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Short versus Long Coalitions: Electoral Accountability and the Size of the Public Sector

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This article examines the policy consequences of the number of parties in government. We argue that parties externalize costs not borne by their support groups. Larger parties thus internalize more costs than small parties because they represent more groups. This argument implies that the public sector should be larger the more parties there are in the government coalition. We test this prediction using yearly time-series cross-sectional data from 1970 to 1998 in 17 European countries. We find that increasing the number of parties in government increases the fraction of GDP accounted for by government spending by close to half a percentage point, or more than one billion current dollars in the typical year. We find little support for the alternative claim that the number of legislative parties affects the size of the public sector, except via the number of parties in government.

Democratic government is coalition government. In many parliamentary systems, governments form as explicit multiparty coalitions, but single party governments must also be coalitions: no party can win majority support without representing a coalition of groups in society. In some cases, parties represent narrow interests and build temporary majorities following an election to form a government. In other cases, parties are themselves "long coalitions" forged to create a potential majority before the election and intended to last beyond the next election (Aldrich 1995; Schwartz 1989).

Do the timing and durability of coalitions matter for government policy? Does it matter if a government is formed by a single party representing a long coalition of interests or by a short coalition of several parties each representing a narrow interest? One might think that, in either case, a majority coalition of groups in society would control government through their agents.

We argue here that there is a difference. A government coalition of many parties behaves differently than a single-party coalition of many interests, even when the same interests are represented. The difference is in electoral accountability. A single party in government is accountable for all of its policy decisions since it must promote the collective interest of a broad support base if it wants to keep its majority (Cox 1990). Participants in multiparty coalition governments, by contrast, are held primarily responsible for only a subset of policy decisions: those in the policy areas in which they have the biggest stake. This difference in electoral accountability, we argue, results in systematic differences in policy decisions.

Specifically, we claim that coalitions of many parties will strike less efficient bargains than those composed of a fewer parties. The less efficient bargains imply a larger public sector, other things equal, as the number of parties in government increases. Examination of yearly

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government spending patterns in Europe from 1970 to 1998 supports this claim.

Below, we briefly review related literature and sketch our model of electoral accountability. We use stylized examples of one-, two-, and three-party governments to show how more parties in a government imply higher levels of spending. The next section describes the yearly spending data we use to test this theory, and the third section discusses statistical problems arising from the time-series cross-sectional nature of our data. Next, we present our main finding: increasing the number of parties in government increases the fraction of GDP accounted for by the public sector, controlling for economic conditions, the fragmentation of the party system, last year's spending, and country fixed effects. The fifth section discusses implications of the number of parties in government for outcomes other than the size of the public sector, and finally we conclude.

Single versus MultiParty Governments and the Logic of Costs and Benefits

There is substantial interest among scholars of comparative politics as to how different forms of democratic government affect government spending. Some work focuses on electoral rules, in particular differences between majoritarian and proportional electoral systems. Grilli, Masciandaro, and Tabellini (1991), for example, found that majoritarian systems tend to carry smaller government debt than proportional systems. Persson and Tabellini (1999) argued that majoritarian systems should generate less spending on public goods, more redistribution, and larger government by creating incentives to target marginal districts. Lizzeri and Persico (2001), like Persson and Tabellini, emphasize incentives in majoritarian systems to target, but are noncommittal about whether or not majoritarian systems would spend less overall.

Theoretical focus on electoral systems offers insight into parties' electoral incentives, and by extension their induced preferences over government policy. Missing from this approach, however, is the question of how parties with different electorally induced preferences bargain over policy decisions. This issue is crucial for understanding the policy decisions of multiparty legislatures typically produced by proportional representation (PR). Indeed, some scholars have focused exclusively on interparty bargaining in coalition government, downplaying electoral accountability. Roubini and Sachs (1989a, b) argued that multiparty governments (and minority governments) are "weak" and thus prone to deficit spending. Some subsequent studies have supported this finding (Borrelli and Royed 1995; de Haan and Sturm 1994), but others (Harrinvirta and Mattila 2001; Sakamoto 2001) have countered that "weak" governments, if anything, tend to have smaller government budget deficits. One reason for disparate results, we expect, is that this line of research takes the party system as exogenous and does not consider variation in the electoral sources of party preferences.

Incorporating both electoral competition and coalitional bargaining into a single model is a difficult task, and most attempts do so (Austen-Smith and Banks 1988; Huber and Powell 1994; Kalandrakis 2002) presume a unidimensional policy space in which a median voter or party is decisive. This approach assumes away Condorcetian uncertainty about which majority coalition will form in the legislature.[1]

We regard Condorcetian uncertainty as fundamental to understanding both political parties and coalition government. Schwartz (1989) and Aldrich (1995) have argued that political parties can be understood as a "solution" to the problem of shifting coalitions. That is, suppose groups 1 and 2 form a majority that excludes group 3. Condorcetian uncertainty means that future majorities could consist of 1 and 3 (2 would be excluded) or 2 and 3 (1 would be excluded). But if both 1 and 2 commit to a "long coalition," both are insulated from the risk of being left out of future majorities. For Schwartz and Aldrich, the advantage of extending the life of an otherwise transient majority is the answer to the question "Why parties?" Aldrich argues that parties in the United States formed precisely to benefit from long coalitions.

Looking outside the United States, we observe that majority parties do not form everywhere, and that many majority coalitions are, in fact, short. In Bawn and Rosenbluth (2003), we show that electoral incentives under PR can offset the incentive to form a long coalition. We sketch a stylized version of that model here. By extending the Aldrich-Schwartz model to incorporate explicitly parties' electoral accountability to the groups they represent, we are able to contrast the policy choices of long and short coalitions, as well as cases in between.

Suppose there are five groups in society and that each group i has a "project"[2] or issue that it cares about. Let

[1]By "Condorcetian uncertainty" we mean uncertainty about which of several possible majority coalitions will form. This is the uncertainty that creates Condorcet's paradox about the intransitivity of majority rule. For a similar approach, see Persson, Roland, and Tabellini (2005).

[2]The term "project" reflects the historic use of this type of model in studies of pork barrel politics, such as Weingast (1979) and Weingast, Shepsle, and Johnsen (1981).

x_i denote the scale of the i-th project—the degree of protection for a particular industry, for example, or the level of public benefits targeted to a particular group. Let the benefits of project i, $B(x_i)$, accrue only to the group i, while the costs $C(x_i)$ are borne by all groups, so that each group's cost share of project i is $\frac{C(x_i)}{5}$. In order to focus on cases in which all participants have finite ideal points (i.e., even farmers do not want all of GDP spent on farm subsidies), we assume that benefits are linear, that is, $B(x_i) = x_i$, and that costs are quadratic, or $C(x_i) = x_i^2$, for all projects.

Straightforward maximization of $B(x_i) - \frac{1}{5}\sum_{j=1}^{5} \times C_j(x_j)$ tells us that the ith group's ideal policy grants benefits on the group's own dimension up to the point where marginal benefit equals the group's share (1/5-th) of marginal cost ($x_i = \frac{5}{2}$), and grants no benefits at all to any other group ($x_j = 0$ for $j \neq i$). In economists' terms, the group "externalizes" all costs and benefits borne by others.

The question for us is how electoral accountability translates the preferences of groups into the policies of governments. We consider three scenarios, corresponding to three configurations of parties.

Scenario 1: Single-party majority. A natural assumption in this scenario is that the majority party implements the policy that maximizes the joint utility of the groups from which it draws electoral support. That is, on each issue, the single party government sets policy at the point where the marginal benefits *accruing to its constituent groups* equal the marginal costs *borne by its constituent groups*. Assuming for simplicity that groups are roughly the same size, the single party government must represent a majority of groups, say, groups 1, 2, and 3. The party's policy positions will thus maximize

$$\sum_{j=1}^{3} x_j - \frac{3}{5}\sum_{j=1}^{5} x_j^2,$$

implying an ideal policy of $x_i = \frac{5}{6}$ on dimensions 1, 2, and 3, and zero on others. The overall cost of the public sector is $3 \times (\frac{5}{6})^2 = \frac{25}{12}$. Groups 1, 2 and 3 each get less than their ideal of 5/2 on their own policy dimension, but they are better off than groups 4 and 5, who get no benefits and still pay their share of costs. The groups represented by the majority party cannot do better *collectively* by supporting any other party.

Individually, however, each constituent group may be tempted to support instead a party espousing a policy closer to its own ideal—higher benefit for itself, lower benefits for other groups. Under a first-past-the-post electoral system, this temptation is weak, because small parties with narrow support bases cannot win office. Under proportional representation, however, narrow-interest parties can win seats and participate in government coalitions. The key question for voters who might support a smaller, narrower party is: what effect does a narrow interest party have on the policy of a government of which it is part?

More specifically, how does the above electoral accountability argument (in which a majority party maximizes the joint utility of its support groups) apply to a coalition government composed of parties who will run against each other in the next election? To answer this question, we note that parties in a coalition government fall into the broader category of political agents who contribute to, but cannot unilaterally determine, the policies that affect their electoral principals. (Individual legislators are, of course, another example in this category.) Schwartz (1994) analyzes the broad class of situations in which individual agents are accountable for collective choices. He argues that in this situation, agents try to maximize their *marginal product*. That is, the agent (party) tries to maximize its individual contribution to principal's (group's) welfare. In principle, it is can be difficult to determine each coalition member's marginal contribution to government policy, but in practice, a set of reasonable assumptions suggests itself.

Parties compete not simply on the basis of policy positions, but also on the priority they give to different issues. Moreover, when a party seeks the support of a particular group, it does so both by adopting something close to the group's ideal policy *and* by emphasizing the priority it will give to the group's most salient issue. Concretely, a party targeting farmers will favor high values of farm support policy, low support for other groups and sectors, and will give highest priority to the farm dimension. We further assume that coalition governments strike efficient bargains among participating parties. This means that the coalition partner attaching highest priority to a given dimension sets policy on that dimension (and in exchange, the other coalition partners control the dimensions most important to them). This assumption about policymaking bears some similarity to Laver and Shepsle's (1996) model of ministerial government.[3]

[3]Our argument is also consistent with the empirical finding that parties in coalition seem to get cabinet positions in rough proportion to their size (Druckman and Warwick 2001; Laver and Schofield 1990). In our model, a larger party would represent more groups and therefore care about having more ministries, whereas a smaller party would be content to focus on the ministry it cares most about. Ministerial independence is one plausible mechanism through which these interparty logrolls can be implemented, but they could also be reflected in binding coalition agreements (Thies 2001).

The assumptions that parties give highest priority to dimensions that have the highest impact on their support groups, and that coalition policy decisions are disproportionately influenced by the party giving the issue highest priority are sufficient to make predictions about the policy decisions of short coalitions. With this informal model of policymaking by coalition government in mind, we now return to our stylized world of five groups, and a second scenario.

Scenario 2: Fragmented Party System. In this scenario, each group is represented by its own party. Assuming as above that groups are roughly equivalent in electoral strength, and that majorities will be minimal winning, we will now have five parties in the legislature, and a three-party government coalition. Suppose parties 1, 2, and 3 form a government, so that precisely the same groups are represented as in Scenario 1. Each party adopts the ideal point of its support group and is able to implement that ideal on the support group's dimension, so that $x_i = \frac{5}{2}$ for $i = 1, 2, 3$ and zero for $i = 4$ and 5. The overall cost of the public sector is now 75/4, substantially more than it would have been with a single-party majority.

Scenario 3: Large and small parties in coalition. A third possible scenario is a coalition government formed by a larger party A representing groups 1 and 2, and smaller party B that represents group 3. Maximizing the joint welfare of groups 1 and 2 gives Party A an ideal point of $x_i = \frac{5}{4}$ for $i = 1, 2$ with priority split evenly between the first two dimensions. Party B's priority is entirely on dimension 3; its ideal policy on this dimension is 5/2. In government, Party A controls dimensions 1 and 2, Party B controls dimension 3, and there would be no disagreement among the coalition partners about dimensions 4 and 5. The overall cost of the public sector would be 75/8, larger than in Scenario 1, where the same groups were represented by a single party, and smaller than Scenario 2, where they were represented by three, rather than two, parties.

This set of examples is obviously very crude. In Bawn and Rosenbluth (2003), we derive conditions under which this kind of behavior by a multiparty government can be sustained as a Nash equilibrium. Among other things, we show that party configurations along the lines of *both* Scenarios 2 and 3 can occur in equilibrium under proportional representation. That is, PR can produce different numbers of parties in government, which will in turn produce public sectors of different sizes. Our model predicts differences among and within PR countries, not simply differences between PR and majoritarian countries.

Some simplifications in these stylized examples are relatively innocuous,[4] others are more restrictive. In particular, the model ignores the possibility of a party that cares most about keeping the public sector as small as possible, something perhaps like the German FDP. We acknowledge this empirical limitation. If this type of party occurs often in our dataset, it will limit our ability to find evidence for the claim that the number of parties in government increases the size of the public sector. It is also possible, however, that some parties which market themselves as fiscal conservatives nonetheless favor targeted benefits on some dimensions, or that the relevant benefits may be delivered via regulatory support or tax breaks rather than through spending per se.

Our three scenarios also imply that more parties in the legislature (or in the "party system") will be associated with a larger public sector. But this relationship occurs *only* insofar as more parties in the legislature implies more parties needed to form a government. Return to third scenario above, in which a large party, representing groups 1 and 2, forms a government with a small party representing group 3. Suppose in this legislature that groups 4 and 5 were also represented each by their own party, so that there are four parties total. An alternative majority coalition could be formed by Groups 3, 4, and 5. This alternative coalition would spend just as much as the three-party coalition in Scenario 2 (albeit on different dimensions). Thus, our model predicts that increasing the number of parties *in government* will increase the size of the public sector, even when we hold the number of parties *in the legislature* constant.

This last point highlights a contrast between our argument, which emphasizes the electoral accountability of governments, and an alternative that emphasizes universalist logrolls. Weingast (1979) argued that legislative norms of universalism are another solution to Condorcetian uncertainty: if everyone is included in the winning coalition, there is no risk of being the excluded minority. Universalist theory implies that larger legislatures (those with more members) will spend more. Most evidence in support of this claim comes from the United States (Baqir 2001; Bradbury and Stephenson 2003; Gilligan and Matsusaka 1995, 2001).[5] Scartascini and Crain (2002) and

[4]The model can be extended in straightforward ways, for example, to accommodate groups that care about multiple issues, issues that benefit more than one group, costs are not completely diffuse, and groups that are represented by more than one party. None of these extensions would alter our basic claim about the inefficient consequences or fragmented electoral accountability.

[5]But see Pettersson-Lidbom (2004) for evidence to the contrary from Sweden and Finland.

TABLE 1 Summary of Data

Country	Years	Avg. Parties in Govt.	Avg. ENLP
(A) Countries and Years in Dataset			
Austria	1970–1998	1.5	2.57
Belgium	1970–1998	4.3	6.89
Denmark	1970–1998	2.4	4.92
Finland	1970–1998	4.0	5.22
France	1970–1998	2.2	3.31
Germany	1970–1998	2.0	2.59
Greece	1974–1998	1.0	2.17
Iceland	1970–1998	2.4	4.04
Ireland	1970–1998	1.7	2.77
Italy	1970–1998	4.0	4.32
Luxemburg	1974–1998	2.0	3.63
Netherlands	1970–1998	2.9	4.68
Norway	1970–1998	1.5	3.57
Portugal	1976–1998	1.4	3.04
Spain	1979–1998	1.0	2.65
Sweden	1970–1998	1.6	3.48
UK	1970–1998	1.0	2.17

Variable	Mean	Std. Dev.	Minimum	Maximum
(B) Overall Summary Statistics				
Size of Public Sector (Govt spending as % GDP)	45.80	7.80	25.00	67.40
Parties in Government	2.23	1.25	1.00	5.26
Effective Number of Legislative Parties	3.69	1.37	1.72	8.41
Ideology (Manifestos Project)	−3.51	19.30	−45.60	61.10
Caretaker	0.01	0.07	0.00	1.00
GDP Per Capita (thousands real $ dollars per head)	18.90	5.18	8.08	42.70
Unemployment (Unemployed as % of labor force)	6.50	4.63	0.00	23.80
Trade Openness (Imports + Exports, divided by GDP)	68.00	46.30	21.80	246.20
Dependency Ratio (% population under 15 or over 64)	34.70	2.52	29.90	42.30

Mukherjee (2003) extended universalist theory to incorporate party discipline, so that size of the public sector is determined by logrolls in which *all* parties in the legislature get something. We question the plausibility of the partisan variant of universalism for parliamentary countries in which government and opposition are clearly defined. Nonetheless, it is an important alternative for us to consider in our empirical analysis.

Data: The Size of the Public Sector, Number of Parties, and Controls

Our argument rests on two claims: first, parties externalize costs not borne by their own constituent groups; and second, because electoral accountability is fragmented, participation in a coalition government is not sufficient to internalize these costs. The testable implication is that spending increases as the number of parties in government increases.

We test our claim with data from 17 Western European countries, from 1970 to 1998, the broadest time period for which we could get data on all of the variables described below. Table 1A displays the years and countries included in our dataset.[6] For three of our countries, Greece, Portugal, and Spain, our data series starts later than 1970 because we exclude nondemocratic periods.

[6]Warwick, on whose careful coding of governments we rely, excludes Switzerland because of its unusual "unanimous executive" in which four main legislative parties split cabinet portfolios evenly rather than jockey for places in a minimum-winning coalition.

Luxembourg starts later because some of the economic control variables are not available prior to 1974.[7]

Size of the Public Sector

Our dependent variable is overall government expenditure in a given year, measured as a fraction of GDP.[8] Summary statistics for this and all explanatory variables are provided in Table 1B. We chose to look at overall spending, rather than narrower measures of specific types of spending targeted to specific groups for several reasons. First, narrower categories of spending are harder to measure in comparable ways across countries. Second, if we focused on a particular type of spending, our predictions about spending levels would become contingent upon *which* parties are in government, not just how many. We would need to be able to identify the particular groups in each country that benefit from a particular type of spending, including groups whose benefits come in the form of government contracts to deliver the final goods and services (Weingast, Shepsle, and Johnsen 1981).[9] We would also need to be able to identify the parties that target each group in each country. We have little confidence in our ability a priori to associate parties with spending categories across a number of countries.[10] Finally, finding that the number of parties in government affects total spending implies not only that smaller parties externalize more costs than large ones, but that the magnitude of cost-externalization is big enough to affect the size of the public sector overall.

Measuring Parties in Government

Our key independent variable is the number of parties in government, which we measure from Warwick's (1994) data on government survival, updated in Warwick (1999). We consider parties "in government" only if they are formal members of the governing coalition. That is, we do not count parties that informally support or abstain on key votes. A minor difficulty arises from the fact that our dependent variable is observed on an annual basis, whereas governments often change mid-year. In these cases, we take the weighted average of the number of parties in government (weights are days in power).[11] For example, if a coalition of three parties rules for nine months and a coalition of two parties for the remaining three months, the number of parties would be coded as 2.75. In calculating the weighted average, we exclude periods of crisis, so that a year with six months of government by three parties and three months of government by two parties and three months of crisis would be coded as $3 * (6/9) + 2 * (3/9) = 2.67$. We use this same weighting scheme for all variables that change as governments change.

Control Variables

We control for the effective number of parties in the legislature. Our prediction is that, once the number of parties in government is accounted for, the number of legislative parties will not matter. Like the proponents of legislative universalism (Mukherjee 2003; Scartascini and Crain 2000), we use the effective number of legislative parties (ENLP), the reciprocal of the sum of squared seats shares across all parties represented in the legislature. Mean values of ENLP and Parties in Government for each country are given in Table 1A, overall summary statistics in 1B.

We also control for the government's ideological orientation, since one might expect left-wing governments to spend more. Systematic evidence on the effect of ideology is mixed.[12] Our model presumes that all groups prefer more rather than less spending on themselves, and that "ideological differences" are more about types of spending than amounts. On the other hand, we do not rule

[7]Excluding Luxembourg completely from the sample does not alter the statistical significance of any results we present below, nor does it have much impact on the estimated magnitudes.

[8]Our measure of spending is "Total Government Outlays as a Fraction of GDP" (CN056OTT), extracted from the OECD Quarterly National Accounts database (OECD 2002a).

[9]Swank (1988), for example, focuses on civilian spending. This type of narrower focus would be only be appropriate for our purposes if we were certain that military spending was driven completely by international considerations and that there were no domestic groups that would draw benefits from military contracts or other types of spending.

[10]Bawn (1999) discusses the difficulties of associating spending categories with parties in Germany, that is, in a single country with a notably simple and stable party system. These problems would loom even larger in countries like Italy or France, where the party systems are more fluid.

[11]One might think that it would be better to code the composition of the government at the time that the yearly budget was passed. The difficulty is that some countries pass supplemental budgets altering allocations from the primary budget, and most governments have discretion over how the budget is implemented. Since our dependent variable reflects actual outlays, our primary independent variable should take account of all governments who have an opportunity to affect public sector spending.

[12]Swank (1988) finds evidence that government ideology affects the size of the public sector, while Solano's (1983) and Rice's (1986) studies show no systematic effects of ideology, and Imbeau, Petri and Lamari's meta-analysis finds effects that are small and unstable. More recently, Blais, Blake, and Dion (1993) use a time-series cross-sectional dataset similar to ours and find small ideological effects. Stronger evidence for the effect of ideology comes from studies that focus on particular types of spending (Hicks and Swank 1992; Hicks, Swank, and Ambuhl 1989).

out the possibility that some sets of groups have more expensive projects, or benefit more from policies that are delivered via public spending, rather than via tax breaks or regulations. Either possibility could lead government ideology to affect spending.

Our measure of ideology comes from the Comparative Manifestos Project, which undertook a comprehensive content analysis of the party manifestoes released prior to elections from 1945 to 1998 (Budge et al. 2001).[13] Higher values for this variable indicate a more right-wing orientation. Examples from single-party governments in the United Kingdom provide helpful calibration. The Labour government in the 1970's under James Callaghan has an ideology score of −27.5. In the late 1980's, Margaret Thatcher's Conservative government scores 30.5. In the late 1990's, Tony Blair's "new" Labour government receives a score of 8.07. We map the Manifestos values of party ideologies onto governments by taking a weighted average of the parties in the government coalition.[14]

We also control for whether the government is a caretaker government, using Warwick's coding. Because caretaker governments are generally not empowered to implement new policies, we expect them to spend less. Our variable is the fraction of the year for which there is a caretaker government.

Finally, we also control for socioeconomic influences on the size of the public sector, specifically, unemployment, GDP per capita, trade openness and the dependency ratio.[15] GDP per capita is measured in billions of U.S. dollars (using 2000 as a base year), divided by population in millions. Unemployment is measured as number unemployed as a percentage of the total labor force.[16] Trade openness of the economy is measured as Imports + Exports, divided by GDP. The dependency ratio is measured as the fraction of the population that is either under 15 or over 64.

We include these socioeconomic variables as controls that may affect spending either directly or indirectly. Unemployment and the dependency ratio, for example, would be likely to directly increase spending on entitlement benefits (Castles 2001; Huber and Stephens 2001; Korpi 2003). Economic conditions may also influence spending indirectly by influencing the decisions of governments. Governments may spend more when GDP is low in an attempt to stimulate the economy via public spending, or they may spend less, following the logic of Wagner's Law that greater affluence stimulates greater demand for the public sector spending (see Cameron 1978; Glate and Zak 2002; Miljkovic 2004; Swank 1988). Open economies have generally been found to spend more (Burgoon 2001; Cameron 1978; Garrett and Mitchell 2001; Rodrik 1998; Swank 1988), possibly reflecting government efforts to insulate trade-exposed domestic economies from global shocks.

A question arises here about timing. Government budgets go through the legislative process and are generally voted prior to the year in which spending occurs. This would imply that the number of parties in government in 1970, for example, would influence spending in 1971. But many countries allow supplementary budgets to be passed mid-year, and ministries may influence current spending in the way they implement policies. Single-country studies of public sector spending (e.g., Bawn 1999; Budge and Hofferbert 1990; Hofferbert and Budge, 1989) often lag all independent variables, on the assumption that decisions about what is spent in year t are made in year $t - 1$, or even earlier.[17] Multicountry studies, on the other hand, generally ignore any timing difference between spending decisions and the spending itself, though Blais, Blake, and Dion (1993) acknowledge that this could be problematic. Rather than take a position a priori on whether political or socioeconomic affect the size of the public sector immediately or with a delay, we allow for both possibilities. We estimate our models with both lagged and current values for all variables. This strategy raises concerns about

[13] Specifically, we use the Manifestoes Projects "right-left position of party" variable, compiled from party statements on issues identified by Laver and Budge (1992) to have particular ideological meaning. These include military, democracy, constitutionalism, political authority, free enterprise, incentives, protectionism, economic orthodoxy, welfare state limitation, national way of life, traditional morality, law and order, social harmony, anti-imperialism, military, peace, internationalism, freedom and human rights, economic planning, controlled economy, nationalization, welfare state expansion, education expansion, and labor groups. The variables represent the percentage of quasi-sentences in a manifesto in each category, with the total number of quasi-sentences in each manifesto as the denominator of the fraction. For similar uses of this variable, see Martin and Stevenson (2001), and Hix, Noury, and Roland (2005).

[14] There are a small number of parliamentary parties which participated in governments in our sample, but which have not been coded by the Manifestos Project: the Iceland Splinter Party, Reformists and Independents in Portugal, the Sardinian Action Party and Dini List in Italy. The number of seats held by these parties is generally quite small. In these cases where we don't have an ideology measure from the party, we omit its seats from the denominator of the weighted average calculation.

[15] In preliminary analyses, we also controlled for population and inflation. These variables were never statistically significant in any specifications and did not affect any of the results reported here.

[16] The economic variables are taken from the OECD Economic Outlook Database (OECD 2002b). The unemployment variable may unfortunately be affected by different country's definitions of the labor force. The OECD has attempted to calculate a standardized unemployment rate, but it is available for only a small subset of the countries and years in our dataset.

[17] Hofferbert and Budge (1989) offer empirical evidence in support of lagged effects.

endogeneity, however, which we will discuss in the next section.

We also control for the previous year's level of spending, by including a lagged dependent variable. Like many time series, the size of the public sector displays substantial serial correlation, creating the danger, in King and Laver's words, of "believing you have more information than you really do" (1993, 745).[18] Like King and Laver, we think that one reason why public sector spending is serially correlated is that governments may not be able to implement every part of their program right away. Note, however, that this is a separate issue from whether or not to lag the independent variables. Concretely, we include lagged independent variables to capture the possibility that the size of the public sector in 1975 was affected by the government in power in 1974. We include the lagged dependent variable to capture the possibility that spending in 1975 is also affected (via continuing programs, for example) by spending in 1974 (which would have been affected by government in 1973, etc.). The lagged dependent variable creates some difficulties of its own, which we will address in the next section when we discuss estimation issues.

A final issue related to control variables is whether to include "fixed effects," a set of dummy variables for each country (minus one). Fixed effects are appealing because they capture all the cultural and institutional factors that do not vary within a given country. For example, Britain's first-past-the-post electoral system, France's semipresidential system, and Germany's federal structure are constant throughout the time period we study, so the fixed effects account for any influence these institutional features may have on the size of the public sector.

A potential disadvantage of including fixed effects is that the estimated slopes, β, in the regression equation

$$y_{it} = \alpha + x_{it}\beta + \nu_i + \varepsilon_{it}$$

(where ν_i is the fixed effect dummy for country i) are identical to those in the model in which all x and y variables are written in terms of deviations from their country means

$$(y_{it} - \bar{y}_i) = (x_{it} - \bar{x}_i)\beta + (\varepsilon_{it} - \bar{\varepsilon}_i).^{19} \qquad (1)$$

This equivalence means that the when we put country effects into our model, the estimated effect of parties in government is based only on information about how it affects spending *within* a single country. That is, the fixed effect estimates of the effect of number of parties ignore the fact England has, on average, a smaller public sector than Belgium. The disadvantage of using fixed effects is thus that the information contained in cross-country variation is not incorporated into the estimated coefficients (see Beck and Katz 2004). We will present results with and without fixed effects below.

Estimation Issues

The time-series cross-sectional (TSCS) nature of our data means that the standard regression assumption of independent, identically distributed errors is unlikely to hold, and in preliminary analyses, Breusch-Pagan tests indicated heteroskedasticity. A standard method of handling heteroskedasticity in TSCS datasets is to calculate panel-corrected standard errors (PCSEs), which take advantage of the TSCS structure in estimating the covariance matrix. In Monte Carlo studies, PCSEs perform particularly well for data sets like ours in which the number of years (28) is somewhat (but not drastically) larger than the number of units (17 countries; Beck and Katz 1995, 2004). Autocorrelation is also a worry with time-series data, and preliminary specifications without the lagged dependent variable showed clear evidence of autocorrelation. As is often the case, however, once the lagged dependent variable is included, Breusch-Godfrey tests fail to indicate autocorrelation.[20] All the specifications reported here include a lagged dependent variable.

The lagged dependent variable introduces endogeneity problems with respect to both the fixed effects and the lagged political and economic variables. That is, if the dummy variable (fixed effect) for Ireland affects spending in 1975, it presumably also affected spending in 1974, making the lagged spending variable endogenous to the fixed effects (Nickel 1981). Along the same lines, if current political and economic variables affect current spending, then the lagged dependent variable will be endogenous to the lagged economic and political variables, producing the same potential bias. Another endogeneity issue arises from including both the lagged and current values of the independent variables, whereby the current values may be endogenous to the lagged values.

One way to correct for the endogeneity bias in the presence of a lagged dependent variable and fixed effects begins by taking the first difference of all variables. This

[18]For a dissenting view on including lagged dependent variables in studies of the political causes of public policy, see Hofferbert and Budge 1989.

[19]See, for example, Greene (1997, 617) for this derivation.

[20]The Breusch-Godfrey statistics for the models in Table 2 range from 1.01 to 1.61, all well below the 3.84 critical value to reject the null hypothesis of no autocorrelation. It is important to note that the Breusch-Godfrey test (unlike other autocorrelation tests such as Durbin-Watson) is valid for regressions that include lagged dependent variables (Greene 1997, 594–96).

removes the fixed effects (the differences in these variables are always zero), but there remains a correlation between the lagged dependent variable (now in differences) and the error term. Anderson and Hsiao (1982) addressed the latter problem by using a further lag of the dependent variable as an instrumental variable, and this strategy can be extended to other potentially endogenous regressors. Subsequent work has shown that this type of estimator works best when the lagged levels of the potentially endogenous variable (rather than lagged differences) are used (Arellano 1989), and when all available lags are incorporated into a Generalized Method of Moments (GMM) estimator (Arellano and Bond 1991).

Wawro (2002) and Kittel and Winner (2004) advocate the use of differenced models in TSCS datasets, especially in cases in which the substantive concern is with change over time or the speed of adjustment. Beck and Katz (2004) are less enthusiastic. As they point out, Nickel (1981) showed that the bias decreases as the number of time periods increases, so that problem is much more acute in "true panel" datasets (that is, those in which the number of units is quite large and the number of time periods quite low) than in a TSCS dataset like ours (in which the number of time periods is greater than the number of units). Moreover, in Monte Carlo simulations, the bias affects the coefficient on the lagged dependent variable much more than the estimates of the other coefficients.

The disadvantage of the Anderson-Hsiao family of estimators is that, like all estimators involving instrumental variables, mean squared error can increase drastically if the instruments are not highly correlated with the endogenous variable. As Beck and Katz put it, "We might be trading a small reduction in bias for a large decrease in efficiency" (2004, 9).[21]

Our approach to the conflicting Monte Carlo results is to estimate the models both with and without the instrumental variable corrections for endogeneity. We present results using, first, OLS regressions with PCSE's (with and without fixed effects), and second, the Arellano-Bond GMM estimator in which the lagged dependent and all current values are instrumented.[22] The first approach emphasizes efficient estimation; the second emphasizes minimization of bias. We find it reassuring that the two approaches produce substantively similar results.

Results

Table 2 presents the main results on how the number of parties in government affects the size of the public sector. Each column displays the coefficients from a single regression. The first three columns include both lagged and current values of all independent variables. The first two columns are OLS regressions with PCSE's. Column (a) does not include fixed effects by country; column (b) does. The estimates in column (c) use the Arellano-Bond GMM estimator in which we control for country effects by taking first differences, and we instrument all potentially endogenous variables. The specifications in columns (b) and (c) are thus substantively similar; the only difference is in the estimation procedure.

Focusing first on columns (a) through (c), we begin with the control variables. The lagged dependent variable is, as expected, always significant.[23] Second, both current and lagged values of the economic control variables are significant in at least some of the specifications. The effects of current per capita GDP and unemployment are in the directions that Keynesian fiscal policy would predict: governments increase spending (relative to last year's spending) when GDP is low and unemployment is high. The lagged effects are in the opposite direction and generally of similar magnitude. These economic variables all display extremely high degrees of serial correlation, implying a net effect close to zero.[24] The important point for our purposes is that the effect of the number of parties in government spending is present even after these variables are controlled for.

Turning now to the political variables (Parties in Government, ENLP, Ideology, and Caretaker), none of the current values are statistically significant, but all lagged

[21] Beck and Katz also present results from Monte Carlo simulations that compared the Anderson-Hsiao estimator to the standard least-squares model with fixed effects. In their Monte Carlo trials, the least-squares estimates of the independent variable coefficients are slightly biased (around 2% of true coefficient value for a dataset like ours where $N = 17$ and $T = 28$), but its root mean squared error is notably smaller than that of the Anderson-Hsiao estimator. Judson and Owen's (1999) Monte Carlo results, however, indicate higher bias from uncorrected least squares (9% of true coefficient value for a dataset comparable to ours). Note also that some of the efficiency loss Beck and Katz find with the Anderson-Hsiao estimator may be mitigated by the Arellano and Bond's (1991) variant that uses all available lags as instruments.

[22] We are not able to calculate PCSEs in the GMM model, but we do report robust standard errors that make less efficient heteroskedasticity corrections. This estimator requires there to be no second-order autocorrelation. According to the test developed in Arellano and Bond (1991), our data meet this criterion.

[23] The fixed effects estimates are jointly significant in columns (b) and (e).

[24] That is, the positive effect of current unemployment is mostly offset of by the negative effect of lagged coefficient unemployment. The overall implication that GDP per capita, openness and dependency have little net impact is not surprising, given the presence of the lagged dependent variable.

TABLE 2 Effect of Number of Parties in Government on Size of Public Sector Dependent Variable: Total Government Outlays as Percent GDP

	(a) PCSEs	(b)PCSEs w/ FE	(c) A-B GMM	(d) PCSEs	(e) PCSEs w/ FE	(f) A-B GMM
Lagged						
Parties in Govt.	0.400**	0.509***	0.527*	0.276***	0.451***	0.468***
	(0.167)	(0.167)	(0.313)	(0.094)	(0.122)	(0.174)
ENLP	0.167	0.152	0.255	−0.076	−0.152	−0.061
	(0.280)	(0.276)	(0.381)	(0.086)	(0.145)	(0.184)
Ideology	−0.014*	−0.011	−0.014	−0.014***	−0.009*	−0.009*
	(0.008)	(0.008)	(0.009)	(0.005)	(0.005)	(0.005)
Caretaker	−4.01**	−3.72**	−3.75	−4.28**	−3.86**	−3.73
	(1.78)	(1.72)	(3.50)	(1.82)	(1.76)	(4.00)
GDP per capita	2.29***	2.32***	2.50***	2.28***	2.31***	2.50***
	(0.268)	(0.262)	(0.357)	(0.266)	(0.261)	(0.352)
Unemployment	−0.209*	−0.191*	−0.165*	−0.200**	−0.175*	−0.145
	(0.099)	(0.104)	(0.087)	(0.099)	(0.103)	(0.096)
Dependency	0.181	0.338	0.454	0.182	0.369	0.589*
	(0.408)	(0.421)	(0.352)	(0.406)	(0.415)	(0.336)
Openness	0.082**	0.074*	−0.008	0.084**	0.073*	−0.008
	(0.035)	(0.039)	(0.037)	(0.035)	(0.040)	(0.037)
Spending	0.921***	0.831***	0.795***	0.921***	0.832***	0.794***
	(0.014)	(0.026)	(0.057)	(0.014)	(0.026)	(0.058)
Current						
Parties in Govt.	−0.136	−0.072	−0.065			
	(0.164)	(0.164)	(0.239)			
ENLP	−0.255	−0.393	−0.454			
	(0.276)	(0.269)	(0.358)			
Ideology	−0.001	0.002	0.004			
	(0.009)	(0.008)	(0.009)			
Caretaker	0.791	0.926	0.890			
	(1.82)	(1.75)	(1.01)			
GDP per capita	−2.27***	−2.29***	−2.60***	−2.27***	−2.29***	−2.62***
	(0.262)	(0.257)	(0.331)	(0.260)	(0.256)	(0.318)
Unemployment	0.167*	0.254**	0.203***	0.158	0.240**	0.178***
	(0.099)	(0.106)	(0.070)	(0.098)	(0.104)	(0.065)
Dependency	−0.152	−0.377	−0.501	−0.154	−0.411	−0.652*
	(0.406)	(0.418)	(0.374)	(0.403)	(0.413)	(0.368)
Openness	−0.079**	−0.082***	−0.022	−0.080**	−0.084*	−0.026
	(0.035)	(0.035)	(0.043)	(0.035)	(0.035)	(0.043)
Constant	3.43	10.6***	0.091	3.51	10.6***	0.098
	(2.30)	(3.54)	(0.093)	(2.30)	(3.50)	(0.093)
R^2	0.945	0.949		0.944	0.949	
Number of obs.	447	447	429	447	447	429

*p < .10, **p < .05, ***p < .01.
Notes: (1) Columns (a), (b), (d), and (e) report OLS regression with panel-corrected standard errors. Columns (b) and (e) include fixed effects by country. (2) Columns (c) and (f) use Arellano-Bond GMM dynamic panel estimator based on first differences. (3) Government spending and socio-economic data from OECD. Political variables from Survival Dataset II (Warwick 1999) and Manifestoes Project.

values except ENLP achieve significance, at least in column (a). Furthermore, in columns (b) and (c), p values for lagged Ideology and Caretaker are much lower than for the current values. We interpret this as evidence that the effects of the composition of government are felt primarily when budgets are drafted and passed, not when they are implemented. Given the results in columns (a)–(c), we ran the same regressions with the current political variables omitted. We are particularly concerned that serial correlation in our variable of interest, Parties in Government, is artificially inflating the coefficient on the lagged value. (Although the coefficient on the current value is not significant and the magnitude is small, the sign does go in the opposite direction of the lagged value.)[25] Indeed, when we eliminate the current political variables, the coefficients on the lagged values are reduced in magnitude. The p values on the estimates are also somewhat reduced, as would be expected when we remove collinear regressors. We thus regard columns (d) through (f) as superior specifications for evaluating the impact of the number of parties in government.

Focusing now on columns (d) through (f), we find the expected signs on Ideology and Caretaker. ENLP never approaches statistical significance. In this sample, there is no support for the universalist prediction that the number of parties in the legislature directly affects the size of the public sector.

Turning our attention now to our main variable of interest, the most important implication of the six regressions in Table 2 is this: the more parties in government at budget-passing time, the larger the public sector. Moreover, the effect of Parties in Government is not diminished when we control for country effects. Indeed, adding fixed effects to the OLS regressions (going from column (a) to (b) or (d) to (e)) increases the magnitude of the coefficient on Parties in Government. This is unusual. Because the fixed effects restrict attention to within-country variation, they generally depress the estimated effects, especially when much of the variation is cross-national. Without controlling for country effects, the estimated impact of an additional party in government is that an additional 0.276% of GDP will be spent in the public sector (column (d)), which is a substantial amount of money. The mean value of GDP in our sample is 394 billion dollars; 0.276% of this is an additional 1.09 billion dollars in the government's yearly budget.

Once we add fixed effects, the marginal impact of an additional party in government rises: the estimated marginal effects of 0.451% and 0.468% correspond respectively to 1.78 and 1.84 billion dollars. The effect of an additional party in government is strongest *within* countries. That is, the impact of a four-party coalition, for example, is larger in a country where smaller coalitions are the norm than where four-party coalitions are routine (see Equation 1 above). A plausible conjecture is that countries that routinely have many parties in government find ways to counteract the incentive to overspend. Hallerberg (2004) and von Hagen and Hallerberg (1999) have argued that fiscal governance institutions can reduce the common pool resource problem faced by coalition governments. They contrast "commitment" strategies (in which detailed spending targets are negotiated up front) and "delegation" strategies (in which finance ministers play the role of fiscal watchdogs) to more decentralized "fiefdom" strategies (in which the power of spending ministers is mostly unchecked).

Hallerberg (2004) argues that the type of fiscal governance strategy depends on the nature of the party system, so that countries with numerous parties in government have the strongest incentive to adopt a commitment or delegation strategy. This incentive would offset at least some of the effect of the average number of parties in government across countries and would produce precisely the difference we observe between the estimates with and without fixed effects. Yet the model without fixed effects shows that fiscal governance institutions do not completely offset the tendency for parties to externalize costs not borne by their support groups. The fiscal "fixes" are imperfect.

Discussion: Beyond Size of Public Sector

The tendency of multiparty governments to externalize more costs may impact policy in other ways not reflected in the size of the public sector. Some of the targeted benefits promoted by multiparty government may appear, for example, in regulatory policy, and the literature on the "varieties of capitalism" offers some suggestive evidence (Hall and Soskice 2000). In "coordinated market economies," workers have high levels of wage security and firms are buffered from some of the vagaries of market swings and competitive pressure. Our model of electoral accountability draws attention to the fact that these coordinated economies are routinely governed by coalitions of many parties. This regulatory insulation from market pressure, our logic suggests, derives from multiparty governments' ability to externalize diffuse costs in the form higher prices and more unemployment. Along

[25]The autocorrelation coefficient on Parties in Government is .87—high, but not in the range (over .95) of the economic variables.

similar lines, Rogowski and Kayser (2002), and Rogowski, Chang, and Kayser (2003) have found that more proportional electoral systems are associated with higher levels of consumer prices. Again, the higher consumer prices may reflect policy decisions in which targeted benefits are delivered to particular groups (industries protected from competitive pressure) at a level that externalizes diffuse costs (higher consumer prices).

Somewhat less directly related is Persson and Tabellini's (1999) finding that plurality electoral systems are associated with a lower supply of public goods, measured as the sum of expenditures on transportation, education, and order and safety, in percent of GDP. They interpret this as evidence that parties in plurality systems maximally redistribute income to the marginal district. Our model suggests an alternative explanation.[26] As Weingast, Shepsle, and Johnsen (1981) have argued, public goods may be provided not so much in response to the diffuse demand of those who consume them, but rather in response to the intense "demand" of organized groups who reap rents by, for example, contracting to build the bridge, staff the schools and police forces, and so on. By promoting the less efficient multiparty logroll among the groups, for whom the costs of the public good count as benefits, proportional representation leads to higher levels of public goods.

While our argument and evidence here are broadly consistent with the findings of others who have examined differences in policies and outcomes across systems, our claims about the theoretical mechanisms are different.[27] Rogowski, Chang, and Kayser (2003) focus on the trade-offs parties face between proconsumer policies (which attract votes) and proproducer policies (which attract money). Because major parties in more proportional systems usually face lower seats-votes ratios, they are more inclined to go after more money. Other writers (Persson and Tabellini 1999, 2003; McGillivray 1997, 2004) emphasize the key role of swing districts in single-member electoral systems. Thus, most cross-national studies of policy making focus on direct effects of the electoral system, rather than on the accountability and bargaining dynamics that electoral systems establish indirectly.

Our argument, in contrast, predicts systematic differences *among* PR countries—indeed, *within* a given country—based on the number of parties in government. If the effect of number of parties on the size of the public sector were merely due to differences between PR and plurality, it should vanish in the presence of fixed country effects. We have shown that, not only does it not vanish, it actually grows stronger.

Rogowski, Chang, and Kayser's (2003) theory also predicts differences among PR countries, based on the seat-vote ratio. But the seat-vote ratio is highly correlated with the effective number of legislative parties (ENLP), and in our analysis higher ENLP does not have the predicted effect on size of public sector once number of parties in government is controlled for. The weak performance of ENLP is evidence in favor of our causal mechanism (fragmented electoral accountability for policy decisions) over Rogowski, Chang, and Kayser's (the relative importance of money over votes).[28]

Conclusion: Short Coalitions Govern Differently from Long Ones

We began by asking whether a given coalition of groups would be represented differently in government by a single "long coalition" party or by a transient "short" coalition government of narrow-interest parties. Our answer, in summary, is that electoral accountability differs between long and short coalitions because a party maximizes its marginal contribution to its support groups' welfare and externalizes costs not borne by its support groups. Short coalitions of multiple parties in government negotiate less efficient logrolls than long coalitions because policy decisions, which reflect the preferences of the coalition partner that cares most about the policy area, externalize more costs than would occur within single-party government.

This argument implies that the greater inefficiencies of multiparty coalitions should show up as greater government spending when there are more parties in government. This is not to say that most government spending is inefficient, but rather that inefficient trade-offs will be reflected in spending. Our analysis of the size of the public sector across countries and across time in Europe shows precisely this pattern. Government spending, as a fraction of GDP, increases with the number of parties in government. The effect is robust and substantively large: an additional party in government corresponds to almost an additional half percentage point of GDP spent in the public sector. Our core theoretical claim is that electoral agency relationships change as a single party represents

[26] To the extent that districts are heterogeneous with respect to voter preferences, and that parties in (presidential) district-based systems are unable to prioritize spending across districts in a forceful way, spending in SMD systems may represent inefficient logrolls as well, as Persson and Tabellini (2003) and Franzese (2000) have argued.

[27] Though for a similar argument, see Rosenbluth and Schaap (2001).

[28] Rogowski and Kayser (2002) and Rogowski, Chang, and Kayser (2003) do not control for number of parties in government.

more and more groups, and we have shown here that these changes are reflected in policy.

Our focus has been on the short-run consequences of fragmented electoral accountability, but we end with a cautionary note. A growing literature suggests that countries that typically have many parties in government not only have big public sectors, but also less income inequality (Alesina, Glaeser, and Sacerdote 2001; Iversen and Soskice 2003; Persson and Tabellini 1999, 2001; Persson, Roland, and Tabellini 2003; Powell 2002; Tabellini 2000). Levels of public spending that may be inefficiently high in the short-run can perhaps produce long-run benefits that we have not captured in our model. Long-run consequences of political institutions deserve more scholarly attention, a process to which we hope we have contributed by investigating the short-run electoral agency relationship between parties and their support groups.

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