(0.036)***	(0.006)***	(0.011)***
income	−0.085	0.345	−0.013	−0.032
	(0.215)	(0.124)**	(0.035)	(0.030)
$\overline{ideo}$	−6.999	−6.037		−0.929
	(2.380)**	(2.580)*		(1.934)
income × $\overline{ideo}$	0.696	0.719		0.304
	(0.221)***	(0.409)		(0.168)*
MAJ			−0.363	−0.207
			(0.153)**	(0.143)
Sample	PR	Maj	All	All
Number of observations	424	184	608	608
Number of countries	13	5	17	17
R^2 (within)	0.97	0.98		
R^2			0.98	0.98

As for table 2. Fixed effects and time effects included in columns 1 and 2. Fixed effects are omitted from columns 3 and 4 because *MAJ*, a dummy variable set equal to 1 for countries with majoritarian electoral rule, does not vary through time. PR comprises the subset of observations with proportional representation electoral rules, Maj the subset of observations with majoritarian electoral rules. Significant at *10%, **5%, ***1%.

to the constitutional rule itself. Columns 1 and 2 of table 3 split the sample by electoral rule and find no substantial differences across electoral rules in how government size responds to income and ideology. In both subsamples, as well as in the full sample, the interaction of ideology and income is found to be statistically and economically significant. These variables continue to explain a substantial component of the growth and divergence of government size in OECD countries over the latter half of the twentieth century.

Columns 3 and 4 of table 3 present results investigating whether ideology mitigates the impact of the electoral rule. Because there is little variation in the electoral rule within countries in the sample period, these regressions drop the fixed effects, so caution must be applied in interpreting the results. In column 3, ideology and its interaction with income are dropped, and Persson and Tabellini's constitutional variable *MAJ*—equal to 1 for majoritarian systems and 0 for proportional representation—is included as a separate regressor.[24] Consistent with Persson and Tabellini (2004), the effect of *MAJ* is found to be negative, with a *p*-value of 1.7%. In column 4, the regression is augmented with the ideology variables, and the statistical impact of *MAJ* is markedly reduced as the parameter estimate is almost halved and the significance level drops to 14.9%. These results should not be taken as a rejection of Persson and Tabellini (2004), not least because their empirical analysis includes more countries. Nevertheless, the evidence presented here suggests an important qualification to their findings.

The principal advantage of the MRG manifesto data is that they are time varying. This property allows panel estimation and also reflects the likelihood that the ideological tastes of particular populations and electorates have changed over time. Nonetheless, it is also possible to examine interaction effects using alternative fixed country-specific measures for ideology, and such measures are available from the World Values Survey (WVS). Following Gabel and Hix (2005), two values from the WVS are utilized: the self-positioning in political scale ideology variable and the inequality is necessary for incentives variable. In both cases, the measure taken is the median response on a ten-point scale, with higher values representing increasing right-wing inclination.[25] In addition to the WVS measures, two further fixed ideology measures are constructed from the MRG data set: the arithmetic mean of the entire annual series used in the above analysis and the arithmetic mean of the annual series in the years prior to 1960. This latter measure is of particular interest because it is unequivocally predetermined and plausibly exogenous given that meaningful divergence in the size of the state did not occur until the 1970s.

Table 4 contains the estimation results for the fixed ideology regressions. In column 1, the coefficient for the interaction of WVS self-positioning ideology and income has the correct sign but is insignificant. However, as Gabel and Hix (2005) acknowledge, the self-positioning left-right measure is susceptible to the criticism that the implied policy content may differ from country to country. That might suggest that the inequality/incentives variable is preferable. In column 2, when this variable is used instead, the estimated coefficient is correctly signed and significant at the 2% level. Greater agreement with the notion that inequality is necessary for economic incentives is statistically associated with a dampening of the growth of government.

Columns 3 and 4 contain the estimation results using fixed measures taken from the MRG. Both are correctly signed and significant at the 10% level. A certain amount of noise would be expected given that individual countries' own median ideological positioning has varied through time, though the average measures (depicted in figure 3 prior to transformation) at least have some informative value in terms of

[24] Unfortunately the sample contains only two presidential democracies, so it is not feasible to investigate the impact of presidential versus parliamentary governments.

[25] Gabel and Hix (2005) provide a full description of these two variables. Inequality and incentives data were not available for Denmark, Germany, and Sweden.

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TABLE 4.—ALTERNATIVE FIXED IDEOLOGY INTERACTION EFFECTS

Ideology Measure	(1)	(2)	(3)	(4)
$SELFPOS \times Y$	−0.028			
	(0.103)			
$INEQUAL - INCENTIVE \times Y$		−0.131		
		(0.046)**		
$ideo_{all} \times Y$			0.457	
			(0.253)*	
$ideo_{pre-1960} \times Y$				0.365
				(0.183)*
Sample	All	All	All	All
Number of observations	608	501	608	608
Number of countries	17	14	17	17
R^2 (within)	0.97	0.96	0.97	0.97

As for table 2. Fixed effects and time effects included. The lagged dependent variable and income are also included as regressors. The coefficient reported is for the interaction of ideology and income. *SELFPOS* is the WVS self-positioning in political scale variable (question E033 in the WVS). *INEQUAL − INCENTIVE* is the WVS "we need larger income differences as incentives for individual effort" variable (question E035 in the WVS). $ideo_{all}$ is the country-specific arithmetic mean of the annual *ideo* series. $ideo_{pre-1960}$ is the country-specific mean for the *ideo* series up until 1960.

how economic growth has influenced the growth of government. Column 4 contains a particularly striking result that countries' measured average ideology from before 1960 has informative content for the growth and divergence of government size. Although the magnitude of the coefficient is somewhat reduced, it is still comparable to column 3 and, indeed, the results of the analysis reported in the previous tables. Overall we take the evidence from the fixed ideology regressions as supportive of the central hypothesis advanced in this paper.

The heart of the theoretical mechanism in this paper is the income elasticity of demand for government. This is positive, but it depends on ideology and the level of economic development. As a final empirical analysis, these ideas are tested directly by employing a two-step approach. The first stage estimates a model with the controls described above but excluding the ideology measure and its interaction with income and now estimating country specific slopes for income per capita. Formally,

$$Outlays_{it} = \beta_{0i} + \beta_{1i} Y_{it} + X'\beta + \varepsilon_{it}$$

is estimated on a rolling subset of the data, 1960–1980, 1961–1981, and so on up to 1978–1998, to generate time-varying and country-specific estimates of the relationship between government size and income per capita, which we term the Wagner relationship. Parameter estimates for $\widehat{\beta}_{1ia}$ (where the subscripts *i* and *a*, respectively, denote countries and the midpoint of the time window) are collected and in the second stage then regressed on the midpoint ideology measure and midpoint income:

$$\widehat{\beta}_{1ia} = \gamma_0 + \gamma_1 \overline{ideo}_{ia} + \gamma_2 Y_{ia} + \zeta_{ia}.$$

Hence, for example, $\widehat{\beta}_{111}$ describes the Wagner relationship for country 1 (Australia) for the period 1960 to 1980, $\widehat{\beta}_{112}$ for Australia 1961 to 1981 and so on. In the second stage, the corresponding ideology measures are $\overline{ideo}_{1,1970}$ (recall this is the arithmetic mean for the variable *ideo* from 1960 to 1970), $\overline{ideo}_{1,1971}$ (mean *ideo* 1961–1971), and so on. Similarly the relevant income measures are $Y_{1,1970}$, $Y_{1,1971}$, and so on.

TABLE 5.—ESTIMATED WAGNER COEFFICIENTS FOR ARCHETYPAL LEFT- AND RIGHT-WING REGIMES, 1960 AND 1998 LEVELS OF INCOME

	1960 Mean Income	1998 Mean Income
Archetypal Left	0.929	0.172
Archetypal Right	0.735	−0.022

The estimated coefficients are generated using equation (15) in the text. The 1960 mean income was $6,185 per capita, and the 1998 mean income was $15,881 per capita. The archetypal left-wing regime has an ideology measure set equal to 0.16, and the archetypal right-wing regime has an ideology measure set equal to −0.08.

Estimation of the second stage yielded

$$\widehat{\beta}_{1ia} = \underset{(0.232)}{1.285} + \underset{(0.351)}{0.809}\,\overline{ideo}_{ia} - \underset{(0.019)}{0.078}\,Y_{ia} \qquad (15)$$

(with robust standard errors reported in parentheses). The relationship between the estimated Wagner coefficients and ideology is highly statistically significant. To interpret these results, consider table 5 which displays the inferred Wagner coefficient for archetypal left- and right-wing regimes at mean income levels in 1960 and 1998. A coefficient of unity means that an additional $1,000 in income per capita leads to an increase in the size of government by 1 percentage point of GDP (1%). Left-wing regimes at average 1960 levels of income exhibit a high level of sensitivity: the increase in economic development required to increase government by 1% is just $1,076. Right-wing regimes at the initial development level require an additional $1,376 to yield a 1% increase in government size. It is particularly clear from the table that the level of economic development has a strong dampening effect on the Wagner coefficient. Even in leftist regimes at average 1998 income levels, a 1% increase in state size requires an additional $5,814. Governments in right-wing regimes have at this stage essentially plateaued, as anticipated in the theory.

The results of this last exercise provide strong evidence that the sensitivity of government size to income varies meaningfully with ideology and the level of economic development. As predicted by the theory, sensitivity was much greater in the 1960s than in the 1990s, though in either case, sensitivity depends importantly on ideology. This complements the previous findings that the level of government size is affected by ideology, but that the impact of ideology depends on the state of development. In this case, the theory points to a stronger effect in the later years, and again this is exactly what is borne out in the data.

IV. Conclusion

This paper asks how ideology affects the size of government. We define ideology in terms of differing tastes for public provision over private consumption. In a simple model where private consumption is a necessity and public services are luxury goods, the impact of ideology is shown to increase with the level of income. Using data from party manifestos, we construct time-varying measures for the median

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voter's ideological position. Ideology as measured by these data has a significant impact on government size, which increases with the level of economic development, as our model predicts. At 1960s income levels, the impact of ideology on government size is small. At 1990s income levels, the impact is large. By itself, Wagner's law would predict convergence in government size given the convergence in income levels over the same period. In practice, the variation in government size has increased, a result we explain in terms of median voters' preferences. Additionally, the sensitivity of government size to income also depends on ideology and is much higher at the beginning of the sample and diminishes with economic development. Our model, and the ideology data we use, can thus explain observed government size in the 1960s and 1990s and indeed why there has been increased divergence within the OECD during this period.

A further contribution of the paper is to investigate 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 time-invariant constitutional rule from the fixed effect in panel analysis. Nonetheless, allowing for differences in ideology may influence the interpretation of 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.

Future research might seek to investigate the role of ideology in determining specific policy variables. It would also be possible to disaggregate the MRG data set and investigate the relative importance of more specific policy preference measures and the relative importance of the ideology of the executive and the legislature.

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APPENDIX

Model Derivation

Given equation (2) and the balanced budget condition (3), the utility function (1) can be rewritten as

$$u_i(c_i, g) = F\left[\left(1 - \frac{g+r}{\bar{y}}\right) y_i + r\right] + \beta G(g),$$

which for the median voter is

$$u_m(c_m, g) = F\left[\frac{1}{m}(\bar{y} - (g+r)) + r\right] + \beta G(g),$$

where $m \equiv \frac{\bar{y}}{y_m}$. Given equation (4),

$$u_m(c_m, g) = F\left[\frac{1}{m}\left(y^* - \delta\frac{r^2}{y^*} - (g+r)\right) + r\right] + \beta G(g), \tag{A1}$$

and differentiating equation (A1) with respect to r and setting the resulting expression to 0 gives equation (5) in the text. Differentiation of equation (A1) with respect to g and setting the resulting expression to zero yields equation (7).

In the instance of the Stone-Geary utility function, the indirect utility function is now written as

$$u_m(c_m, g) = \ln\left[\frac{1}{m}\left(y^* - \delta\frac{r^2}{y^*} - (g+r)\right) + r - \mu\right] + \beta \ln(g+\mu),$$

and differentiating this expression with respect to g and setting this equal to 0 yields

$$\beta\left(y^* - \delta\frac{r^2}{y^*} - (g+r) + m(r-\mu)\right) = g + \mu.$$

Substituting in equation (5) and solving for g yields equation (9) in the text.

Proof of Propositions

Proof of Proposition 1, part i. Given equation (3) and the fact that $\frac{r^m}{\bar{y}}$ is constant the first part of the proposition requires that

$$\frac{\partial(g^m/\bar{y})}{\partial\beta} = \frac{1}{(1+\beta)^2}\left(\frac{4\delta + (m-1)^2}{4\delta(1-\delta\rho^2)}\right) - \frac{m-1}{(1+\beta)^2}\frac{\mu}{\bar{y}} > 0,$$

and rearranging this gives

$$\bar{y} > \frac{(4\delta + (m-1)^2)(m-1)}{4\delta + (m-1)^2}\mu.$$

This equation is implied by condition (11), provided that $\delta > \frac{(m-1)^2}{4}$, which follows from condition (12).

Proof of Proposition 1, part ii. Again using equation (3) and the fact that $\frac{r^m}{\bar{y}}$ is constant, the second part of the proposition requires that

$$\frac{\partial(g^m/\bar{y})}{\partial\bar{y}} = \frac{(1+\beta m)\mu}{(1+\beta)\bar{y}^2} > 0, \tag{A2}$$

which is positive by inspection. The second derivative is negative, thus establishing the second part of the proposition:

$$\frac{\partial^2(g^m/\bar{y})}{\partial\bar{y}^2} = -\frac{(1+\beta m)\mu}{(1+\beta)\bar{y}^3}.$$

Proof of Proposition 2

Differentiating equation (A2) with respect to β gives

$$\frac{\partial^2(g^m/\bar{y})}{\partial\bar{y}\partial\beta} = \frac{[m-1]\mu}{(1+\beta)^2\bar{y}^2} > 0.$$

Calibration: $m = 2, \mu = 2000, \delta = 3, \beta_L = 0.6, \beta_R = 0.3$.

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