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A CROSS-NATIONAL APPROACH TO THE IMPACT OF ELECTORAL LAWS ON FISCAL OUTCOMES

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at George Mason University.

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DEDICATION

To my lovely wife Cecilia, who has endured my academic dreams.

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ABSTRACT

A CROSS-NATIONAL APPROACH TO THE IMPACT OF ELECTORAL LAWS ON FISCAL OUTCOMES

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This dissertation embraces and seeks to advance the political economy framework by examining how the structure of political party competition in national legislatures influences fiscal performance. Specifically, it addresses the fiscal consequences of the effects of the number and strength of parliamentary parties on political party leaders' incentives to bargain both within party ranks and across party lines. The model is very simple; electoral rules affect the number of parties that gain access to the legislature, and the number of parties determines the size of the government. A larger number of parties represented in the legislature expands public government expenditures. Additionally, the degree of proportionality of the system, evidenced by the number of parties, has an impact on the composition of government expenditures. Highly competitive legislatures favor the development of programs based on subsidies and transfers rather than public goods expenditures. This dissertation also reveals the effect of trade openness on the design of political institutions and the influence of these institutions on budget decisions. Finally, it provides further evidence

of the impact of political regimes on public expenditures. This dissertation uses broad panel data samples to test the models empirically, including a historic sample of European countries from 1860 to 1930, an OECD sample from 1971 to 1996 and a large world sample from 1980 to 1996.

1. Introduction

Research on government expenditures has flourished in the last 30 years. Numerous papers and books have been written on the causes and consequences of the expansion of the public sector. A simple search in the most popular databases shows that more than four hundred articles and books have been published on the size of the government.[1] The interest in the topic is based not only on normative grounds concerning whether having a larger government is positive for citizen welfare, but also on grounds of positive inquiry given the considerable differences in the size of government in relation to national economies around the globe. In most European countries, the share of central government expenditures amounts to roughly 40 percent of GDP, while expenditures in the average South American country equal about 20 percent of GDP. Table 1 in Appendix A presents additional evidence for different regions of the world.

Two of the best surveys in this prolific area of economics are Mueller (1989) and Holsey and Borcherding (1997). Mueller (1989) divides the literature into demand and supply side explanations of government size. Demand side explanations consider the state either as a provider of public goods and eliminator of externalities, as posited in "Wagner's Law", as a redistributor of income and wealth, as in the works by Aranson and

[1] Appendix A offers additional information on the research conducted.

Ordeshook (1981), Peltzman (1980), and Meltzer and Richards (1981); or as being affected by interest groups, as in Tullock (1959), and Mueller and Murrell (1986). In these works, differences in standards of living, income distribution and political influence determine differences in government expenditures.

Supply side explanations assume that "the state is above the citizens". The determinants of public expenditures are then, the bureaucracy, as in Niskanen (1971), or fiscal illusion, as in Brennan and Buchanan (1980). Accordingly, the size of the bureaucracy, the relationship between the bureaucracy and the legislature, and the popular responses to taxation determine the expansion of the government.

Holsey and Borcherding (1997) provide a different organization of the literature, splitting the theories of government into three types: political, apolitical, and eclectic. Political theories view public services as redistributive and therefore, determined by the most influential groups. These theories study the impact of rent-seeking, as in Meltzer and Richard (1981) and Peltzman (1980), and the Leviathan model, as in Brennan and Buchanan (1980). Apolitical theories regard collective decision making as a compromise between individuals desiring various levels of services, ignoring the political institutions in which choices are made. These theories study the impact of prices, income and preferences in government expenditure, as exposited in Wagner's Law. Finally, eclectic theories model public expenditures decisions as a function of both the general voting populace and organized, narrow interest group preferences. Some of the papers in this tradition include Denzau and Munger (1986), Congleton (1991) and Niskanen (1971).

The literature surveyed provides only partial explanations for the observed range in the size of government. A new strand of literature not included in Mueller (1989) and Holsey and Borcherding (1997) uses differences in political institutions to explain the

size of the government. Controlling for the variables found relevant in the traditional literature, including standard of living, country size, population age, and income distribution, the political economy literature has been able to identify how political institutions affect growth in public expenditures. Among the papers in this strand of literature, Gilligan and Matsusaka (1995) find that the size of the legislature is relevant for explaining the size of the government. Inman and Fitts (1990) develop the notion of constrained universalism, which holds that the share of the seats held by the majority party in the legislature impacts expenditure non-linearly. Crain and Muris (1995) observe differences in public expenditure that corresponds with the organization of legislative committees. Alesina and Perotti (1999) survey a large bulk of literature and find that differences in budgeting rules correspond to striking differences in budget size and deficit. Kontoupolous and Perotti (1996) show that government fractionalization, as measured by the number of ministers in charge of spending decisions, affects the government's overall control of the economy. Finally, Persson and Tabellini (1999) and (2000) find evidence that political regimes and electoral rules affect the size of the government. More specifically, presidential countries and majoritarian elections reduce public expenditure.[2]

Chapter 2 of this dissertation embraces and seeks to advance the political economy framework by examining how the structure of political party competition in national legislatures influences fiscal performance. Specifically, it addresses the fiscal consequences of "post-election politics," that is, how the number and strength of parliamentary parties influences legislator incentives to bargain both within party ranks and across party lines. Previous work on "pre-election" politics has only considered the

[2] Most of the political economy literature is surveyed in Persson and Tabellini (2000).

direct impact of electoral laws on the size of the government, neglecting the implications of electoral rules on the party structure.[3] The model in this dissertation is very simple, electoral rules affect the number of parties that gain access to the legislature, and the number of parties determines the size of the government. Among the many systems of electing representatives, the broadest distinction is between plurality rule and proportional representation.[4] Plurality elections in single-member constituencies are likely to generate two-party competition. Proportional representation in multi-member constituencies is likely to favor multiple parties. The bargaining for determining the size of the budget in the legislature is completely different under each one of the systems. In decentralized legislatures of two parties, bargaining relies on the individual legislator. In the highly party-disciplined legislatures of multi-party competition, party leaders are in charge of negotiations. The number of seats their party holds determines their amount of power. As is the case with the individual legislators in the decentralized legislature, party leaders prefer to form a universal coalition, a coalition of every party with substantial representation, instead of accepting the lottery of forming minimum winning coalitions. This result is consistent with providing their supporters with the highest expected benefit. In this universalistic legislature, an increase in the number of parties has two effects. First, it increases even more the uncertainty of minimum size coalitions, therefore reducing the potential for any deviation from the universalistic agreement. Second, it reduces the cost for party supporters of any project favored by the party

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[3] This is a serious pitfall of the existing literature according to Persson and Tabellini (2000b, p. 5). This dissertation repairs this loophole in the literature by considering the impact of electoral laws on political party competition.

[4] Appendix B offers a general introduction to electoral systems.

because it can be exported to a larger number of groups. Both effects raise the size of the government.

Additionally to predicting the size of the government, the empirical work in the second chapter confirms the existence of systematic differences on the composition of public expenditures according to the degree of proportionality of the system. In two-party systems, like the United States, legislators favor geographically-based voters because their possibilities of reelection depend on the geographic constituency they represent. In order to win a seat, legislators have to show that they are able to bring larger benefits to the district than any other potential candidate. In multi-party systems, the group that supports the candidate is demographically-based instead of geographically-based. Political parties tend to represent groups of the population across districts; for example, "labor" parties represent the interests of labor unions, and "green" parties represent environmentally friendly voters, regardless of geographical location. Consequently, demographic support tends to favor increases in subsidies and transfers while geographically based support tends to favor the provision of public goods.

The second chapter also provides evidence on a relationship exposed by Persson and Tabellini (1999) between political regimes and public expenditure. Presidential regimes present lower expenditure than parliamentary governments. There are two basic explanations. First, presidential regimes tend to have lower expenditures because of competition among candidates, and because presidents are held directly and separately accountable by the voters, as suggested by Persson and Tabellini. Second, if presidents can veto the budget, then any coalition that includes the party of the president will be more stable than any other coalition. Then, the veto power reduces the uncertainty for the president's party leaders in the legislature. As a consequence, party

leaders will have additional incentives to propose minimum size coalitions instead of the universal coalition, as suggested by the "post-election" politics model developed in this second chapter.

Chapter 3 extends the study of the impact of political institutions on the size of the government by uncovering a new relationship between open economies and government size. The empirical estimations in Chapter 2 assume that there is only a direct effect from openness to public expenditures. This procedure follows standard practice in the literature, as in the papers by Persson and Tabellini. Rodrik (1998) provides the rationale for this direct relationship and provides substantial empirical evidence. The connection introduced in Chapter 3 suggests that countries that are more open choose particular political institutions, and these political institutions determine the size of the government. The model is built in three steps. First, it shows that trade openness determines the choice of political institutions; more specifically, small and open economies have preferred the use of proportional representation and parliamentary executives. Second, it shows that those political institutions have an impact on the size of the government. That is, proportional representation and parliamentary governments favor the development of larger public sectors. Finally, it determines the direct and indirect effect of trade openness on the size of the government. Once the empirical work controls for the relationship between openness and the political institutions, the influence of openness on the size of the government falls substantially while the impact of the political regime and the electoral system increases significantly. This chapter accomplishes two objectives; first, it reveals the indirect relationship between openness and government size. Second, it shows that

political institutions have an even larger impact on the size of the government than what is usually believed.

The results uncovered in both chapters have practical policy consequences. By recognizing the true impact of political institutions, the political economist can suggest politicians the right changes that could foster the welfare of citizens. By realizing that institutions change and that politicians manipulate the institutions in their favor, the political economist can tailor his recommendations accordingly. These implications are discussed in the last chapter.

In this dissertation, three sizeable samples are used; a historic sample for eleven European countries from 1860 to 1930, a sample of twenty-two OECD countries from 1971 to 1996, and a sample of more than one hundred world countries from 1980 to 1996. None of the studies that have evaluated the impact of political institutions on fiscal outcomes has either used samples as large as these or checked the validity of the results in as many countries and periods. Compiling these samples has been a long and extensive work of research. For example, each political variable has been individually coded from every electoral result for every country. For the number of countries and years included, this task implies the analysis of more than five hundred electoral races. Summary statistics and the sources for every variable are presented in the Appendices.

2. The Size and Composition of Government Spending in Multi-Party Systems

2.1. Introduction

Research in the field of political economics has probed the relationship between electoral institutions and the size and composition of government spending. Evidence continues to mount that institutions such as political regimes and electoral formulas that translate votes into seats shape economic and fiscal policy choices. This type of evidence is important as nations seek to adopt or reform political processes that accommodate citizen preferences, allow policy flexibility, and at the same time restrain fiscal excesses. This dissertation embraces and seeks to advance the established political economy framework by examining how the structure of political party competition in national legislatures influences fiscal performance.

The point of departure from the existing literature is straightforward: electoral institutions affect the structure of party competition and through this channel influence fiscal decisions. Whereas prior work such as the studies by Persson and Tabellini (2000) and Milesi-Ferreti, *et al.* (2000) model the potential effects of electoral rules on "pre-election politics," this chapter addresses the fiscal consequences of "post-election politics." Pre-election politics refers to those models where electoral promises are binding and policy making is determined by the promises made during the electoral campaign. In post-election politics, electoral promises are not binding and all action in policy making takes place once elected politicians have entered office. Then, this chapter focuses on how the number and strength of parliamentary parties influence

political party leaders' incentives to bargain both within party ranks and across party lines in the legislature. Of course, the pre-election and the post-election effects of electoral rules are not mutually exclusive. This chapter simply seeks to flesh out the post-election effects of electoral rules by incorporating the structure of party competition that in turn influences budget decisions.

In most of the world's democracies, the electoral rules and consequently the structure of party competition differ substantially from those associated with a U.S.-style system. For example, in most democracies, no single political party holds a parliamentary majority, and the median number of parties represented in the national legislature is five. As these two simple statistics suggest, interaction and bargaining among non-dominant political parties distinguishes fiscal policymaking in most countries in most budget cycles. This chapter provides new evidence on the budgetary consequences of party competition based on two cross-country samples, one using OECD countries and the other using a large sample of world countries. To preview the findings, for each effective political party that gains parliamentary representation, central government expenditure as a share of GDP increases by roughly two percentage points in OECD countries and by half a percentage point in the large sample of countries.[5] I also find systematic differences in the composition of spending; an increase in the number of effective parties raises subsidies and transfers and reduces expenditures on public goods. These considerable effects of party competition hold up even when I control for relevant institutional rules such as proportional representation and

[5] The definition of effective number of parties is presented in the next section. It computes the number of parties of "equal" size included in the legislature.

parliamentary government. When a single party holds a parliamentary majority, the size of the majority party's share has a systematic, but non-linear impact on spending.

The remainder of the chapter is organized as follows. Section 2 discusses the notion of "universalism," a concept central to the hypothesis regarding the effect of party competition on fiscal outcomes. This concept has been applied for the most part to US legislatures, which of course means to a system dominated by two political parties. This dissertation modifies this concept to render it applicable to countries with multiple parties. Section 3 introduces the concept of "constrained universalism" and "modified-constrained universalism," and Section 4 examines the impact of party competition on the composition of expenditures. The main propositions are examined empirically in each section using panel data for two different samples, OECD countries and a large sample of "free" and "partially free" countries.[6] Section 5 summarizes the major findings and offers some concluding remarks.

2.2. Universalism, the "Law of 1/n" and Multi-Party Systems

Beginning with Riker (1962), early studies in legislative decision-making suggested that a minimum winning coalition would determine the decisions of a legislature making distributive policy. The smallest possible majority coalition would yield the largest *pro rata* benefits to coalition members and export the costs to non-coalition members. The empirical evidence, however, showed a contrary pattern:

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[6] This large sample includes those countries with an average *Freedom House Index* score lower or equal to 3.5 in 1996. The Freedom House ranks countries according to their ratings on political rights and civil liberties (1=best; 7=worse). Similar restrictions are imposed in papers such as Persson and Tabellini (2000b). Table 3 in Appendix C lists the countries.

legislators often seek unanimity and display a reluctance to exclude minorities from the benefits of distributive legislation.[7]

Weingast and others subsequently developed an alternative conceptual to square with the evidence. The norm of "universalism" emphasizes a process of reciprocity and deference among legislators and applies this framework to a decentralized legislature with weak (low party discipline) political parties.[8] This literature, in particular the papers by Weingast (1979), Shepsle and Weingast (1981), and Niou and Ordeshook (1985), argues that in the absence of legally binding contracts among legislators, minimum winning coalitions (MWC), *e.g.* those consisting of only 51 percent of the legislators, are not stable. For example, a small percent of the MWC members could form a new coalition with the representatives in the minority that offers larger benefits than those under the existing coalition. This creates considerable uncertainty regarding which of the many possible MWCs will be formed and how long they might last. The norm of universalism is a hedge against this type of uncertainty because each representative trying to maximize the expected benefits for his or her constituents might prefer a certain, stable coalition of the whole legislature to an uncertain, unstable MWC.[9] Under the norm of universalism, and assuming that public programs are financed by a general, uniform tax, each legislator favors a level of expenditure for his or her district

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[7] See Matthews (1960), Ferejohn (1974), Fiorina (1974) and Mayhew (1974) for empirical evidence on congressional decision-making. Collie (1988) has additional evidence on the evolution of universalism in the U.S. Congress. Cox and Tutt (1984) present evidence on universalism for the Los Angeles County Board of Supervisors.

[8] Universalism is informally known as "pork-barrel politics." Weingast (1979, p. 249) defines universalism as "the tendency to seek unanimous passage of distributive programs through inclusion of a project for all legislators who want one." See also Niou and Ordeshook (1985) for a formal elaboration of the norm of universalism.

[9] Miller and Oppenheimer (1982) present experimental evidence on the prevalence of universalism in committee decision making.

such that the marginal benefit equals *1/n* of its marginal costs (where *n* equals the number of legislators). In this calculus, legislators do not internalize the full cost of their project, but rather only the fraction of the cost that their constituents will have to pay. Because every legislator passes her own project, the budget approved by the legislature is larger than the budget expected from a minimum winning coalition.[10] The norm of universalism implies that expenditures grow as the number of legislators increases, the so-called law of 1/n.[11]

The framework of universalism has been applied mostly to the U.S. Congress and American state legislatures dominated by a two-party structure. This chapter expands the framework to a broad range of parliamentary systems characterized by multiple parties. As Table 2.1 shows, among 106 countries in 1996, the median number of parties with representation in the lower house equals five.[12] The median value among regions ranges from three parties (in Central American and Caribbean countries) to 9.5 parties (in the Middle East). Important for panel data analysis, the number of parties within countries fluctuates over time. For example, some of the regions had a larger number of parties in 1992 than in 1996. The mean and median of parties with

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[10] Again, because taxes are uniform across the polity, every citizen pays for the cost of every project whether or not he or she benefits from it. Consequently, every legislator has an incentive to include a project in the spending plan that benefits her constituency. The papers by Weingast (1979) and Shepsle and Weingast (1981) offer thorough explanations of the decision problem faced by the legislator and formal proofs of the stability of the equilibrium.

[11] Gilligan and Matsusaka (1995 and 2001) examine the *1/n* hypothesis empirically using data on American states in the pre- and post-World War II periods. In American state legislatures, where legislators are selected under a plurality rule from (mostly) single-member constituencies, they find a positive and significant correlation between the size of upper legislative chambers and state government expenditures. They also find that the size of state lower chambers has no systematic effect on spending, an interesting result in its own right.

[12] The typically large number of parties is not peculiar to the lower houses of parliaments. More than 50 percent of bicameral countries had at least six parties represented in the upper house.

representation in the lower house in Latin America were six and five (compared to five and four in 1996). Both statistical measures were 7.5 for the OECD countries compared to seven in 1996.[13]

A large body of work in political science attributes these observed differences in party representation to specific electoral institutions, the most important being the distinction between a proportional representation system as opposed to a plurality ballot system. Powell (1982), Ordeshook and Shvetsova (1984), Cox (1997), and Amorin Neto and Cox (1997) find that proportional representation systems tend to generate a larger number of parties than plurality, single-member district systems.[14]

The political science tradition on the determinants of the number of parties has been built around Duverger's Law and Duverger's Hypothesis. The idea behind Duverger's Law is that a plurality ballot system favors the two-party system, while a proportional representation system favors multiple parties. The theoretical explanations behind those statements are strategic voting (voters will only cast their vote for those with a positive chance of winning) and strategic contributions (political and monetary contributions who want to affect the electoral result will support those candidates with serious chances of winning).[15]

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[13] In order to calculate the number of parties, I added those considered a coalition as one party if the coalition was announced before the election and the candidates ran under the name of the coalition instead of the individual parties. The stability of the coalition during the legislative term was also considered a factor in the computation.

[14] Lijphart (1999) presents a thorough summary on the determinants of the number of parties. Other relevant studies include Laakso and Taagepera (1979), Taagepera and Shugart (1989), Palfrey (1989), and Lijphart (1990).

[15] Duverger's work was later complemented by Leys' (1959) thesis that strategic voting occurs not for the two parties that are in the lead locally, but in favor of the two parties that have the largest number of seats in Parliament, regardless of their local strength. Subsequently, Sartori (1968) argued that a plurality rule would have no effect beyond the district until there are parties

Table 2.1. *Political parties with seats in the legislature in 1996*

	Mean	Median	Min	Max	Observations
All Countries	6.1	5	1	14	106
Central A. and Caribbean	3.6	3	2	7	16
North America	4.0	4	2	5	2
Latin America	5.0	4	3	10	22
Oceania	5.0	5	3	7	5
Africa	5.5	5	1	14	21
South America	6.2	6	3	10	10
South East Europe	6.7	7	2	11	18
OECD	7.0	7	3	12	22
North West Europe	7.3	7	3	12	19
Asia	7.6	5.5	3	14	12
Middle East	9.2	9.5	7	11	4

Note: *OECD and Latin America share observations with other categories. For instance, the US is included in OECD and North America.*

A multi-party legislature, in addition to reducing the probability that a single party holds the majority of the seats, creates an incentive structure that differs from that associated with the universalism model in a two-party system. When multiple parties are present, the agents in charge of fiscal policy negotiations are party officials instead of the individual legislator as is the case in the U.S.-style system. The link between parties and politicians is less evident in countries with single-member districts (and plurality or first-pass-the-post electoral rules) than in countries with party lists (proportional representation) because politicians seeking reelection have an incentive to respond to the groups that will increase their chances of retaining office. These groups differ markedly under each electoral system. Under a regime of single member districts and plurality rule, politicians respond to their local constituency to secure nomination and reelection. Under a regime of multi-member districts and proportional representation,

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that have both nationwide organizations and ideological reputations that command a habitual following in the electorate.

politicians respond to the party leadership's platform to increase their chances of nomination. By following the party's platform, a candidate can obtain a spot on the party's list under multi-member districts. Most parties in multiple-party systems are highly undemocratic. Choice of candidates unrestricted to all party members is uncommon. The proportion is rarely more than a third of all members and sometimes is as small as 1 percent of the total number of members of the party. Representatives in the multiple-party systems know that there is a big chance that they won't be able to face a next election if they defy the party line. As Gallaher, *et al.* (1992, p. 134) describe, "In Western Europe, -self interest- requires –politicians- to put the party first, last, and always. Outside the party there is no salvation, or at least no career path prospect".

Political Parties and the Norm of "Modified Universalism"

The most important difference among democratic party systems is that between two-party and multi-party systems. In two-party systems, party discipline is usually low and the legislature is highly decentralized with each legislator trying to pass legislation with district-specific benefits. In multi-party legislatures where no party holds a majority of the seats, party discipline is usually high and the bargaining on bills and public projects relies on the party leadership and not on every legislator. This reduces the actual number of relevant bargaining agents to the number of parties. Each leader reflects an amount of power proportional to the number of seats his or her party holds in the legislature.[16] As a result, it is appropriate to use a measure of the number of parties that controls for the unequal size as the basic unit of analysis.

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[16] For a thorough analysis on party discipline and the bargaining among party leaders see Sánches de Dios (1999, p.150)

Three different measures of party competition have been generally used in the literature. Rae proposed an index of party system fractionalization based on the number of parties and on their relative sizes: $F = 1 - \sum_i S_i^2$, where *S* represents the share of seats in the chamber held by each party. The theoretical rationale for F is that it represents the frequency with which pairs of voters would disagree (in their choice of parties) if an entire electorate interacted randomly. In a pure one party system, all voters would agree on their choice of this one party, and fractionalization would be zero; in the most extreme case of fractionalization, each voter would have his or her own party, and fractionalization would reach the maximum value of 1. Laakso and Taagepera modified this index simply by transforming it into the "effective number of parties" (labeled *ENPP*). The effective number of political parties is the inverse of the Hirschman-Herfindahl concentration index: $ENPP = \frac{1}{\sum_i S_i^2}$. The *ENPP* measure carries the same information as Rae's index of party system fractionalization, and ENPP is used instead of Rae's index in the subsequent analysis. The *ENPP* index incorporates the relative bargaining strength of each party in the legislature and measures the number of parties of similar size included in the legislature.[17] A third measure for the number of parties in the system has been proposed by Molinar (1991), labeled *NP*. This measure is an alternative to *ENPP* that weighs large parties more heavily than small parties:

[17] For example, if there are four parties each with 25 percent of the seats, *ENPP*=4. If one party has 85 percent of the seats and the other three parties have only 5 percent each, *ENPP* is approximately 1.

$$NP = 1 + \frac{1}{\sum_{i=1}^{n} S_i^2} \frac{(\sum_{i=1}^{n} S_i^2) - S_1^2}{\sum_{i=1}^{n} S_i^2}$$

Molinar's index assigns a value of one to the largest party, and the other parties are weighted using a nested *ENPP* formula that is normalized with *ENPP*. The advantage of *NP* relative to *ENPP* is that *NP* behaves better in relation to the size of the largest party and to the gap between the two largest parties. Although the empirical work presents the results from using the different party structure measures, this dissertation generally follows the method in Lijphart (1994) and concentrates on the *ENPP* measure of party competition.[18] *ENPP*, compared to the absolute number of parties, reduces the necessity of accounting for differences in the bargaining strength of the different parties in the legislature and proxies for the instability of the potential coalitions. Moreover, the evidence indicates that *ENPP* approximates the degree of proportionality of the system more closely than any other measure and has been the variable of choice for the most recent empirical studies such as Cox (1997), Amorin Neto and Cox (1997), and Lijphart (1999). Additional evidence on the relationship between *ENPP* and the degree of proportionality follows from recent changes in electoral institutions. Following the modification of the electoral law in New Zealand for the election of representatives, from simple plurality to a mix of plurality and proportional elections, the *ENPP* increased from 1.76 in 1992 to 3.76 in 1996. Similarly, an opposite

[18] Adopting the *ENPP* measure is not unique to our work. For example, Lijphart (1994, p. 70) offers the following assessment: "Because the effective number of parties is the purest measure of the number of parties, because it has become the most widely used measure, because the alternative measures are quite similar to it in most respects, and, last but not least, because it is computationally much simpler than the alternatives, it will be my number-of-parties measure in this study."

change in the electoral system for the election of senators in Italy produced a drop in *ENPP* from 6.46 to 2.55.[19] Table 2.2 presents some evidence on the number of parties and two weighted parties indices, *ENPP* and *NP*, across regions in 1996.

Table 2.2. *Number of parties and weighted parties in the legislature in 1996*

	Parties	ENPP	NP
All Countries	6.1	3.17	2.30
Central A. and Caribbean	3.6	2.19	1.68
North America	4.0	2.17	1.62
Latin America	5.0	2.97	2.22
Oceania	5.0	3.07	2.20
Africa	5.5	2.56	1.79
South America	6.2	3.68	2.72
South East Europe	6.7	3.69	2.55
OECD	7.0	3.61	2.69
North West Europe	7.3	3.96	2.98
Asia	7.6	3.06	2.15
Middle East	9.2	3.52	2.82

Note: *OECD and Latin America share observations with other categories. For instance, the US is included in OECD and North America.*

To extend the framework in Weingast (1979) to the multi-party, no majority-party environment, this dissertation introduces the concept of "modified universalism." In multi-party legislatures as the effective number of parties increases, coalitions become unstable. For example, in a five-party legislature, a minimum-size majority of three parties could be overturned easily by a new coalition formed by one of those parties and the two remaining parties. In that environment, party leaders faced with the prospects of

[19] New Zealand moved to a system where half of the seats are awarded by PR and half are chosen by plurality election in single-member districts. Italy shifted to a modified plurality system in which only 25 percent of the seats were awarded by PR and the rest by voters in single-member districts. For additional details on the institutional change in the 1990s, see Dahl (1996, p. 189).

being in the losing minority would trade uncertain benefits for lower but certain returns, leading to a universalistic legislature in the sense of political party inclusiveness.

The norm of modified universalism is defined as the tendency to seek unanimous passage of expenditure programs through inclusion of a project for all the political parties that want one. In the traditional universalistic model, each legislator proposes geographically-targeted spending to increase his or her chances of reelection. In the party-based framework, parties promote the platform of spending that would bring them the higher voting advantage over the other parties by aiming the highest spending towards their supporters. If chosen to propose a budget, each party leader's first choice is to spend nothing on the projects that could benefit other parties and spend only on the projects that benefit their own supporters. However, absent a legislative majority that proposal is sure to lose in the legislature unless proponents can secure additional votes by including projects favored by other parties.

Proposition 1: An increase in the number of effective parties in the legislature raises the overall size of the budget because the norm of modified universalism.

The intuition behind this proposition is simply that the party leader, before choosing a strategy, has to evaluate the payoff from the universalistic coalition against the uncertain payoff from a minimum size coalition. Assuming that all the proposed projects have a benefit *b* greater than their cost *c*, and that these costs are the same for every project, then under a universalistic agreement the payoff would be *b-c*. Each party receives the benefit of the project they sponsored minus the party voters' share of the total costs, or *one nth* of *n* projects that cost *c*, where *n* stands for the number of effective parties in the legislature.

Following the formulation by Weingast (1979), the probability of belonging to a minimum size majority is *(n+1)/2n*, which is labeled *m*. The expected payoff of a MWC is:

$$m(b-mc)+(1-m)(-mc)=mb-m^2c-mc+m^2c=m(b-c)$$

Therefore, as long as the difference between the universalistic payoff and the expected payoff from a MWC is greater than zero, a political leader would always prefer a universalistic outcome instead of the lottery of MWC.[20] As the number of parties represented in the assembly increases, the number of projects proposed and approved would increase accordingly. Each party's expenditure proposal would be at the level of provision such that the marginal benefit of the project equals *1/n* of its marginal cost. Again, *n*, stands for the number of parties represented in the legislature.

Similar results are obtained by using a different approach to the problem such as that in Niou and Ordeshook (1985). Niou and Ordeshook (1985) provide a non-cooperative explanation of the simultaneous presence of a norm of universalism and inefficient expenditure programs. In this case, I assume that party leaders want to maximize the probability of reelection of their legislators, which is an increasing function of the benefits they deliver to their supporters. Figure 2.1 describes the Niou and Ordeshook approach to leadership bargaining for four or more parties. Again, *b* and *c* represent the benefits and costs of the projects, *m* the probability of belonging to a minimum size majority, and *k* is the number of other parties playing the specific strategy. In this model, each party leader has two strategies, either to play the minimum winning coalition strategy (MWC) or the universalistic strategy (U), and I assume that those

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[20] Note that: (b-c) - m (b-c) = (1-m) (b-c) >0 for n>1. A more general proof, where *b* is not necessarily greater than *c*, can be found in Niou and Ordeshook (1985). In their set-up, either institutional constraints or repeated games yield the same universalistic outcome.

leaders who play MWC are not included in the universal coalition if one is formed. Given the expected payoffs, the leader is indifferent between MWC and U if the majority of the leaders involved in the bargaining plays MWC. A leader prefers playing U however, if at least half of the leaders play the universal strategy. In this set-up playing U weakly dominates playing MWC. Then, again, if everybody plays U the expected payoff is *(b-c)* higher than *m(b-c)*, the payoff from all leaders playing MWC.

	k>(n-1)/2 plays MWC	k=(n-1)/2 plays MWC	k>(n-1)/2 plays U
MWC	*m[b-c]*	*m[b-c]*	*-kc/n*
U	*m[b-c]*	*b-mc*	*b-(k+1)c/n*

Figure 2.1. *Party leader decision making matrix*

From the matrix, the probability of a leader choosing the universalistic coalition rises as the number of parties increases because the probability of not being included in the coalition rises, and consequently, the difference in the payoffs between playing U and MWC increases. Accordingly, not only does the number of parties increase the number of parties interested in introducing projects but also the probability that any party will favor the universalistic outcome.

The fact that groups are able to export additional costs does not necessarily imply that a country's population has to grow. The number of effective parties can increase because the absolute number of parties that enters the legislature increases or because there is a shift in the share of seats for the existing parties. Note that the model captures both cases. First, an increase in the number of parties can occur because of changes in the electoral law or increases in the number of social cleavages in society.

Both have similar consequences, reducing the cost of any project for each party leader as they can export it to additional groups or supporters of other parties. For example, consider a society where parties A, B, and C represent interest groups I, II and III. Each party leader knows that she can export the cost of any project to the supporters of the other two parties. Later, a new party A' is formed that better represents the interests of subgroup $I_{A'}$. In this new scenario, parties A, A', B, and C represent interest groups I_A, $I_{A'}$, II, III. Now, each group faces a lower cost for each project they want to pass. Before, the individuals of subgroup $I_{A'}$ could only pass the cost of the projects that benefited them to individuals in groups B and C. Now, they can also export the costs to the subgroup I_A.

When there is an increase in the degree of competition instead of the absolute number of parties, at least one of the parties increases its share of the seats in the legislature and consequently, the probability of being included in a potential coalition increases. As a result, the probability of a universal coalition and the size of the transfer they could enact increase. Again, an increase in the number of effective parties increases the size of the government.

Empirical Evidence

Our empirical specification builds on the analysis of modified universalism that predicts that the size of the government increases as the number of effective political parties in the legislature increases. Additional parties raise the cost of attempting to form a MWC and reduce the internalized cost of any project. As a first look at the data, Table 2.3 splits the sample of countries by the median of the effective number of parties in the legislature. The first column reports the average size of the government for those

countries with a below-median value of *ENPP*, and the second column reports the average size of the government for those countries with an above-median value of ENPP. The data cover the period 1971 through 1996 for OECD countries, and 1980 through 1996 for the large sample. The top panel of Table 2.3 indicates that OECD countries with a number of effective parties above the median have an average size of the government, measured by central government expenditures as a share of GDP, over 10 percent larger than those countries with a number of effective parties below the median. For the world sample, shown in the bottom panel of Table 2.3, the difference is 20 percent.

Table 2.3. *A first look at the norm of modified universalism*

Central Gov. Expenditure/GDP	Countries below the *ENPP* median	Countries above the *ENPP* median
	OECD countries [a]	
1971-1996		
Mean	32	36.7
Median	33.2	37.5
Std. Deviation	9.1	10.3
	World sample [b]	
1980-1996		
Mean	28.0	34.0
Median	26.2	33.7
Std. Deviation	10.6	13.2

Notes:
[a] *Median value of ENPP: 3.1*
[b] *Median value of ENPP: 2.7*
The differences in means are statistically significant at the 1% level.

Using central government expenditure as a share of GDP (labeled *CGE/GDP*) as a proxy for the size of the government, several panel-data regressions are estimated in order to examine these differences more rigorously. Equation 2.1 specifies the model.

$$(CGE/GDP)_{i,t} = \alpha + \beta_1 PC_{i,t} + \beta_2 PR_{i,t} + \Phi' \mathbf{P}_{i,t} + \Psi' \mathbf{X}_{i,t} + \delta_R + \delta_t + \varepsilon_{i,t} \qquad [2.1]$$

In Equation 2.1, the subscript *i* represents an observation for a particular country, and the subscript *t* represents an observation in a specific year. *PC* stands for a proxy for political competition, one of the three different measures of political competition discussed above: the absolute number of parties (*Parties*), the effective number of parties (*ENPP*), and the weighted number of parties (*NP*) according to Molinar (1991). *PR* is a dummy variable equal to one for those countries with proportional representation.

The vector ***P*** includes three political control variables. *Seats in the lower chamber* controls for the size of the legislature. Even though in multiparty legislatures each individual legislator does not have extensive bargaining power, legislature size affects the degree of fractionalization within a party and the potential demand for additional regional spending. The two other political variables are *Federal Country* and *Presidential Country*. *Federal Country* is equal to 1 for federal countries and equal to zero for unitary countries. Given that the dependent variable is central government expenditure, a lower government size is expected when the individual states have substantial expenditure powers. The importance of controlling for the type of regime (*i.e.*, the *Presidential Country* variable) is twofold. First, presidential regimes tend to have lower expenditures because of competition among candidates, and presidents are held directly and separately accountable by the voters, as suggested by Persson and Tabellini (1999). Second, if the president can veto the budget, then any coalition that includes the party of the president will be more stable than any other coalition. This reduces uncertainty and therefore the tendency for universalistic outcomes that include programs for multiple parties.

The vector ***X*** includes a set of four economic and demographic control variables commonly found in empirical studies of spending across countries. First, the *log of GDP per capita* is a proxy for the development of the country and could influence voters' preferences for public goods as well as the size of the tax base. Second, the model includes a *Trade openness* variable, measured as the sum of exports plus imports as a percent of GDP, following the results in Cameron (1978), Rodrik (1998), and Alesina and Wacziarg (1998).[21] Third, the *log of population* controls for potential economies of scale in the provision of public services. Fourth, *Senior population*, measured as the percentage of the population aged 65 and over, controls for the demand for major government programs for the elderly such as social security, health insurance, and retirement benefits. In addition to these variables typically found in the literature, *e.g.* Persson and Tabellini (1999), other specifications did not modify the coefficients or the degree of significance of our main variables of interest.[22]

Finally, δ_R and δ_t are vectors of fixed effects variables. δ_R controls for *region specific effects* with dummies for North West Europe, South East Europe, South America, North America, Central America and the Caribbean, Asia, Africa, Middle East, and Oceania. δ_t controls for year specific effects.

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[21] The next chapter of this dissertation elaborates further on the importance of openness as a control variable for the size of the government. While this chapter assumes a direct impact of openness on government expenditures as is traditional in the literature, Chapter 3 shows the existence of an indirect effect of openness on government expenditures through the political institutions that rule political competition.

[22] Other variables I examined but do not report in the text include: land area, population density, urban population, GDP, Gini coefficient, education, bicameralism, ideology of government, governance indicators, and term limits. I also estimated models with the expenditure and openness variables in log form; again, these made no material difference to the results on our variables of interest.

Table 2.4 presents the results of estimating Equation 2.1 using panel data in a sample of OECD countries for 1971-1996.[23] The header for each column of results indicates the variable included as the measure of party competition in each regression. Each of the three indexes of party competition is positive and significant.[24] The estimated coefficient on *ENPP* is 0.53, which indicates that the size of government increases approximately a half percentage point for each effective political party that gains representation to the lower house.[25] This increase in the number of effective parties could be caused either by the entry of new parties into the assembly or by a reduction in the standard deviation among parties in their shares of the seats in the legislature.[26] The estimated impact for *ENPP* is almost identical to that estimated for *NP* variable. The coefficient on *Parties* indicates that each additional party increases the share of government expenditures by 0.29-percentage point.

These estimated relationships between party competition and spending hold constant the impact of proportional representation. Those countries that use proportional representation have a size of the government approximately 5 percentage points larger than those countries that use plurality elections. Consequently, according

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[23] See Table E.1 for the sources for each variable.

[24] Table 1 in Appendix B presents the values for each of the party competition variables for every country in 1996.

[25] Stein, Talvi and Grisanti (1999) find a similar correlation between the number of effective parties and government expenditure in a sample of Latin American countries. In their model, an additional effective party increases government expenditure as a share of GDP by 2 percentage points. I note that in the Stein, Talvi and Grisanti (1999) study, the district magnitude (a variable described in the "pre-election politics" models) is not significantly correlated with the size of the government.

[26] For example, the number of effective parties increases by one as the share of the seats for four parties represented in the legislature changes from (70,10,10,10) to (52,16,16,16). ENPP equals 1.9 and 2.9 respectively.

to the average values for ENPP in the sample, the average country that uses proportional representation is expected to have a government size 6.5 percent of GDP higher than the average country with plurality voting.[27] As expected from past studies, presidential and federal countries have lower expenditures than other countries. A country that is both federal and has a presidential executive would have a 12 percentage points lower government expenditure than a country that has a parliamentary and unitary government. The log of per capita income is negative and significant. Openness is statistically significant and positive as reported by Rodrik (1998). The size of the country in terms of population is positive and statistically significant.[28] I also find a positive correlation between spending and the percent of the population above 65 years old.

[27] The average ENPP for proportional representation countries is 3.9 while the average ENPP for the average majoritarian country is 2.4.

[28] This result is consistent with the existence of economies of scale in the provision of public goods. In Section 4, I show that the coefficient for the log of population is negative with respect to public goods and positive with respect to transfers. A higher importance of transfers in the OECD countries explains the change of signs when compared with the world sample.

Table 2.4. *The norm of modified universalism in OECD countries [1971-1996]*

Dependent variable: CGE/GDP	ENPP	Parties	NP
Party Competition	0.53	0.29	0.51
	(0.19)***	(0.09)***	(0.22)**
Proportional Representation	4.92	5.76	4.90
	(0.76)***	(0.75)***	(0.78)***
Seats in the lower chamber	-0.004	-0.003	-0.005
	(0.003)	(0.003)	(0.003)*
Presidential	-6.73	-6.56	-6.90
	(0.88)***	(0.87)***	(0.89)***
Federal	-5.82	-5.54	-5.83
	(0.59)***	(0.59)***	(0.60)***
Log of GDP per capita	-3.76	-4.40	-3.50
	(1.34)***	(1.39)***	(1.34)***
Log of population	4.28	4.04	4.34
	(0.30)***	(0.32)***	(0.29)***
Openness	0.14	0.14	0.14
	(0.01)***	(0.01)***	(0.01)***
Senior population	0.36	0.40	0.38
	(0.15)**	(0.15)***	(0.15)**
Year fixed effects	Yes	Yes	Yes
Region fixed effects [a]	Yes	Yes	Yes
Adjusted R^2	0.81	0.81	0.81
Observations	569	569	569

Notes: *Standard Errors in parenthesis.*
*** *indicates significance at the 1% level* ** *5% level* * *10% level*
[a] *Regional dummies include North America, NW Europe, Oceania, and Asia.*

In Table 2.5, I present the results for the sample of world countries for 1980-1996. These results are not substantially different from the results presented in the previous table for the OECD countries. The estimated coefficients on the three political competition variables and proportional representation are again positive and highly significant. The average country with proportional representation presents a size of the government 3 percentage points higher than the average majoritarian country.[29] Given that the average size of the government is 30 percent of GDP, this value represents a

[29] The average ENPP for proportional representation countries is 3.3 while the average ENPP for the average majoritarian country is 2.2.

difference of more than 10 percent. Similar to the findings for the OECD sample, federal countries with presidential executives have a lower government expenditure of approximately 4 percentage points of GDP.[30]

Table 2.5. *The norm of modified universalism in world countries [1980-1996]*

Dependent variable: CGE/GDP	ENPP	Parties	NP
Political Competition	0.44	0.34	0.66
	(0.17)***	(0.08)***	(0.24)***
Proportional Representation	2.32	2.49	2.30
	(0.60)***	(0.59)***	(0.60)***
Seats in the lower chamber	0.01	0.01	0.01
	(0.003)***	(0.003)***	(0.003)***
Presidential	-3.69	-3.37	-3.77
	(0.75)***	(0.76)***	(0.75)***
Federal	-0.49	-0.44	-0.64
	(0.65)	(0.64)	(0.65)
Log of GDP per capita	-2.22	-2.07	-2.18
	(0.50)***	(0.50)***	(0.50)***
Log of population	-0.22	-0.38	-0.14
	(0.38)	(0.39)	(0.38)
Openness	0.07	0.07	0.07
	(0.01)***	(0.01)***	(0.01)***
Senior population	1.42	1.44	1.44
	(0.13)***	(0.13)***	(0.13)***
Year fixed effects	Yes	Yes	Yes
Region fixed effects [a]	Yes	Yes	Yes
Adjusted R^2	0.55	0.56	0.55
Observations	1105	1105	1105

Notes: *Standard Errors in parenthesis.*
**** indicates significance at the 1% level ** 5% level * 10% level*
[a] *Regional dummies include South America, North America, Central & Caribbean, NW Europe, SE Europe, Oceania, Asia, Africa, and Middle East.*

[30] The difference in the size of the impact of federalism and presidential executives is based on the relative higher importance of the US in the OECD sample.

Figure 2.2 illustrates the results from the first column in Table 5, graphing the fitted values for government spending with respect to the effective number of parties.[31] To derive the fitted values, I use the average values for the other variables.

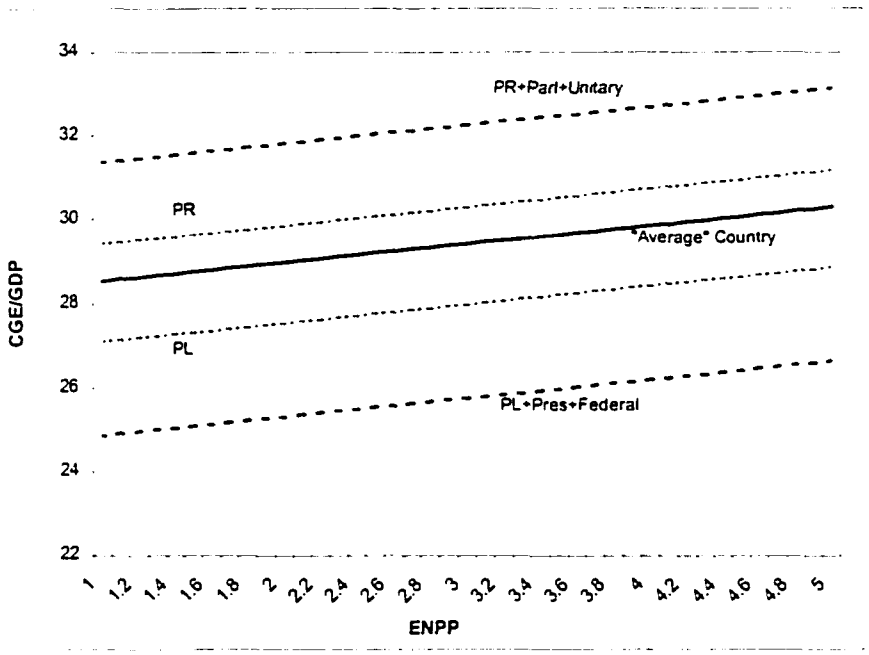

Figure 2.2. *ENPP and the size of the government. World sample.*

As Figure 2.2 illustrates, expenditures in the typical country fluctuate between 28.5 and 30.5 percent of GDP depending on the effective number of parties in the legislature. This range is in harmony with the average values for the sample.[32] The range of fluctuation for the size of the government differs, however, according to the

[31] A similar graph can be constructed with the results for the OECD sample in table 2.4.

[32] As presented in Table 2 in Appendix C, the median and average size of the government are 28.9 and 29.9.

political institutions in place. Countries with plurality elections fluctuate between 27 and 29 percent of GDP and countries with proportional representation vary from 29.5 to 31.5. Differences are even more staggering when I control for differences in political regime and organization. While the typical country in a two-party system with presidential executive and federal organization would present public expenditures that amount to 25 percent of GDP, the average parliamentary and unitary country that uses proportional representation have public expenditures that surpass 32 percent of GDP.[33]

In summary, the empirical evidence indicates broadly that electoral systems affect the size of the government, and more specifically, that the number of parties has a fundamental role in budgetary outcomes. Consistent with prior studies, I find that a separate executive branch dampens the size of government by more than 10 percent. This difference between presidential and parliamentary regimes is further illustrated in Table 2.6.

Table 2.6. *Type of regime and size of the government in 1996.*

	Central Government Expenditure/GDP	
OECD 1996	**Presidential**	**Parliamentary**
Mean	24	38
Median	24	40
Std. Deviation	2.91	8.22
World 1996	**Presidential**	**Parliamentary**
Mean	26	35
Median	26	35
Std. Deviation	9.20	9.44

Notes: *The differences in means are statistically significant at the 1% level*

[33] The average ENPP for countries with plurality voting is 2.3. For proportional representation countries, the average ENPP rises to 3.3.

2.3. Constrained Universalism in a Multi-Party Environment

Inman and Fitts (1990) develop and test the notion of "constrained universalism." The novel extension in their analysis incorporates the role of political parties in a two-party legislature, *e.g.* the U.S. Congress. Inman and Fitts demonstrate that when one party holds a majority of seats in the chamber, the instability of the legislative process is reduced. In turn, this predictably lowers spending relative to the equilibrium under "unconstrained" universalism as conceived in the Weingast analysis. In the constrained universalism framework, increasing the majority party size has two opposing effects. First, government expenditures increase as the number of majority party legislators (M) rises, in other words, the $1/n$ effect except that the number of majority party legislators is relevant for spending decisions and not the total number of legislators. Second, increasing the majority party size increases the tax cost shared by the majority party's members. That is, the share of the tax cost that may be exported to the constituencies of non-party members falls as the size of the majority party increases. Constrained universalism assigns an explicit role to the party organization, namely that it seeks to internalize the cost spillovers to party members. This provides a mechanism that restrains government spending relative to the outcome in which each legislator ignores the cost-spillovers to other legislators' constituents. These two effects imply that the size of the budget follows a quadratic trend, growing as M/N increases from 0.5, and falling as M/N approaches 1. Inman and Fitts support this thesis empirically by examining the pattern of U.S. federal spending over time as a function of the size of Congressional majorities. They find that federal spending in the U.S. peaks when the majority party share equals 69 percent.

The norm of constrained universalism moves one step forward from the universalistic approach by explicitly recognizing the role of political parties in the legislative process. I extend this analysis further by considering the impact of multiple parties, an important institutional detail when applying constrained universalism to most democratic governments.

In multi-party environments the probability of finding one party holding the majority of the seats falls rapidly.[34] Nevertheless, the complexity of the electoral system and problems of information still allow a party to gain the majority even when multiple parties are present. Table 2.7 gives a broad overview of this pattern across regions, showing the summary statistics for the percent of seats held by the largest party in the lower chambers. In a sample of 106 countries, 45 of them present a party that holds a majority of the seats. The average majority for these 45 countries is 67 percent of the seats. The range goes from 51 percent in Oceania (Australia) to 83 percent in Asia.

Table 2.7. *Share of seats held by the largest party in the legislature in 1996*

	Complete sample		Countries with a majority	
	Mean	Observations	Mean	Observations
All Countries	0.50	106	0.67	45
Middle East	0.36	4	0.54	1
North West Europe	0.37	19	0.52	1
OECD	0.41	22	0.54	5
South America	0.42	10	0.55	4
South East Europe	0.45	18	0.59	8
Oceania	0.45	5	0.51	1
Latin America	0.49	22	0.58	10
Asia	0.50	12	0.83	2
North America	0.57	2	0.56	2
Central A. and Carib.	0.59	16	0.66	10
Africa	0.68	21	0.78	16

Note: *OECD, and Latin America share observations with other categories.*

[34] For example, Bolivia in 1996 had seven parties represented in the lower chamber, and the largest party held only 25 percent of the seats. Cases like Bolivia, where no party holds the majority account for more than 50 percent of the observations in our sample of countries.

The uncertainty of forming a minimum winning coalition approaches zero when one party holds the majority of the seats. In those cases, I return to the norm of constrained universalism to explain fiscal policy even in a multi-party environment. That case reduces to the model summarized above by Inman and Fitts (1990); expenditures follow a quadratic trend with respect to the size of the majority party, increasing from 0.5 and decreasing beyond some level of super-majority size. However, I offer a slight variation on the quadratic relationship posited by Inman and Fitts.

Proposition 2: Where one party holds a majority of legislative seats, the size of the government follows a cube relationship with respect to the share of seats held by the majority party.

Bare majorities are sometimes not sufficient to reduce uncertainty in the legislative bargaining process because some legislators might dissent from their party's leadership on some issues or be absent to cast key votes. Consequently, in a certain range over a bare 50 percent majority, an increase in the size of the majority party reduces need to include other parties in the winning coalition. Put differently, a majority party size above a bare minimum provides a valuable hedge against party member defections. After a certain threshold the probability that party defections or absences will be decisive tends to zero. Beyond that threshold, the system predictably follows the pattern described by Inman and Fitts. First, government expenditures increase as the number of majority party legislators rises. Second, increasing the majority party size increases the tax cost shared by the majority party's members. That is, the share of the tax cost that may be exported to the constituencies of non-party members falls as the

size of the majority party increases. Then, after a certain maximum, central government expenditure falls for higher shares for the majority party.

Empirical Evidence

To test the norm of modified-constrained universalism I alter Equation 2.1 to include additional variables that control for the existence and size of the majority party. Equation 2.2 specifies the new model.

$$(CGE / GDP)_{i,t} = \alpha + \beta_1 PC_{i,t} + \beta_2 PR_{i,t} + \Phi' \mathbf{P}^{\bullet}_{i,t} + \Psi' \mathbf{X}_{i,t} + \delta_R + \delta_t + \varepsilon_{i,t} \qquad [2.2]$$

The vector $\boldsymbol{P}^{\bullet}$ adds four variables to the vector of $\boldsymbol{P}$ variables described for Equation 2.1. *MAJPARL50* is a dummy variable equal to one in those cases where a party holds more than 50 percent of the total number of seats. Extending the specification in Inman and Fitts (1990), three interaction terms are included, *M/N*MAJPARL50*, $(M/N*MAJPARL50)^2$, and $(M/N*MAJPARL50)^3$, to examine the modification to the norm of constrained universalism. M/N reflects the percentage of seats held by the largest party in the chamber. Consequently, these interaction variables investigate the non-linear effect on spending as the size of the majority party changes and opposing forces come into play. First, a minimum majority does not ensure passage of the party leadership's desired agenda; increases in the majority share above a bare minimum reduces the need to include proposals desired by another party. Second, following the traditional 1/*n* effect, an increase in the majority share lowers the internalized cost per party member, increasing the incentive to spend. Finally, as the majority party's share increases beyond a threshold value, the party's incentive to internalize the 1/*n* effect grows, which exerts a restraining effect on spending.

Table 2.8 presents the results of estimating Equation 2.2 for the sample of OECD countries from 1971 to 1996. The positive and significant coefficient on ENPP indicates that central government expenditure as a share of GDP increases approximately 2 percentage points per each effective political party that gains representation to the lower house without the control variables, and more than half a percentage point when all control variables are included.[35] The second column presents the same regression as in the first column in Table 2.3. In the third column, while ENPP and proportional representation remain positive and significant, the results on the interaction terms indicate an impact from the size of the majority for those countries with party shares slightly above 50 percent. Based on the estimated coefficients, government spending as a share of GDP falls until the majority party share reaches 55 percent. Beyond this majority size, spending rises, which supports the conceptual argument and the Inman-Fitts results for the US. Spending reaches a maximum at a 68 percent majority party share, above which increasing public expenditures apparently becomes too politically expensive for the majority party.[36] Again, similar to the Inman-Fitts findings for the US, the majority party evidently internalizes the cost spillovers beyond this range.

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[35] I find virtually identical results (not reported) for the absolute number of parties and NP. Parties, NP and the interaction terms present the expected signs and are significant at the 1 percent level.

[36] The graph includes a range for the size of the majority party of [0.5, 0.75] that is the same the range that corresponds to the sample.

Table 2.8. *The norm of constrained universalism in OECD countries [1971-1996]*

Dependent variable: CGE/GDP	(1)	(2)	(3)
ENPP	1.95	0.53	0.60
	(0.29)***	(0.19)***	(0.20)***
Proportional representation		4.92	4.75
		(0.76)***	(0.76)***
*M/N * MAJPAR50*			-6904.79
			(1712.87)***
*$(M/N)^2$ * MAJPAR50*			11287.50
			(2794.96)***
*$(M/N)^3$ * MAJPAR50*			-6081.69
			(1507.42)***
MAJPAR50			1394.14
			(347.23)***
Seats in the lower chamber		-0.004	-0.005
		(0.003)	(0.003)*
Presidential		-6.73	-5.60
		(0.88)***	(0.61)***
Federal		-5.82	-7.65
		(0.59)***	(0.91)***
Log of GDP per capita		-3.76	-3.22
		(1.34)***	(1.35)**
Log of population		4.28	4.31
		(0.30)***	(0.29)***
Openness		0.14	0.14
		(0.01)***	(0.01)***
Senior population		0.36	0.30
		(0.15)**	(0.15)**
Year fixed effects	Yes	Yes	Yes
Region fixed effects [a]	Yes	Yes	Yes
Adjusted R^2	0.08	0.81	0.81
Observations	569	569	569

Notes: *Standard Errors in parenthesis.*
*** *indicates significance at the 1% level* ** *5% level* * *10% level*
[a] *Regional dummies include North America, NW Europe, Oceania, and Asia.*

Table 2.9 presents the results for the world sample for 1980-1996. Again, the estimated coefficient on ENPP is positive and statistically significant. In this sample, an increase in the number of effective parties by one raises central government expenditure as a share of GDP between 0.38 and 0.52 percentage points depending on the specification. The interaction terms provide additional support for our proposed

modifications of the "constrained universalism" framework to fit multiparty systems. The parameter estimates for this sample indicate that spending reaches a minimum with a 55 percent majority share and a maximum at a 91 percent majority share. Figure 2.3 illustrates these results, graphing the fitted values for government spending with respect to majority party shares.[37] To derive the fitted values, I use the average values for the other variables based on the large sample of countries. As Figure 2.3 illustrates, expenditures in the typical country fluctuate between 28 and 35 percent of GDP depending on the majority party share of seats. This range is higher for unitary countries with a parliamentary executive and lower for federal countries with a presidential executive.[38] More specifically, a country that is both federal and presidential would have a level of central government expenditure about four percent of GDP lower.

[37] The results in Table 2.8 generate a very similar graph for the OECD sample.

[38] The ranges are [28,36] and [24,31].

Table 2.9. *The norm of constrained universalism in world countries [1980-1996]*

Dependent variable: CGE/GDP	(1)	(2)	(3)
ENPP	0.52	0.44	0.38
	(0.20)***	(0.17)***	(0.23)*
Proportional representation		2.32	2.13
		(0.60)***	(0.61)***
*M/N * MAJPAR50*			-406.24
			(210.31)*
*$(M/N)^2$ * MAJPAR50*			592.64
			(287.93)**
*$(M/N)^3$ * MAJPAR50*			-270.31
			(128.12)**
MAJPAR50			87.67
			(49.95)*
Seats in the lower chamber		0.014	0.008
		(0.003)***	(0.003)***
Presidential countries		-3.69	-3.56
		(0.75)***	(0.73)***
Federal countries		-0.49	-0.49
		(0.65)	(0.63)
Log of GDP per capita		-2.22	-0.89
		(0.50)***	(0.51)*
Log of population		-0.22	0.55
		(0.38)	(0.36)
Openness		0.07	0.05
		(0.01)***	(0.01)***
Senior Population		1.42	1.05
		(0.13)***	(0.13)***
Year fixed effects	Yes	Yes	Yes
Regional fixed effects[a]	Yes	Yes	Yes
Adjusted R^2	0.42	0.55	0.58
Observations	1104	1104	1104

Notes: *Standard Errors in parenthesis.*
*** *indicates significance at the 1% level* ** *5% level* * *10% level*
[a] *Regional dummies include South America, North America, Central & Caribbean, NW Europe, SE Europe, Oceania, Asia, Africa, and Middle East.*

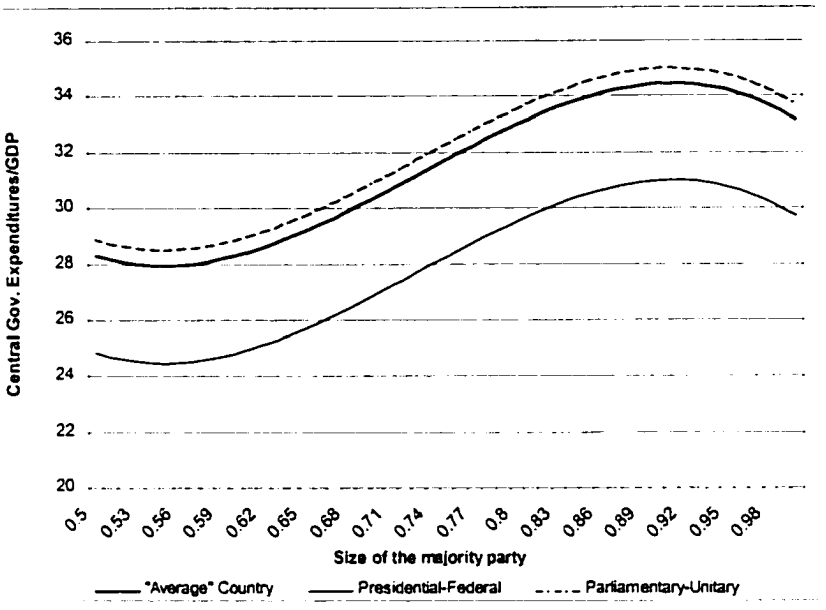

Figure 2.3. Central government expenditure under the norm of "modified-constrained" universalism. World sample.

In sum, for those countries where one party holds a parliamentary majority, central government expenditures follow a cube relationship with respect to the size of the majority: falling as the uncertainty associated with party defections diminishes, increasing as the size of the majority party raises, and finally, falling as the size of the majority party makes it increasingly difficult to export the cost of incremental projects to groups outside the governing party.

2.4. Public Goods, Subsidies and Transfers, and Political Competition

This section examines the relationship between the structure of party competition and the composition of government spending. Motivating the analysis is the idea that electoral rules not only affect the number of political parties but also the organization of

the groups that support the election of candidates. Candidates will consequently support the mix of expenditures that raises their chances of reelection.

Proposition 3: The electoral system has a significant impact on the composition of government expenditures, increasing the reliance on subsidies and transfers as the system becomes more proportional.

The groups that determine the election of candidates differ markedly under a single-member plurality system vs. a multi-member proportional representation system. As is the case in the US, politicians respond to their local constituency to secure nomination under a regime of single member districts and plurality rule. The sole representative of the district is ultimately responsible for providing public goods. In these districts, policies are hardly ideological and politicians respond to the median voter preferences to gain nomination. In this electoral system, politicians are usually reelected unless voters have evidence that a different candidate could provide a better bundle of goods given the tax cost. As a result, the programs advanced by the legislator are mostly geographically targeted.

Politicians' strategies are different in regimes of multi-member districts and proportional representation. These systems are characterized by multiple parties and consequently, are more ideological oriented than two-party systems.[39] Moreover,

[39] Adams (1996) finds evidence that platforms and policies are more ideologically diverse even in those cases where the number of parties is fixed and cannot accommodate to the proportionality of the electoral system, as is the case with the Illinois General Assembly during the period 1870-1982.

political parties' policies usually disperse away from the median.[40] In multiple-party systems, politicians have to respond to the party leadership's platform to increase their chances of nomination. Electoral competition is among party lists instead of candidates, and candidates need to be included in those lists in order to gain access to the legislature. Only by following the party's platform, a candidate can obtain a spot in the party's list. The cost for a candidate for not serving the local constituency and following the party leadership is lower in multi-member districts when compared to single-member districts. In multi-member districts, the fate of the constituency depends on the joint effort of several representatives from different parties. As a result, problems of collective action arise where legislators find it profitable to serve broad-based interest groups because the benefits surpass those from helping the geographic constituency.[41] In proportional systems, a politician regards himself not as an ambassador of the district (as in single member constituencies) but as an ambassador of a particular segment of the population that is thought to vote for the party of the representative.[42] This implies that under plurality systems legislators tend to favor geographically-targeted spending, and under proportional representation systems legislators tend to favor demographically-based spending. As a result, higher expenditures on public goods in plurality systems and higher expenditures on subsidies and transfers in proportional representation countries should be expected.

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[40] See Cox (1990) and (1990b) for a more detailed analysis on multi-candidate spatial competition.

[41] As a further distinction, in a two-party system, constituents are able to hold their specific representative accountable. Under government coalitions, lines of responsibility are blurred and each party attempts to blame its partners for failures while taking credit itself for successes. Katz (1980) exposits this distinction.

[42] See Tullock (1994, p. 33).

Stratmann and Baur (2000) find empirical evidence of different behaviors across legislators for Germany, where half of the parliamentary seats are awarded from single-member constituencies and the other half through proportional voting. The legislators elected from single member constituencies tend to choose legislative committees that deal with geographically based affairs while the legislators elected by party lists tend to prefer those committees that deal with broad based policies and transfers.

I extend the general implication by noting that regardless of having a proportional system, the degree of proportionality of the electoral system is influential. As evidenced in Figure 3 in Appendix B, the degree of proportionality is not constant; rather, it depends on the number of legislators elected by district. In a perfect proportional system, every legislator is elected from a single national constituency. On the other extreme, single member constituencies and plurality voting represent the lowest level of proportionality. A higher level of proportionality increases the costs for not serving the party and the anonymity of the legislator in front of the geographic constituency.[43] Consequently, a higher proportionality increases the importance of demographically based groups, and the relevance of subsidies and transfers as a policy designed to gain voters' support, in detriment of geographically based groups and public goods provision. Because a higher degree of proportionality is correlated with a larger number of parties, the empirical work should provide evidence that a large number of effective parties increases the amount of spending on transfers and reduces spending on public goods.

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[43] For example, 70 legislators from different parties represent the constituents of Provincia de Buenos Aires, Argentina. In this case, the ignorance of voters is very high and the cost for each representative for not serving the constituency very low. On the other side, the cost of not serving the party is very high. Consequently, legislators form demographically based coalitions instead of geographically based.

Empirical Evidence

Equations 2.3 and 2.4 specify the models to test this implication using the major components of government expenditures.

$$(PG/GDP)_{i,t} = \alpha_1 + \alpha_2 PC_{i,t} + \alpha_3 PR_{i,t} + \Phi_1' \mathbf{P}_{i,t} + \Psi_1' \mathbf{X}_{i,t} + \delta_R + \delta_t + \varepsilon_{i,t} \quad [2.3]$$

$$(ST/GDP)_{i,t} = \beta_1 + \beta_2 PC_{i,t} + \beta_3 PR_{i,t} + \Phi_2' \mathbf{P}_{i,t} + \Psi_2' \mathbf{X}_{i,t} + \delta_R + \delta_t + \varepsilon_{i,t} \quad [2.4]$$

The dependent variables are public goods expenditures (PG/GDP) and subsidies and transfers (ST/GDP) as a share of GDP.[44] The control variables are the same ones used in Equations 2.1 and 2.2.

Tables 2.10 and 2.11 present evidence on the impact of the number of effective parties and the electoral system on the components of government expenditures for the OECD and world samples. An increase in one effective party reduces public goods expenditures as a share of GDP by 0.35 percentage points and increases transfers by almost 0.3 percentage points in the OECD sample and 0.62 in the world sample. I find similar results, not reported, using *NP* and *Parties* as independent variables instead of *ENPP*. Considering the coefficients for proportional representation, the average country that uses proportional representation would have subsidies and transfers of 1.5 percent of GDP higher than the average majoritarian country. In terms of total spending in subsidies and transfers, the difference amounts to 12.5 percent. As expected, federal and presidential countries have lower expenditures on both public goods and transfers than unitary and parliamentary countries. Subsidies and transfers increase with the

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[44] The World Bank dataset provides the data on subsidies and transfers directly. Public goods expenditures is constructed as the sum of spending on goods and services (including wages and salaries) and capital spending.

percent of the population above 65 years old, and with the degree of openness.[45] Finally, spending on public goods is negatively correlated with population, indicating the presence of scale economies in the provision of public goods.

Table 2.10. *Political competition and the composition of government expenditure in OECD countries [1971-1996]*

	Public Goods	Subsidies and transfers
ENPP	-0.35	0.27
	(0.12)***	(0.15)*
Proportional representation	0.06	2.12
	(0.49)	(0.62)***
Seats in the lower chamber	0.007	-0.019
	(0.002)***	(0.002)***
Presidential countries	0.60	-7.46
	(0.57)	(0.71)***
Federal countries	-0.35	-5.39
	(0.38)	(0.48)***
Log of GDP per capita	-6.02	7.49
	(0.86)***	(1.08)***
Log of population	-1.04	5.36
	(0.19)***	(0.24)***
Openness	0.014	0.11
	(0.005)***	(0.01)***
Senior Population	-0.06	0.21
	(0.10)	(0.12)*
Year fixed effects	Yes	Yes
Region fixed effects[a]	Yes	Yes
Adjusted R^2	0.51	0.79
Observations	569	569

Notes: *Standard Errors in parenthesis.*
*** *indicates significance at the 1% level* ** *5% level* * *10% level*
[a] *Regional dummies include North America, NW Europe, Oceania, and Asia.*

[45] These results are consistent with the literature summarized in Persson and Tabellini (2000, Chapter 8). In particular, Alesina and Wacziarg (1998) offer similar evidence on the positive relationship between openness and government transfers.

Table 2.11. *Political competition and the composition of government expenditure in world countries [1980-1996]*

	Public Goods	Subsidies and transfers
ENPP	-0.35	0.62
	(0.11)***	(0.12)***
Proportional representation	0.19	0.81
	(0.37)	(0.41)***
Seats in the lower chamber	0.014	-0.003
	(0.002)***	(0.002)
Presidential countries	-1.00	-0.99
	(0.47)**	(0.54)*
Federal countries	-0.42	-1.17
	(0.40)	(0.45)***
Log of GDP per capita	-1.79	-0.41
	(0.32)***	(0.36)
Log of population	-2.21	1.61
	(0.22)***	(0.26)***
Openness	0.025	0.038
	(0.004)***	(0.005)***
Senior Population	-0.23	1.29
	(0.08)***	(0.09)***
Year fixed effects	Yes	Yes
Region fixed effects [a]	Yes	Yes
Adjusted R^2	0.48	0.72
Observations	974	974

Notes: *Standard Errors in parenthesis.*
*** *indicates significance at the 1% level* ** *5% level* * *10% level*
[a] *Regional dummies include South America, North America, Central & Caribbean, NW Europe, SE Europe, Oceania, Asia, Africa, and Middle East.*

Figure 2.4 illustrates the results from Table 2.11, graphing the fitted values for the components of government spending with respect to the effective number of parties.[46] To derive the fitted values I use the average values for the other variables. As Figure 2.4 illustrates, an increase in political competition among parties in the legislature raises subsidies and transfers and reduces public good expenditures as a share of GDP. While subsidies and transfers fluctuate between 9.5 and 12.5, public goods expenditures

[46] A similar Figure can be obtained from the results in Table 2.10 for the OECD sample.

fluctuate between 16 and 14.5. A presidential and federal organization of the government does not modify the sign of the relationship between the components of government expenditures and the effective number of parties. However, it depresses their importance. At any number of effective parties, presidential and federal countries have lower public goods expenditures, and subsidies and transfers as a share of GDP.

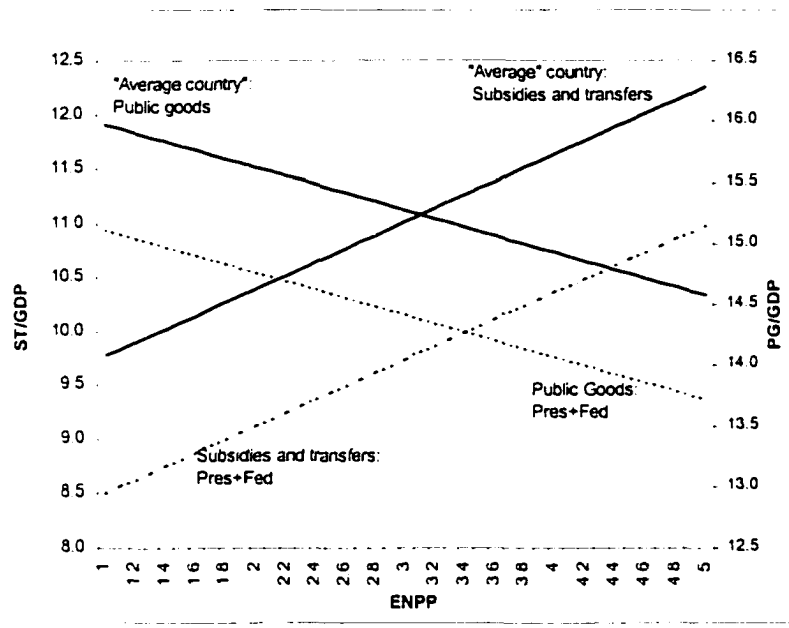

Figure 2.4. *ENPP and the components of government expenditures. World sample.*

Summarizing, this section has shown that the different groups that support the election of candidates have an impact on the composition of government expenditures. Because proportional (plurality) representation countries tend to favor demographically (geographically) based coalitions instead of geographically- (demographically-)based coalitions, as the degree of proportionality of the electoral system increases (decreases) there is a growing (diminishing) weight of subsidies and transfers and a decreasing

(increasing) weight of public goods expenditure in the economy. Interestingly, Persson and Tabellini (2000b) report a similar correlation between the degree of proportionality of the system and the size of the government. Using a sample of more than 50 democracies for 1990, after controlling for other economic and social variables, they find that spending on public goods as a percentage of GDP is lower in countries with majoritarian elections.

2.5. Concluding Comments

The cross-national empirical analysis reveals a clear systematic relationship between the structure of party competition and the size and composition of government spending. This relationship is consistent with a simple extension and modification of the norm of universalism that was originally developed and applied to the organization of U.S. legislatures. In multi-party settings, party leaders prefer to include projects favored by opposition parties rather than face the uncertainty of forming a minimum size winning coalition. Increases in the number of parties raise the expected benefit of forming universal coalitions and reduce the cost for the party supporters of any pet project proposed by the party leader. The impact of a multiple party structure is also evident in the empirical models that examine spending on transfers and public goods. Increases in party competition tend to encourage subsidy and transfer programs and discourage spending on public goods. I further corroborate the importance of the size of the majority party in fiscal policy in settings where one party holds a parliamentary majority.

In those cases, government expenditures follow a non-linear (cubed) relationship with respect to the size of the majority.[47]

This analysis differs from recent papers that tie electoral rules to fiscal policy through pre-election politics, a tradition well summarized in Persson and Tabellini (2000). In the pre-election politics framework, fiscal policy differs according to the optimal binding promises made by the candidates during the campaign. For example, in majoritarian systems spending tends to be larger and more narrowly targeted than under proportional representation systems. Candidates in majoritarian elections pay most attention to voters in marginal electoral districts, which induces more public goods expenditure.[48] These models, however, do not consider the impact of the electoral system on the structure of political party competition and post-election legislative bargaining. As Persson and Tabellini (2000b, p. 5) point out, this is a pitfall of the recent theoretical literature that has neglected the implications of the electoral rule on the party structure. Here I seek to advance the state of analysis by blending the pre-election politics with the post-election politics model. In the post-election politics perspective, factors such as party leader bargaining and logrolling expand the size of the budget, for example the now-familiar fiscal commons effect.

The observed relationships between the number and sizes of parties and the size of the government strengthens and illuminates earlier work that stresses the importance of electoral institutions. Electoral rules influence the effective number of political parties;

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[47] Chapter 3 of this dissertation shows that the importance of political institutions is even higher than what is indicated by the empirical evidence in this chapter by controlling for the impact of trade openness on the selection of political institutions.

[48] Using a similar model, Milessi-Ferreti, *et al.* (2000) find that the electoral system determines the type of legislator that is elected to the legislature: plurality systems elect legislators with preferences for high spending on public goods while proportional systems elect legislators with preferences for high spending on transfers (see Milessi-Ferreti, *et al.*, 2000, p.10).

a plurality-voting system with single member constituencies fosters two-party competition, while a proportional representation system with multimember constituencies facilitates multiple parties. These findings suggest that by looking at the consequences on party structure, constitutionalists may evaluate more precisely the benefits and costs of changing the electoral rules. Chapter 4 of this dissertation tries to accomplish this analysis.

3. Why do Open Economies Have Larger Governments? A Fresh Look at Political Institutions, Electoral Systems and Public Expenditures

3.1. Introduction

Research in the field of political economics has probed the relationship between the degree of openness of the economy, measured as the sum of exports and imports as a share of GDP, and government spending. Those countries that are more open to international trade generally present a larger government. This chapter embraces and seeks to advance the political economy framework by examining the institutions that would make it possible for open economies to have higher government expenditure. Our point of departure from the existing literature is straightforward: open economies adopt the political institutions that promote larger governments. Whereas prior work, like Rodrik (1998), focuses on government expenditure as a policy designed to isolate the economy from international cycles, I address the size of the government as a byproduct of having an open economy. Of course, these theories are not mutually exclusive. This chapter simply seeks to flesh out the effects of trade openness on the design of political institutions and the influence of these institutions on budget decisions. The model is built in three steps. First, I show that trade openness determines the choice of political institutions; more specifically, small and open economies have preferred the use of parliamentary executives and proportional representation. Second, I show that those political institutions have an impact on the size of the government as it was

demonstrated in the previous chapter of this dissertation. That is, proportional representation and parliamentary governments favor the development of larger public sectors. Moreover a higher degree of proportionality and the consequent impact on the number of parties has a large effect on public expenditures. Finally, I determine the direct and indirect effect of trade openness on the size of the government. Once the empirical work controls for the relationship between openness and political institutions, the influence of openness on the size of the government falls substantially while the impact of the political regime and the electoral system increases significantly. These results stress the importance of studying the political institutions to explain fiscal outcomes.

The remainder of the chapter is organized as follows. Section 3.2 discusses the literature that links openness and the size of the government. Section 3.3 provides additional insights on the relationship between openness and the choice of political institutions. Section 3.4 studies the impact of these institutions on public expenditures. Section 3.5 specifies the empirical model and provides the results for a sample of OECD and world countries. Finally, Section 3.6 summarizes the major findings and offers some concluding remarks.

3.2. Trade Openness and the Size of the Government

Trade openness and the size of the central government vary widely across countries. Trade openness, measured as the sum of exports and imports as a share of GDP, ranges from 40 percent of GDP in South America to more than 100 percent in Central America and the Caribbean. Central government expenditures as a share of GDP present similar fluctuations across regions. According to Table 3.1, the size of the

government ranges from 20 percent of GDP in South America to more than 40 percent in North West Europe. More interestingly, these differences across regions seem to be correlated; those countries that are more open have a larger government. Moreover, according to the simple correlation coefficients, this relationship seems to hold even in any subset of countries except South America.

Table 3.1. *Trade openness and government expenditure in 1996*

	Trade Openness		Central Gov. Expenditure		Corr (open, exp)
	Mean	**Median**	**Mean**	**Median**	
All Countries	0.79	0.69	29.8	29.8	+
South America	0.40	0.44	20.2	16.7	-
North America	0.50	0.50	23.6	23.6	+
Asia	0.64	0.57	19.1	19.8	+
Africa	0.70	0.59	29.0	29.8	+
OECD	0.70	0.67	37.2	40.0	+
Latin America	0.75	0.58	22.1	21.0	+
North West Europe	0.80	0.69	40.6	40.4	+
Middle East	0.89	0.76	35.1	33.9	+
South East Europe	0.94	1.01	35.6	34.1	+
Oceania	0.94	1.15	29.3	29.6	+
Central A. and Carib.	1.04	0.96	26.2	27.5	+

Note: *OECD, and Latin America share observations with other categories. For instance, the US belongs to OECD and North America.*

The positive correlation between openness, measured as the sum of exports and imports as a share of GDP, and the size of the government, measured as central government expenditures as a share of GDP, has grabbed the attention of researchers. Cameron (1978), Rodrik (1998) and Alesina and Wacziarg (1998) find a significant and positive relationship between the degree of openness of a country and the size of the government. Similar evidence has been recently supported by other papers, as in Persson and Tabellini (1999, 2000, 2000b), Stein, *et al.* (1999), Volkering and de Haan (2000), and Milessi-Ferreti, *et al.* (2000), that use openness as a control variable in their

regressions between political institutions and public expenditure. The justification of the mentioned relationship differs, however, across social scientists. Cameron (1978), who finds a strong correlation between trade openness and the size of the government, models the relationship between openness and the size of the government based on the growth of interest groups in the country. He finds that open economies usually present a more concentrated industrial sector and a labor force that is relatively homogenous and concentrated in large firms. These conditions, industrial concentration and labor homogeneity, are optimal conditions for the growth of union organization. In this framework, a relatively high level of unionization is an important prerequisite for enduring leftist governments, which are usually associated with larger governments. That is, higher openness implies increasing unionization that raises the chances for leftist governments to seize power and consequently increase the share of the government on the economy. In this framework, openness would indirectly affect the size of the government, through unionization. Higher openness increases the level of unionization, which ultimately raises government expenditure.

Rodrik (1998) renewed the interest in the study of the relationship between open economies and the size of the government that Cameron initiated with his 1978 paper.[34] Rodrik's argument can be exposited as follows: if countries that are open are more vulnerable to exogenous shocks, such as shifts in terms of trade originated from world markets, and if government spending is capable of stabilizing income and consumption, then more open countries need larger governments to play a stabilizing role. In his

[34] Rodrik's results are widely cited in the new political economy literature that studies the political determinants of the size of the government. Almost every paper in this tradition published since Rodrik's paper has included trade openness as a control variable for the size of the government, i.e. Persson and Tabellini (1999, 2000, 2000b), Stein, *et al.* (1999), Volkering and de Haan (2000), and Milessi-Ferreti, *et al.* (2000).

model, it is optimal for the government to increase its participation in the economy as openness (and risk) increases. Consequently, government increases its participation in the national product by raising public employment, which is not subject to exogenous shocks, and reduces the overall instability of the economy. Summarizing, countries that are more open are exposed to high variability that induces the government to intervene by increasing its participation in the national product to reduce the risk in the economy.

Alesina and Wacziarg (1998) have an indirect explanation for the relationship between openness and the size of the government. They find that openness and low costs in international transactions favor the secession of regional and cultural minorities and as a result, the rupture of countries and the multiplication of the number of countries in the world. The reason is simple, an increase in openness reduces the influence of political borders on the size of the relevant market because citizens can transact with foreigners as easily as with natives. Openness makes it affordable to split. On the government side, they find that per capita central government expenditure is usually lower in bigger countries because economies of scale. For example, the per capita cost of a legislator in the U.S. is substantially lower than the per capita cost of a legislator in Canada. Alesina and Wacziarg (1998) link both facts to prove the indirect impact of openness on the size of the government. Openness allows minorities to secede, increasing the number of countries and reducing the size of the average country. These smaller countries necessarily have larger governments because they cannot benefit from economies of scale. Then, open economies tend to favor the creation of smaller size countries, and indirectly, favor larger size governments.

The present chapter implies a different but not mutually exclusive explanation for the positive relationship between openness and government size. While previous

papers show either a direct relationship between openness and government size or an indirect relationship based on the separation of countries or political ideologies, I show that the size of the government is at least partially determined by the political institutions that rule political competition on each country. These political institutions differ from open to closed economies. More specifically, small and open economies have usually adopted proportional representation and parliamentary regimes, while larger countries have adopted plurality systems.[35]

3.3. Size, Openness and Political Institutions

Our point of departure from the existing literature is straightforward: open economies affect the political institutions adopted by a country, and through this channel, the size of the government. Whereas prior work, like Rodrik (1998), focuses on government expenditures as a policy designed to isolate the economy from international cycles, this chapter addresses the size of the government as a byproduct of having an open economy. Two major studies have tackled the relationship between openness and the choice of political institutions, Rokkan (1970) and Rogowski (1987). Rokkan (1970), based on Braunias (1932), studies the reasons behind the movement from majoritarian to proportional systems of representation in several European democracies at the beginning of the 20th century.[36] Rokkan's work has been later expanded by Campbell (1975), Katzenstein (1985) and Flora, *et al.* (1999). The evidence Rokkan (1970)

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[35] See Appendix B for definitions of the electoral systems. I broadly refer to plurality systems to those systems with single member constituencies, and proportional representation to those systems with multimember constituencies. Those countries with single and multimember constituencies are considered to have mixed systems.

[36] All the European democracies had a system of plurality voting during the 19th Century. The first changes towards proportionality started in 1855 in some regions in Denmark and became more common for the smaller countries in the first quarter of the 20th Century.

presents suggests that the leaders of political majorities chose to change to proportional representation as a strategy to survive in a new environment. This new environment was characterized by worldwide movements in the extension of the suffrage and the uprising of new ideologies and political parties. The higher degree of competition for the seats induced the old establishment to move towards proportionality to keep some of the seats. According to Rokkan (1970), the victory of the new principle of representation came about through a convergence of pressures from below and from above. The rising working class wanted to lower the thresholds of representation in order to gain access to the legislatures, and the most threatened of the old-established parties demanded proportional representation to protect their position against the new waves of mobilized voters created by universal suffrage. Additionally, majority elections represented a threat for the continued existence of the political system and the stability of the country in linguistically and religiously divided societies. Then, the introduction of some elements of minority representation came to be seen as an essential step in a strategy of territorial consolidation.[37]

The worldwide movement, however, did not affect every country to the same extent. The effect was different across countries according to the ethnic and/or religious heterogeneity of the citizenry and the advance of urbanization and monetarization. More importantly, it affected small and large countries differently, being the small open European democracies the first to concede. Small size economies have greater external dependence and consequently, greater pressure for cooperation. Breakups in the political system could certainly damage small democracies at a larger extent than larger

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[37] See particularly Campbell (1975, pp. 145-6) for further explorations on the topic.

democracies; thus, it was vital to modify the electoral system for political survival. Accordingly, evidence seems to be strong that small and open countries had to respond differently to the new worldwide environment than large and closed economies. Their rational response was a movement towards proportionality. [38] This movement was particularly evident in the small open economies of Europe, but it also reached distant countries like Argentina and Chile.[39]

Katzenstein (1985) finds similar evidence for the expansion of proportional representation in economies that are more open. In the 19th Century, the strong incentives that economic openness provided for export specialization reinforced economic and social links between sectors that in larger countries were more sharply opposed. According to Katzenstein, it was the coincidence of these political opportunities and social convergences, reinforced constantly by economic openness and the perception of vulnerability that inhibited majoritarian systems in the small open democracies and made possible the change towards higher proportionality of the electoral system.[40]

Rogowski's (1987) work on endogenous institutions advances the mentioned relationship between openness and political institutions. Small democratic economies have large economic gains from being open to international trade, hence, they have adopted the institutions that would allow them to foster these gains in the long run: proportional representation and parliamentary governments. Strong parties, large

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[38] Braunias (1932) distinguishes two phases in the spread of proportional representation: the 'minority protection' phase, before WWI, and the 'antisocialist' phase, in the years immediately after the armistice.

[39] Argentina increased the degree of proportionality in 1912 and Chile moved towards proportional representation in 1925. See Romero (1975) for additional evidence on Argentina.

[40] See Katzenstein (1985, p. 157).

districts (both characteristics of a proportional representation system), and parliamentary governments increase the insulation from sudden changes in economic conditions and increase the stability of policies. In this type of political environment, it is harder to pass radical changes of policy on international trade. Some of the results advanced by Rogowski (1987) are supported by Finer's (1975) analysis of the British electoral system. He observes that majoritarian systems are less stable and more uncertain because they are less isolated from private interests. Consequently, majoritarian systems enable swings in policies. These swings are fostered by the overrepresentation of groups. According to the distribution of voters across districts, a change in voters' interest lower than 5 percent could be enough to throw out one government and install its adversary, which proceeds to pursue opposite policies. For example, the steel industry in England that had been nationalized in 1950/51 was denationalized in 1953, and then renationalized in 1966.[41]

Recent institutional changes provide additional evidence on the relationship between openness and electoral systems. In 1993, New Zealand increased its degree of proportionality by going from simple plurality to a German-type system, where a mix of electoral systems is utilized. In this new system, one half of the seats is allocated through plurality voting in single member constituencies while the other half is allocated through proportional representation. The magnitude of the change in proportionality can be measured in terms of the number of political parties that gain representation to the lower chamber. The absolute number of parties increased from 3 to 6 and the effective

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[41] See Finer (1975, p. 13-17).

number of parties rose from 1.76 to 3.76.[42] Not surprisingly, New Zealand had the highest openness ratio of the countries that used simple plurality voting at the time of the change.[43]

Summarizing, intrinsic differences between small and large countries confronted with worldwide movements of people and ideologies, added to a massive movement towards universal suffrage, and the rational response of politicians that wanted to remain in power, conditioned the design of the political institutions. In terms of the electoral system, the small open economies moved from majoritarian to proportional electoral systems.

Empirical Evidence on Openness and the Choice of Political Institutions

I first test the relationship between openness and political institutions in a sample that includes eleven European democracies from 1860 to 1930, which is the period when the small European democracies changed from majoritarian to proportional electoral rules.[44] Some of these democracies include Austria, Belgium, Denmark, Finland, Netherlands, Norway, Sweden and some of the cantons in Switzerland. Other democracies, like Italy, increased their degree of proportionality later in the twentieth

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[42] The effective number of parties, usually labeled *ENPP*, is the inverse of the Hirschman-Herfindahl concentration index. It incorporates the relative bargaining strength of each party in the legislature and measures the number of parties of similar size included in the legislature. A thorough review of *ENPP* and its relationship with the degree of proportionality has been presented in the previous chapter.

[43] In 1993, Italy also changed its electoral system for the election of the Senate from a proportional to a mix system. This change in the electoral system decreased the degree of proportionality substantially, reducing the number of parties and the number of effective parties almost in half. Italy had a relatively low openness index, 30 percent lower than New Zealand's index.

[44] Data are decade averages. Summary statistics are included in Table D.2.

century, while others kept using plurality elections, like the United Kingdom. Table 1 in Appendix D presents a summary of the movements towards proportional representation in Europe. Equation 3.1 specifies the model that tests the relationship between openness and the electoral system.[45]

$$PR_{i,t} = \alpha + \beta_1 L(open)_{i,t} + \Phi' \mathbf{X}_{i,t} + \varepsilon_{i,t} \qquad [3.1]$$

In Equation 3.1, the subscript *i* represents an observation for a particular country, and the subscript *t* represents an observation in a specific decade. *PR* refers to proportional representation, our dependent variable. The parallel hypothesis on parliamentary governments is not tested because there is not significant variation in the sample. *L(open)*, our main variable of interest, is the log of trade openness, measured as the sum of exports and imports as a percent of GDP. According to the works of Rokkan (1970) and Rogowski (1987), a higher degree of openness should determine the adoption of proportional representation instead of plurality voting. The vector ***X*** includes a set of three economic and demographic control variables mentioned in the literature to determine the election of electoral system that were available for this historic sample. First, the *log of population* is a proxy for the size of the country. Second, *bank notes circulation* controls for monetarization. Finally, *emigration* (per thousand inhabitants) is a control for mobility of the population.[46]

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[45] Because PR is a discrete variable, I will use FGLS and probit estimations. I do not test for parliamentary regimes because there are no presidential countries in the sample.

[46] In other regressions, the share of agriculture in the national product was included to control for economic characteristics and population mobility. The coefficient for agriculture was negative as expected. The results are not presented because it decreases the sample size considerably without modifying the sign or significance of openness. Other variables of interest could not be included because lack of data.

The results from the regressions, Table 3.2, present strong evidence on the relationship between openness and the choice of electoral system.[47] The coefficient for openness is positive and significant in explaining the use of proportional representation. Population size presents a negative coefficient according to the literature and does not affect the significance of openness. Accordingly, both size and openness have a significant effect on the choice of electoral institutions. The probit estimation shows a positive probability that an increase in openness could produce a change towards a PR system. More specifically, an infinitesimal change in openness increases the probability of a change to PR by 46 percent.[48]

Table 3.2. *Openness and the choice of institutions in Europe between 1860 and 1930*

Dependent variable is PR	FGLS (1)	FGLS (2)	FGLS (3)	Probit (4)
Log of openness	0.20	0.27	0.32	4.56
	(0.05)***	(0.08)***	(0.06)***	(1.87)**
Bank notes circulation		-0.19	-0.31	-8.02
		(0.12)	(0.12)***	(3.81)**
Log of population		-0.12	-0.10	-0.64
		(0.04)***	(0.03)***	(0.34)*
Emigration			-4.94	-61.33
			(1.25)***	(26.89)**
Observations	71	69	67	67

Notes: *Standard errors in parenthesis*
*** *indicates significance at the 1% level* ** *5% level* * *10% level*

The main importance of the previous statistical work is to show that at the moment of the change from plurality to proportional representation the degree of openness was statistically significant. The impact of openness on the electoral

[47] See Table 1 in Appendix D for a detail on the changes in the electoral system across European democracies. Table 5 in Appendix D presents the countries included in the sample.

[48] The command "dprobit" in Stata translates probit coefficients to probability values.

institutions is also tested in two broader and more recent samples, OECD countries for 1971-1996 and world countries for 1980-1996. Using these samples has two main advantages. First, the number of countries and control variables available is substantially larger than in any other historical sample. Second, during these two periods, several countries have been formed or returned to democracy. These processes of creation and reforms have given political leaders the opportunity to choose the institutions that fit the economic and socio-demographic conditions of their countries. This is true for Spain and Portugal in the OECD sample, and several Latin American, Asian, Central European, and African countries in the world sample.

Equations 3.2 and 3.3 present the model to estimate. The dependent variables are *PR*, proportional representation, and *Parl*, parliamentary regimes.

$$PR_{i,t} = \alpha_1 + \alpha_2 L(open)_{i,t} + \Phi_1' \mathbf{X}_{i,t} + \Psi_1' \mathbf{L}_{i,t} + \varepsilon_{i,t} \qquad [3.2]$$

$$Parl_{i,t} = \beta_1 + \beta_2 L(open)_{i,t} + \Phi_2' \mathbf{X}_{i,t} + \Psi_2' \mathbf{L}_{i,t} + \varepsilon_{i,t} \qquad [3.3]$$

Our main variable of interest is *L(open)*, the log of trade openness, measured as the sum of exports and imports as a share of GDP. The vector **X** includes nine economic, and demographic control variables. *Ethnic and religious fractionalization* control for the heterogeneity of the society. According to Rokkan (1970) maintaining majoritarian elections in heterogeneous societies could threaten the stability of the democratic system. *Protestants*, the share of protestants in the population, controls for specific differences across religions on political organization. *Land-lock* and the controls for country size, the *log of land area* and the *log of population* offer additional control on openness and the potential openness of the country. *Urban population* and *senior population* control for population mobility and the possibility of development of new

ideologies. Finally, the *log of GDP per capita* controls for the financial and economic development of the society.

The vector **L** includes four legal control variables. *Scandinavian, French and British Law* control for the legal heritage that could have determined the choice of political institutions. *Year of state formation* controls for ideological worldwide movements that could have affected the selection of institutions.

In Table 3.3, I present the results from regressing the political institutions with respect to openness and every control variable that could determine the choice of institutions, according to Rokkan (1970), Rogowski (1987), Katzenstein (1985) and others, in a sample of OECD and world countries. The evidence suggests that those countries that are more open have selected the use of parliamentary regimes and proportional representation electoral systems.[49] The positive sign for openness is robust to changes in the control variables introduced.

[49] The degree of proportionality is also affected. In regressions not presented here, openness is positively correlated to the number of parties and effective parties represented in the legislature.

Table 3.3. *Determinants of the electoral system and political regime [FGLS]*

	World		OECD	
	Parl	PR	Parl	PR
Log of openness	0.15	0.07	0.23	0.25
	(0.03)***	(0.03)**	(0.03)***	(0.05)***
Ethnic fractionalization	0.002	-0.005	-0.003	-0.008
	(0.001)***	(0.001)***	(0.001)***	(0.001)***
Religious fract.	0.001	-0.50	0.005	-0.003
	(0.08)	(0.08)***	(0.001)***	(0.001)***
Scandinavian law	0.68	0.80	0.68	1.01
	(0.11)***	(0.11)***	(0.07)***	(0.12)***
French law	0.14	0.14	-0.09	0.12
	(0.06)***	(0.05)***	(0.03)***	(0.05)**
British law	0.37	-0.25	-0.24	0.003
	(0.06)***	(0.06)***	(0.03)***	(0.05)
Protestants	-0.004	-0.007	-0.011	-0.01
	(0.001)***	(0.001)***	(0.001)***	(0.001)***
Year of state formation	0.12	0.03	0.05	0.07
	(0.01)***	(0.01)**	(0.01)***	(0.01)***
Land-lock	-0.13	0.07	-0.40	0.001
	(0.06)**	(0.06)	(0.04)***	(0.06)
Log of GDP pc	0.14	0.01	-0.20	0.21
	(0.03)***	(0.03)	(0.03)***	(0.05)***
Log of land area	-0.02	-0.01	0.03	-0.09
	(0.01)**	(0.01)	(0.01)***	(0.02)***
Log of population	0.05	-0.01	-0.03	0.11
	(0.01)***	(0.01)	(0.01)***	(0.02)***
Log of urban pop.	-0.31	0.22	0.35	-0.22
	(0.05)***	(0.05)***	(0.04)***	(0.06)***
Senior population	0.06	-0.017	0.001	-0.06
	(0.005)***	(0.005)***	(0.01)	(0.01)***
Observations	686	686	598	598

Notes: *Standard errors in parenthesis*
*** *indicates significance at the 1% level* ** *5% level* * *10% level*

Using probit estimations provide similar results.[50] In Table 3.4, openness is positive and statistically significant. The results for the world sample indicate that an infinitesimal change in openness increases the probability of having a parliamentary instead of a presidential regime by 0.35 and a proportional representation system by

0.16 percent. Moreover, it increases the probability of having a parliamentary and proportional system by 0.68 percent. Similar probability values are valid for the OECD.

Table 3.4. *Determinants of the electoral system and political regime [Probit]*

	WORLD			OECD[a]	
	Parl	PR	Parl*PR	Parl	PR
Log of Openness	1.02	0.59	2.04	0.92	10.53
	(0.10)***	(0.13)***	(0.19)***	(0.22)***	(1.83)***
Ethnic Fract.	0.014	-0.027	-0.02	-0.03	-0.34
	(0.003)***	(0.003)***	(0.004)***	(0.006)***	(0.06)***
Religious Fract.	-0.11	-5.16	-3.78	-0.02	-0.29
	(0.27)	(0.37)***	(0.41)***	(0.008)*	(0.05)***
Year of State Form.	-0.0005	0.001	0.001	0.0008	-0.003
	(0.0003)*	(0.0003)***	(0.0003)***	(0.0004)**	(0.001)***
Log of GDP pc	0.78	-0.01	2.10	-4.35	-0.06
	(0.08)***	(0.11)	(0.17)***	(0.81)***	(0.87)
Pseudo R^2	0.31	0.54	0.62	0.55	0.89

Notes: Standard Errors in parenthesis
**** indicates significance at the 1% level ** 5% level * 10% level*
[a] *The OECD sample does not include Parliamentary*PR because there are no countries with presidential executives that use PR.*

Applying the results to specific countries makes the value of the coefficients easier to grasp. Computing the differences in probabilities according to 1996 data, a country like the Netherlands has a 21 percent higher probability of having a parliamentary government than the U.S. The difference increases to 24 percent regarding proportional representation. Comparing the U.K. and the U.S., I find that the former has a 15 percent higher probability of having a parliamentary government. Table 3.5 presents the summary statistics for the variables used for the previous computations for the countries in the example.

[50] In order to be able to estimate the probit models I had to reduce the number of control variables used.

Table 3.5. *Summary statistics for the specific countries*

	Netherlands	United Kingdom	United States
Parliamentary regime	1	1	0
Proportional representation	1	0	0
Openness	100.9	59.8	24.6
Religious Fractionalization	0.7	0.5	0.6
Ethnic Fractionalization	10	32	50
Year of State Formation	1648	1707	1776
Log of GDP pc	9.6	9.6	10.0

Summarizing, I have found strong empirical evidence on the relationship between the degree of openness of the economy and the political institutions adopted. In three different samples, a historic sample of European countries between 1860 and 1930, a sample of OECD countries from 1971 to 1996, and a sample of world countries from 1980 to 1996, the coefficient on the degree of openness of the economy was positive and significant in explaining the use of proportional representation and parliamentary regimes. Moreover, the results from the probit estimations computed on the value of the variables for 1996 show plausible political institutions for specific countries. For example, comparing the United States, United Kingdom, and the Netherlands, I find that the Netherlands presents a higher probability of using proportional representation than the U.S. and the U.K., and both the Netherlands and the U.K. have higher probabilities of using a parliamentary executive than the U.S.

3.4. Political Institutions and Fiscal Outcomes

Research in the field of political economics has probed the relationship between electoral institutions and the size and composition of government spending. More specifically, evidence continues to mount that parliamentary governments and proportional representation have a positive relationship with the size of the government. Regarding the composition of government expenditures, proportional representation

tends to favor subsidies and transfers while plurality voting and single member constituencies tend to favor public goods provision.

The literature can be separated in two groups, the papers that analyze the "pre-election" politics impact of electoral rules and those papers that concentrate on the "post-election" influence. Among the "pre-election" works, Persson and Tabellini (1999) find empirical evidence that electoral rules (majoritarian vs. proportional electoral systems) and the regime type (presidential and parliamentary regimes) explain the size of the government. Majoritarian and presidential countries are associated with lower expenditure. Similar evidence is presented in Persson and Tabellini (2000), Persson and Tabellini (2000b), and Milesi-Ferreti, Perotti and Rostagno (2000). The latter find that the electoral system determines the type of legislator that is elected to the legislature: plurality systems elect legislators with preferences for high spending on public goods while proportional systems elect legislators with preferences for high spending on transfers. Overall, proportional representation favors larger central government expenditures.

The second chapter of this dissertation develops the post-election framework based on Weingast's work on universalism. I find an additional source of influence from the electoral system on public expenditure through the impact of electoral laws on the structure of party competition. Specifically, electoral laws influence the number and strength of parliamentary parties, which influences legislator incentives to bargain both within party ranks and across party lines. Then, as the number of parties represented in the legislature increases, the uncertainty of forming minimum coalitions raises and the cost of passing projects that benefit the political parties' supporters falls. Consequently, the overall size of the government goes up as the number of parties increases.

Empirically, I find that for each effective political party, a measure developed by Laakso and Taagepera (1978) that weights parties according to the share of seats, that gains parliamentary representation, central government expenditure as a share of GDP increases by roughly two percentage points in OECD countries and by half a percentage point in a larger sample of countries. Similar correlations between the number of effective parties and the size of the government are reported by Stein, Talvi and Grisanti (1999) for Latin America, and Volkering and de Haan (2001) for a sample of OECD countries.

Given the amount of evidence, I can safely conclude that there is a convincing bulk of literature that finds a positive relationship between the regime type, the electoral system, and the size of the government. Both, the pre-election and the post-election politics models predict that parliamentary and proportional election countries are correlated with larger governments.

Empirical Evidence

In Tables 3.6 and 3.7, I present some preliminary evidence on the relationship between parliamentary regimes and proportional representation and the size of the government for world and OECD countries in 1996. Proportional representation countries and parliamentary executives have larger governments. This difference is larger than 10 percent for the world sample and larger than 20 percent for the OECD. Regarding political regimes, differences between presidential and parliamentary regimes can amount to 50 percent of the size of the government. In terms of GDP, parliamentary systems have on average a nine percent larger government than presidential systems. Moreover, parliamentary countries present a larger government if they use proportional

representation instead of plurality voting to elect their legislators, and parliamentary countries present a larger public sector than presidential countries regardless of the electoral system. Among the presidential countries, using proportional representation increases the size of the government compared to plurality voting.

Econometric evidence is presented in Tables 3.8 and 3.9 under the headings "OLS". Additionally, the previous chapter of this dissertation uses the same OECD and world samples to prove the relevance of political institutions in explaining the size of government expenditures. The empirical evidence shows that parliamentary regimes and proportional representation countries have a larger government sector than presidential and majoritarian countries. The public sector is even larger as the degree of proportionality increases, measured by *ENPP*.

Table 3.6. *Electoral systems, political regimes and the size of the government.*

CGE/GDP	Electoral System			Political Regime	
	PL	Mix	PR	Presidential	Parliamentary
World 1996					
Mean	0.27	0.30	0.31	0.26	0.35
Median	0.26	0.27	0.32	0.26	0.36
Countries	21	14	48	37	48
OECD 1996					
Mean	0.32	0.33	0.40	0.24	0.40
Median	0.26	0.33	0.42	0.24	0.38
Countries	5	4	14	2	21

Table 3.7. *Political institutions and the size of the government.*

CGE/GDP	Presidential System* Electoral System			Parliamentary System*Electoral System		
	Pres*PL	Pres*Mix	Pres*PR	Parl*PL	Parl*Mix	Parl*PR
World 1996						
Mean	0.25	0.27	0.26	0.30	0.35	0.37
Median	0.25	0.25	0.27	0.27	0.34	0.40
Countries	11	9	27	10	5	21
OECD 1996						
Mean	0.22	0.26	-	0.35	0.35	0.42
Median	0.22	0.26	-	0.34	0.34	0.40
Countries	1	1	-	4	3	14

Summarizing, this section provides evidence of a positive correlation between political institutions, more specifically parliamentary systems and proportional representation, and the size of the government. Those countries that use proportional representation have larger governments than those countries that use either plurality rules or mixed systems. At the same time, parliamentary regimes have larger governments than presidential governments. The evidence also reveals that for a certain political regime using majoritarian voting reduces the size of the government relatively to using proportional representation. Finally, regardless of the electoral system, parliamentary systems have a larger government than presidential systems.

3.5. Empirical Evidence on the Indirect Impact of Openness on Public Expenditure

The previous sections have shown theoretical and empirical evidence of the relationship between openness and the selection of political institutions and the impact of political institutions on the size of the government. More specifically, open countries tend to use parliamentary executives and proportional representation, the institutions associated with larger governments. This indirect relationship between openness and

government size should be evident in the data. This indirect effect could be independent and complementary of a direct effect from openness on size of the government, as in Rodrik (1998).

In order to discriminate the direct from the indirect effect of openness on central government expenditures I use 3SLS estimation. In the first stage, I estimate the impact of trade openness on the choice of political regime and electoral system. In the second stage, I proceed to estimate the direct impact of openness on the size of the government. This influence is corrected for the indirect influence that accrues from the impact on the political institutions. Consequently, I would expect the coefficient on openness to drop and the coefficients on the political variables to rise in the 3SLS estimation compared to the OLS coefficients.

The system to estimate is composed by Equations 3.4, 3.5, and 3.6

$$L(CL(CGE/GDP)_{i,t} = \alpha_1 + \alpha_2 PR_{i,t} + \alpha_3 Parl_{i,t} + \alpha_4 Fed_{i,t} + \alpha_5 L(open)_{i,t} + \Phi_1 \mathbf{X}_{i,t} + \delta_r + \delta_t + \varepsilon_{i,t} \quad [3.4]$$

$$PR_{i,t} = \beta_1 + \Phi_2' IV_{i,t}^{PR} + \beta_3 L(open)_{i,t} + \delta_r + \delta_t + \varepsilon_{i,t} \quad [3.5]$$

$$Parl_{i,t} = \gamma_1 + \Phi_3' IV_{i,t}^{Parl} + \gamma_3 L(open)_{i,t} + \delta_r + \delta_t + \varepsilon_{i,t} \quad [3.6]$$

This system is as close as possible to the system estimated by Rodrik (1998) to facilitate comparisons. PR, Parl and Fed are dummy variables that reflect whether the country had a proportional representation system, a parliamentary regime and a federal structure in the specific year. The dependent variable, *L(CGE/GDP)*, is the log of central government expenditure as a share of GDP. *L(open)*, or the degree of openness, is measured as the sum of exports and imports as a share of GDP. The matrix of economic controls **X** is composed by the *log of GDP per capita*, the *log of urban*

population, and the *log of dependency ratio*.[51] In subsequent regressions, it also includes the *log of population* and the *log of land area*. The inclusion of these "size" variables is relevant so the results do not pick up the relationship between openness and size but an independent effect from political institutions to the size of the government.[52] IV^{PR} and IV^{Parl} are the matrices of instrumental variables. IV^{PR} includes *British colony*, a dummy variable for those countries that had a British heritage, and *ethnic and religious fractionalization*, that is, the probability that two randomly chosen individuals share the same language and religious beliefs. IV^{Parl} includes *Protestants*, the share of Protestants in total population, *democracy between 1950 and 1995*, a dummy that indicates whether the country was a democracy during the specific period, *year of state formation*, and *land-lock*. Finally, δ_r and δ_t are vectors of fixed effects variables. δ_r controls for *region specific effects* with dummies for Africa, Asia, Latin America, Middle East, North America, North West Europe, and Oceania. δ_t controls for year specific effects.

In Table 3.8, I estimate the model in order to incorporate the effect of trade openness on the choice of political regime and electoral system. In this system of three equations, the direct effect of trade openness drops significantly. In the first column, it drops in half from 0.08 in the OLS estimation to 0.04 in the 3SLS estimation. Similar but smaller changes result in the next two columns. The coefficients for parliamentary regime and proportional representation increase substantially in the 3SLS regressions.

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[51] Rodrik includes these economic controls in his regressions. I take logs as he does. Results without logs are not reported but they do not change significantly.

[52] This discussion is relevant in terms of Alesina and Wacziarg (1998). In that paper, including the log of population reduces the significance of openness. In this paper, I go farther arguing that not only there is an impact from openness and size but also an effect from political institutions.

These results are a clear evidence of an indirect effect from trade on expenditure through the electoral system and political regime. PR, the proxy for the electoral system, is positive and highly significant as well as the dummy for parliamentary regimes, implying that public expenditure is positively related to the degree of proportionality of the electoral system and the type of executive.[53] These results are robust across samples. In Table 3.9, I present the results for a larger sample of world countries.[54] The coefficient on openness drops to more than half and the coefficients for parliamentary regimes and proportional representation increase significantly.

[53] Similar results are obtained when I use other measures of proportionality of the system, like ENPP, the absolute number of parties, or party fractionalization.

[54] The list of countries is presented in Table 5 of Appendix D. A larger number of countries is available because I do not include ethnic and religious heterogeneity as instrumental variables in the system of equations.

Table 3.8. *Direct and indirect impact of trade openness on the size of the government*

	World (1980-96)		World (1980-96)		OECD (1971-96)	
	OLS	3SLS	OLS	3SLS	OLS	3SLS
PR	0.07	0.16	0.11	0.27	0.21	0.28
	(0.03)***	(0.04)***	(0.02)***	(0.04)***	(0.01)***	(0.02)***
Parl	0.18	0.67	0.23	0.85	0.21	0.34
	(0.03)***	(0.05)***	(0.03)***	(0.05)***	(0.03)***	(0.05)***
Log of openness	0.08	0.04	0.26	0.22	0.19	0.13
	(0.02)***	(0.02)**	(0.03)***	(0.04)***	(0.02)***	(0.02)***
Federalism	0.02	0.05	-0.03	0.01	-0.15	-0.12
	(0.02)	(0.02)**	(0.02)	(0.02)	(0.01)***	(0.01)***
Log of GDP pc	-0.07	-0.09	0.06	0.05	-0.02	0.08
	(0.03)**	(0.03)***	(0.03)**	(0.03)	(0.03)	(0.04)**
Log of dependency	0.36	0.31	0.70	0.80	0.83	0.94
	(0.14)***	(0.14)**	(0.15)***	(0.16)***	(0.10)***	(0.10)***
Log of urban population	0.24	0.28	0.15	0.20	0.24	0.19
	(0.05)***	(0.05)***	(0.05)***	(0.05)***	(0.03)***	(0.04)***
Log of population			0.10	0.12	0.14	0.15
			(0.01)***	(0.01)***	(0.005)***	(0.005)***
Log of land area			-0.002	-0.02	-0.06	-0.08
			(0.01)	(0.01)*	(0.01)***	(0.01)***
Control Variables for 3SLS	British Colony; Ethnic Fractionalization; Religious Fractionalization; Democracy 50-95; Year of State Formation; Land-lock; Protestants					
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Region Fixed Effects [a]	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.71		0.74		0.89	
Observations	632	632	615	615	579	579

Notes: *Standard Errors in parenthesis.*
*** *indicates significance at the 1% level* ** *5% level* * *10% level*
[a] *The regions include: OECD: Europe, North America, Asia, and Oceania*
World: Africa, Asia, Latin America, Middle East, North America, North West Europe, and Oceania

Table 3.9. *Direct and indirect impact of trade openness on the size of the government. Larger sample*

	World (1980-96)		OECD (1971-96)	
	OLS	3SLS	OLS	3SLS
PR	0.07	0.29	0.21	0.53
	(0.02)***	(0.04)***	(0.01)***	(0.02)***
Parl	0.17	2.79	0.21	0.30
	(0.03)***	(0.11)***	(0.03)***	(0.05)***
Log of openness	0.28	0.10	0. 19	0.08
	(0.03)***	(0.03)***	(0.02)***	(0.03)***
Federalism	-0.01	0.07	-0.15	-0.11
	(0.02)	(0.03)**	(0.01)***	(0.01)***
Log of GDP pc	-0.04	-0.22	-0.02	0.10
	(0.03)	(0.03)***	(0.03)	(0.04)**
Log of dependency	0.46	0.54	0.83	1.13
	(0.14)***	(0.16)***	(0.10)***	(0.10)***
Log of urban population	0.19	0.47	0.24	0.20
	(0.04)***	(0.05)***	(0.03)***	(0.04)***
Log of population	0.05	0.23	0.14	0.16
	(0.01)***	(0.02)***	(0.00)***	(0.01)***
Log of land area	-0.01	-0.07	-0.06	-0.08
	(0.01)	(0.01)***	(0.01)***	(0.01)***
Control Variables for 3SLS	British Colony; Democracy 50-95; Year of State Formation; Land-lock; Protestants			
Year Fixed Effects	Yes	Yes	Yes	Yes
Region Fixed Effects [a]	Yes	Yes	Yes	Yes
Adjusted R^2	0.58		0.89	
Observations	981	981	579	579

Notes: *Standard Errors in parenthesis.*
*** *indicates significance at the 1% level* ** *5% level* * *10% level*
[a] *The regions include: OECD: Europe, North America, Asia, and Oceania World: Africa, Asia, Latin America, Middle East, North America, North West Europe, and Oceania*

Summarizing, this section has shown that there is a positive relationship between the degree of trade openness of a country, measured as the sum of exports and imports as a share of GDP, and the size of the government. While previous work in the literature considers only the direct effect, I show that there could be both a direct and indirect effect from openness on public expenditure. Following Rogowski's and Rokkan's work, I model the indirect effect as a consequence of the adoption of particular political institutions, that is, the adoption of parliamentary regimes and proportional representation by the small and open democracies of the world. The empirical evidence shows that when the influence of openness on the choice of political institutions is controlled for, the direct influence of trade openness on the size of the government drops substantially while the influence of proportional representation and parliamentary governments increases significantly.

3.6. Conclusions

This paper uses the result that links electoral systems and public expenditure developed in Chapter 2 to explain the relationship between trade openness and central government expenditures. While recent literature relates openness and government size directly, I uncover an indirect effect from openness to public expenditure through political institutions. More specifically, open economies adopt the political institutions – proportional representation and parliamentary regimes-- correlated with larger governments. In this new framework, small countries, which have large economic gains from being open, have adapted their political institutions over time differently than large and closed countries. Consequently, the relationship between openness and the size of the government relies on the electoral institutions that shape the political contest ahead

for political candidates. This chapter therefore, encompasses the empirical results in Cameron (1978) and Rodrik (1998) that more open economies present larger governments, the model in Alesina and Wacziarg (1998) that smaller countries tend to have larger governments, the literature in the development of institutions, like Rokkan (1970), the literature on endogenous institutions, like Rogowski (1987), and most recent literature in the political economy tradition that links political institutions to fiscal outcomes. More specifically, the works by Persson and Tabellini (1999, 2000, 2000b), Milessi-Ferreti, *et al.* (2000) and the work in Chapter 2 that find a positive relationship between proportional representation and parliamentary systems, and the size of the government. The models are tested using panel data regressions on a political and socioeconomic database for OECD and world countries from 1971 to 1996 and 1980 to 1996. After controlling for the relationship between openness and political institutions, I find that the direct effect of openness drops substantially while the impact of proportional representation and parliamentary executives increases significantly. Consequently, I can confidently conclude that openness affects the size of the government indirectly, through the political institutions, parliamentary executives and proportional elections, that foster central government expenditure.

The importance of these findings is threefold. First, it shows once again the relevance of political institutions in the determination of fiscal outcomes, more specifically, the size of central government expenditures. This way, it reinforces the powerful results presented in Chapter 2 by showing that once I control for the characteristics that determine the development of political institutions, these institutions have a sizeable impact on government expenditures. Second, it provides additional evidence on the evolution of institutions and how economic and socio-demographic

differences induce politicians to manipulate the political institutions in order to remain in power. Finally, it demonstrates that government expenditure is at least as much directly determined by the politicians in charge as by the institutions that rule political competition in each country. In terms of policy, these results are relevant as they clarify the consequences of changing political institutions for the constitutionalists that have to design the institutions that could foster development.

4. Size of the Government, Openness and Political Institutions.

Concluding Remarks and Policy Implications

Political scientists have debated about the best electoral system for over a century. Hare and J. S. Mill wrote on the benefits and consequences of using proportional representation instead of plurality voting in the mid 19th century. Some of the arguments exposed since then are that plurality voting provides added political stability and accountability than proportional representation. Regarding political stability, Schumpeter (1950), Black (1958), and Warwick (1979) show that the durability of government is negatively correlated with the number of parties and that the durability of the chief executive is negatively correlated with political fractionalization. The second virtue, accountability, results because of decisiveness. An election is decisive when it has a direct and immediate effect on the formation of government. While elections in plurality voting systems are usually decisive, in proportional systems voters decide the fate of the government and legislative coalitions only partly and indirectly.

For advocates of proportional representation, the two key words are fairness and receptiveness. Proportional representation is fair and receptive because it gives each party a share of seats correlated to its share of votes, and it allows for a greater diversity of viewpoints to be expressed in the legislature. Additionally, because proportional representation systems produce a much closer correspondence between the views of voters and their representatives than does a two-party system, alienation is moderated. Consequently, the proportionality of the electoral system has been found to affect voter

turnout. Franklin (1996), controlling for the salience of elections, compulsory voting, and Sunday voting, finds that proportional representation can increase turnout by 12 points. Powell (1981) also reports significantly lower turnouts in two-party democracies.

Summarizing, the debate in the political science literature has concluded that plurality voting provides stability and accountability while fairness and receptiveness, and consequently voter turnout, are fostered by proportional representation.

The debate about the impact of the electoral system on citizens' welfare is, however, more recent and almost nonexistent. The previous chapters of this dissertation show that political institutions have a direct impact on the size of the government and the composition of government expenditure. More specifically, parliamentary governments and proportional representation present higher government expenditure than presidential and parliamentary systems. The impact is even more pronounced according to the degree of proportionality of the system, proxied by the number of parties with representation in the legislature. The electoral system also affects the composition of government expenditures. Proportional representation favors subsidies and transfers in detriment of public goods.[55] The impact of the electoral system is even greater when controls for the impact of openness on the choice of political institutions are introduced.

These are important results for the political economist that wants to recommend the institutions that could reduce (increase) government expenditure and derive additional (fewer) funds towards public goods instead of subsidies and transfers. Because of the high controversy on whether higher or lower public expenditures are

[55] Additionally, regressions run using the OECD and world sample show that plurality voting favors government capital expenditure while proportional representation does not.

desirable, the political economist should explore the matter further and analyze the impact of political institutions and public expenditures on economic growth and income distribution before advising on the right political institutions for a country.

Landau (1983) and Alesina, Ardagna *et al* (1999) argue that large public sectors are detrimental for economic growth. Additionally, Grier and Tullock (1989) find that the growth of government consumption is significantly negatively correlated with economic growth.[56] In this case, the political economists would suggest the adoption of presidential executives and plurality voting as mechanisms to foster economic growth.

The position in favor of presidential executives and plurality voting is reinforced by the literature on public investment. Aschauer (1989, 1989b) and Munnell (1992) argue that public investment in infrastructure favors economic growth because an increase in the public capital stock raises the return to private capital. Easterly and Rebelo (1993) find a positive correlation between public investment in transport and communications, and growth. Consequently, if public investment favors growth and plurality voting favors public investment and public goods instead of subsidies and transfers at any level of total spending, the political economist would be judicious on choosing plurality voting for fostering growth in the economy.

Additionally to the direct impact on growth, it would be important to take into account indirect relationships that affect growth and citizens' welfare, like the impact of political institutions on corruption. Reducing corruption could be not only a goal in itself, as corruption is seen as unfair and immoral, but also, as an intermediate step to

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[56] Landau (1983) finds that a larger government size depresses growth of per capita income. Alesina, Ardagna et al (1999) show that government expenditure reduces private investment and consequently the potential for growth in the economy. There is a substantial amount of controversy around these results however. Ram (1986) presents evidence that government size has a positive effect on economic performance and growth.

increase growth in a country. Mauro (1995) finds evidence that corruption reduces investment and, consequently, standards of living, while bureaucratic efficiency causes high investment and growth. Persson, Tabellini and Trebbi (2000) study the link between political institutions and corruption finding that proportional representation is associated with more corruption. Consequently, because proportional representation increases corruption, choosing plurality elections could increase welfare. This result, however, is not highly robust. Lijphart (1999) finds different results where majoritarian systems are slightly more corrupt than proportional representation democracies.

Looking at the impact of electoral systems on rent seeking could provide additional bases to evaluate one system over the other in order to quantify the potential impact of institutional change on growth. Congleton (2000) argues that federalism reduces rent-seeking and political conflict because it provides better representation of minorities. As a result, those minorities have to spend fewer resources on lobbying activities to be heard by the government. Following his argument, it would seem coherent to conclude that proportional representation would also reduce rent seeking as the diverse groups in society would be better represented, and therefore spend fewer resources in rent seeking activities.

A final check for choosing electoral systems should be based on the impact of electoral rules on income inequality. Regarding growth, there is confronting evidence on the impact of inequality. On one side, reducing inequality by increasing taxes and transfers reduces the incentives for investment and consequently, it reduces growth. On the other side, lower inequality tends to reduce social conflict and favor stability, a necessary condition for development. Preliminary evidence seems to indicate that

proportional representation tends to reduce income inequality.[57] Schofield, *et al.* (2000) provide similar evidence. Moreover, reducing income inequality could be a goal in itself, as it is believed to affect happiness in a country. According to Alesina, *et al.* (2001), there is a large, negative and significant effect of inequality on happiness in Europe but not in the U.S. There are two potential explanations. First, Europeans prefer societies that are more equal. Second, social mobility is higher in the US so being poor is not seen as affecting future income. If the first explanation is valid, then proportional representation could fit Europe the best. On the contrary, if the problem is low social mobility, a larger public sector could not help to increase happiness because social mobility is usually dampened by a large public sector. For that reason, countries where income inequality is negatively related with happiness, should adopt the institutions that reduce government influence on the economy and increase social mobility.

Summarizing, the political economist does not have an easy task for suggesting the best institutions for a country. In this dissertation, I have only analyzed differences between proportional vs. plurality systems, and presidential vs. parliamentary regimes at large. The particular implementation of each institution would assume a very extensive analysis. For example, the degree of proportionality that is optimal, and the rule for assigning seats to the legislature in the case of electoral rules. Term limits, reelection, checks and balances, separation of powers, and cabinet formation are some of the particulars that should be assessed when implementing political regimes. The analysis becomes even harder if this decisions has to be complemented it with the decision over political organization, federal or unitary, and legislative organization, unicameral or

[57] Several regressions ran in the OECD and world sample used in this study provide significant evidence on a negative relationship between proportional representation and income inequality.

bicameral. Other scholars have suggested alternative solutions. Tullock (1998, p. 182) argues in favor of bicameral legislatures with each chamber of the legislature being elected under different methods to increase the majority needed to pass legislation. Mueller (1989, p. 226) argues in favor of two-party systems to elect the executive branch and proportional representation for choosing representatives. This dissertation does not consider bicameral legislatures. However, from the previous analysis it seems evident that presidential executives and plurality voting in single member constituencies seem the best alternative for those countries that want a reduced government with low subsidies and transfers. On the other side, there is some evidence that proportional representation increases the representation of groups and more importantly, reduces inequality in the economy.

Still, advising on the best institutions is not the only task. Because institutions change and politicians manipulate the institutions in their favor, the political economist has to design the institutions that foster growth and are incentive compatible with politicians' interests. Democratic institutions and rules should be promulgated under the assumption that public office holders will try to subvert those rules and procedures whenever it is in their interests to do so. Accordingly, additional rules should be imposed on the polity, like the generality norms proposed by Buchanan and Congleton (1999).

Taagepera and Shugart (1989, p. 234) answer to the question, Do electoral systems matter? saying, "Election outcomes matter to the extent that it matters which candidates or parties obtain representation and thus the opportunity to participate in policy-making. An electoral system can make a difference in which party wins, and how decisively it wins. Electoral systems can also influence which losing parties can stay around to compete again and which are eliminated for good." This dissertation

complements their response, "Electoral systems affect the rules of competition for politicians and consequently, economic outcomes. Electoral systems affect the size of government, the composition of government expenditures, the degree of corruption, the distribution of income in a society, and most probably, economic growth."

Appendix A

Database Search

Two major searches were conducted (10 June 2001). First, an EconLit search produced the following results: "government size" or "size of government" in the title returned 97 works, while "public expenditure" returned 309. "Public expenditure" as a keyword returned 2014 and "government size" returned 1692. Fifty-eight books had either "government size" or "size of government" in the title. Second, a Jstor search, which only covers a subset of journals and years, returned 15 articles for the combinations of "government" and "size" in the title and 16 for "public expenditure".

Evidence on Central Government Expenditure

Table A.1. *Central government expenditure across the world in 1996*

	Mean	**Median**	**Countries**
All Countries	29.8	29.8	85
Asia	19.1	19.8	12
South America	20.2	16.7	10
Latin America	22.1	21.0	17
North America	23.6	23.6	2
Central A. and Caribbean	25.3	27.4	9
Africa	29.0	29.8	15
Oceania	29.3	29.6	3
Middle East	35.1	33.9	4
South East Europe	35.6	34.1	14
OECD	37.2	40.0	22
North West Europe	40.6	40.4	17

Note: *OECD, and Latin America share observations with other categories. For instance, the US belongs to OECD and North America.*

Appendix B

Electoral Systems	**Perfect Proportional System**	**Perfect Plurality**
Number of legislators	N	N
Number of districts	1	N
Number of legislators elected per district	N	1
Votes needed for election	$V_i > V/N$	$V_i > V_j$ for every $j \neq i$
Number of parties	>2	2
Nomination depends on	Party leadership	Constituency
Characteristics		
Party discipline	High	Low
Alienation / Voter turnout	Low / High	High / Low
Minority/women representation	High	Low
Closeness to the representative	Low	High
Localism	Low	High
Stability	Low	High
Accountability	Low	High

Figure B.1. *Defining electoral systems*

Electoral system	Description	Example
Proportional Representation (PR)		
Open list [Closed list]	Voters are [not] allowed to express preferences for individual candidates within a list.	Belgium [Argentina]
STV (single transferable vote)	Candidates are ordered by the voters	Ireland
Mixed Systems (PL-PR)		
Corrective	Electors cast two votes, first for the candidate in SMD and the second for the party	Germany
Combination	A certain share of the representatives are elected in SMD and the rest are elected in MMD by PR	Japan after 1994
Majority Systems		
Runoff	A majority is required in the first ballot. If no candidate obtains a majority, a second ballot is held between the two candidates who got the highest number of votes in the first round	Mali
Plurality	The winner is the candidate who gets a plurality of the vote in the second ballot.	France
Alternative voting	Voters rank candidates in order of preference	Australia
Plurality System (PL) or First-past-the-post (FPTP)		
SMD (single member district)	To be elected the candidate needs simply to have more votes than any other challenger	USA
Bloc voting	The party that gets most votes enters the whole bloc of candidates	Elect. Coll. USA
Cumulative voting	Voters are granted as many votes as there are members to be elected but are allowed to accumulate two or more votes on a single candidate	Illinois until 1980
SNTV (single nontransferable vote)	Electors cast a single vote in a district electing multiple members.	Japan until 1994
Double simultaneous vote	The winner is the candidate with the highest number of votes from within the party that got most votes.	Uruguay (president. race)

Figure B.2. *A not so clear cut between proportional representation and plurality voting. A brief introduction to some electoral methods*[1]

[1] Blais and Massicotte (1996) provide an excellent account of electoral systems. Tullock (1998) provides a thorough survey on voting methods used throughout history. Particularly interesting is Tullock's description of the Venetian system used about 1200 A.D.

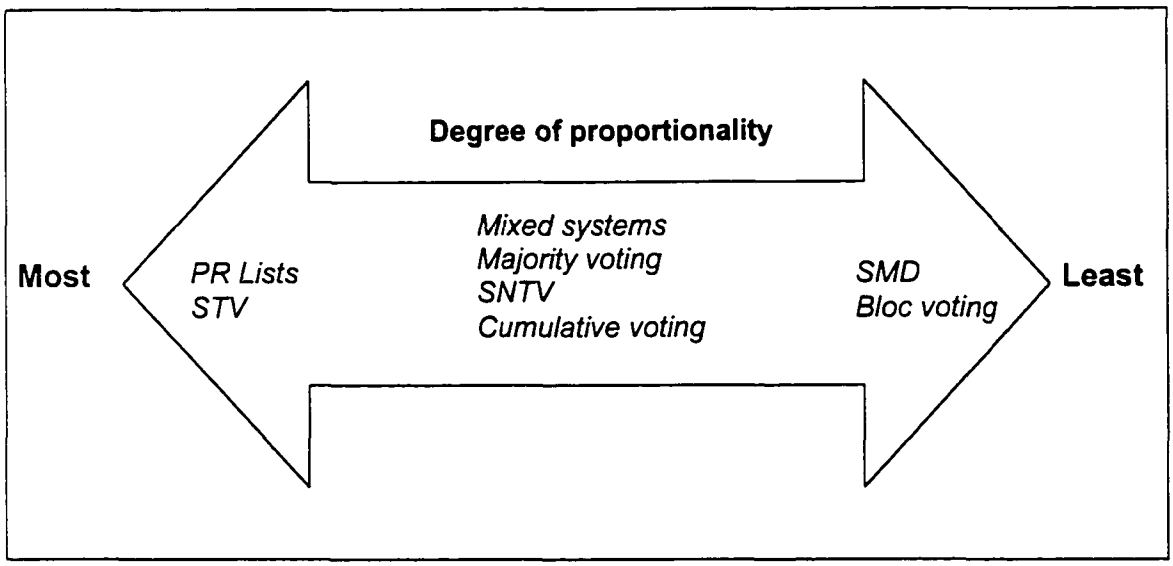

Figure B.3. *Degree of proportionality of electoral systems*

Political Regimes	**Presidential**	**Parliamentary**
Term	Fixed length	Confidence vote
Election	Directly or indirectly	Selected by the legislature
Executive	One-person non- collegial	Collective
Characteristics		
Responsibility	Higher / Individual	Lower / Collective
Accountability	Lower (fixed period)	Higher (confidence vote)
Stability	Higher	Lower
Separation of powers	Higher	Lower
Possibility of Deadlock	Higher	Lower

Figure B.4. *Defining political regimes*

Table B.1. *Electoral systems and political regimes across countries in 1996*

Country	Electoral System	Av. leg. per district	Parties	ENPP	NP	Political Regime
Albania	Mixed	1.21	5	1.31	1.01	Pres
Algeria	PR	1.56	1	1	1	Pres
Andorra	PR	3.5	6	5.6	4.64	Parl
Argentina	PR	10.71	4	2.66	1.65	Pres
Armenia	Mixed	1	9	2.21	1.29	Pres
Australia	PL	1	5	2.62	1.86	Parl
Austria	PR	20.33	5	3.48	2.66	Parl
Bahamas	PL	1	2	1.34	1.04	Parl
Bangladesh	PL	1	5	2.51	2.02	Pres
Barbados	PL	1	3	1.87	1.31	Parl
Belgium	PR	7.5	7	4.36	3.96	Parl
Belize	PL	1	2	1.98	1.79	Parl
Benin	PR	83	7	5.78	4.84	Pres
Bolivia	PR	14.44	8	3.71	2.4	Pres
Botswana	PL	1	2	1.78	1.34	Parl
Brazil	PR	19	10	7.91	6.19	Pres
Bulgaria	PR	7.74	5	2.72	1.68	Pres
Cameroon	PR	3.67	4	2.55	2	Pres
Canada	PL	1	5	2.33	1.36	Parl
Cape Verde	PR	4.5	3	1.76	1.26	Parl
Chile	PR	2	8	4.92	3.62	Pres
Colombia	PR	4.94	3	2.19	1.6	Pres
Costa Rica	PR	8.14	5	2.3	2.02	Pres
Croatia	Mixed	4.38	6	2.56	1.28	Pres
Cyprus	PR	13.33	5	3.52	2.94	Parl
Czech Republic	PR	25	6	4.15	3.16	Pres
Denmark	PR	10.53	9	4.54	2.95	Parl
Dominica	PL	1	3	2.47	1.62	Parl
Dominican Rep.	PR	4	3	2.43	2.1	Pres
Ecuador	PR	4.1	9	4.76	3.3	Pres
Egypt	PR	2	7	1.13	1	Pres
El Salvador	PR	5.6	4	1.37	1.02	Pres
Estonia	PR	9.18	7	4.15	2.31	Parl
Fiji	Mixed	1.37	7	3.37	2.14	Parl
Finland	PR	13.33	8	4.88	3.52	Parl
France	PL	1	7	3.01	2.35	Parl
Germany	Mixed	1.91	6	3.15	2.38	Parl
Ghana	PL	1	4	1.85	1.31	Pres
Greece	PR	5.26	5	2.36	1.74	Parl
Grenada	PL	1	3	2.42	1.75	Pres

Table B.1. *Cont.*

Country	Electoral System	Av. leg. per district	Parties	ENPP	NP	Political Regime
Grenada	PL	1	3	2.42	1.75	Pres
Guatemala	PR	3.48	7	2.72	1.58	Pres
Guyana	PR	53	4	2.13	2.03	Pres
Honduras	PR	7.11	3	2.03	1.76	Pres
Hungary	Mixed	1.67	8	2.9	1.44	Pres
Iceland	PR	7.87	6	3.95	2.49	Parl
India	PL	1	14	5.16	3.52	Parl
Indonesia	PR	14.81	3	1.85	1.15	Pres
Ireland	PR	4.05	6	3.49	2.45	Parl
Israel	PR	120	11	5.61	4.08	Parl
Italy	Mixed	1.26	10	6.49	4.06	Parl
Jamaica	PL	1	2	1.31	1.03	Parl
Japan	Mixed	1.61	8	2.94	1.97	Parl
Jordan	PR	4	10	2.29	3.08	Parl
Kenya	PL	1	7	2.84	1.56	Pres
Kiribati	PR	1.70	3	2.81	2.22	Pres
Korea	Mixed	1.27	5	3.13	2.01	Pres
Latvia	PR	20	9	7.59	6.72	Parl
Liechtenstein	PR	12.5	3	2.32	2.08	Parl
Lithuania	Mixed	1.96	8	3.29	1.46	Parl
Luxembourg	PR	15	5	3.9	3.04	Parl
Madagascar	PR	2.03	14	5.99	2.76	Pres
Malawi	PL	1	3	2.69	2.02	Pres
Malaysia	PL	1	14	4.02	1.63	Parl
Mali	PR	129	10	2.24	1.09	Pres
Malta	PR	5.31	2	2	1.97	Parl
Mauritania	PR	1.49	4	1.26	1.01	Pres
Mauritius	PR	2.95	5	1.21	1	Parl
Mexico	Mixed	1.64	4	2.29	1.4	Pres
Mongolia	PL	1	5	3.07	2.29	Pres
Morocco	PL	1	13	7.67	7.12	Pres
Mozambique	PR	22.73	3	2.14	1.92	Pres
Namibia	PR	3.13	5	1.71	1.13	Pres
Nepal	Mixed	2.73	6	2.78	2.36	Pres
Netherlands	PR	8.33	11	5.4	4.63	Parl
New Zealand	Mixed	1.82	6	3.76	2.86	Parl
Nicaragua	Mixed	5	5	2.75	2.21	Pres
Norway	PR	8.68	8	3.98	3.11	Parl
Pakistan	PL	1	14	3.13	2.34	Pres
Panama	PR		5	3.41	2.05	Pres
Paraguay	PR	4.44	3	2.45	2.1	Pres

Table B.1. *Cont.*

Country	Electoral System	Av. leg. per district	Parties	ENPP	NP	Political Regime
Peru	PR	120	10	2.9	1.28	Pres
Poland	PR	8.85	7	3.88	2.8	Pres
Portugal	PR	10.45	4	2.55	2.01	Parl
Romania	PR	8.17	7	4.28	2.96	Pres
Russia	Mixed	1.99	11	5.17	2.92	Pres
Samoa	Mixed	1.17	4	2.77	1.93	Parl
Singapore	Mixed	2.25	3	1.1	1	Pres
Slovak Rep.	PR	37.5	7	4.41	2.19	Pres
Slovenia	Mixed	9	8	5.52	4.17	Pres
South Africa	Mixed		7	2.21	1.27	Pres
Spain	Mixed	6.73	9	2.72	2.25	Parl
Sweden	PR	11.63	7	3.5	1.89	Parl
Switzerland	Mixed	7.69	12	5.58	4.31	Pres
Syria	PR	16.67	7	2.47	1.69	Pres
Tanzania	PL	1	1	1	1	Pres
Thailand	PR	2.52	11	4.32	3.43	Parl
Trinidad and Tobago	PL	1	3	2.23	2.12	Parl
Tunisia	PR	6.52	5	1.27	1.01	Pres
Turkey	PR	6.96	5	4.4	3.8	Pres
United Kingdom	PL	1	9	2.27	1.9	Parl
United States	PL	1	3	2	1.88	Pres
Uruguay	PR	5.21	4	3.3	3.16	Pres
Venezuela	PR	10.15	3	2	1.91	Pres
Yemen, Rep.	PL	1	9	3.69	2.42	Pres
Zambia	PL	1	5	1.3	1.01	Pres
Zimbabwe	PL	1	5	1.29	1.01	Pres

Notes:
Presidential and Parliamentary regimes are defined according to the power of the executive following Persson and Tabellini (1999). For example, France is regarded as parliamentary regardless of having an elected president.

Appendix C

Summary Statistics and List of Countries for the Empirical Work in Chapter 2.

Table C.1. *Summary statistics for OECD countries [1971-1996]*

	Mean	Med	Std. Dev.	Obs
Central government expenditure / GDP	34.36	34.57	10.05	579
Public goods expenditure / GDP	11.30	11.11	4.02	575
Subsidies and transfers / GDP	19.79	19.92	7.87	575
Effective number of parties	3.48	3.17	1.38	588
Legislative seats	285.46	212.00	176.89	588
Rae fractionalization index	0.67	0.68	0.11	588
Molinar's Weighted Number of Parties	2.66	2.29	1.18	588
Absolute number of parties	6.89	6.00	3.32	586
GDP per capita	11952.81	11873.00	3415.61	598
Population (millions)	33353.87	9860.00	52312.10	598
Population density	128.05	91.44	125.78	598
Urban population	73.86	75.77	14.54	598
Trade openness	64.68	58.26	35.51	598
Senior population	12.53	12.83	2.31	598
Dependency ratio	0.35	0.35	0.03	598
Land Area ('000 sq km)	1316.80	267.99	2872.74	598

Table C.2. *Summary statistics for world countries [1980-1996]*

	Mean	Med	Std. Dev.	Obs
Central government expenditure / GDP	29.92	28.91	12.11	1329
Public goods expenditure / GDP	14.63	13.57	6.98	1208
Subsidies and transfers / GDP	12.16	9.18	9.66	1210
Effective number of parties	2.92	2.45	1.52	1324
Legislative seats	203.40	159.00	156.95	1541
Rae fractionalization index	0.52	0.58	0.25	1467
Molinar's Weighted Number of Parties	2.04	1.76	1.16	1467
Absolute number of parties	5.35	5.00	3.41	1466
Average district size	0.48	0.28	0.40	1411
GDP per capita	6094.73	4218.23	5162.96	1630
Population (millions)	29.98	7.94	86.95	1785
Population density	152.54	53.68	459.64	1641
Urban population	56.14	56.13	22.44	1802
Trade openness	74.50	62.80	48.68	1630
Senior population	7.27	4.93	4.39	1751
Dependency ratio	0.41	0.40	0.08	1733
Land Area ('000 sq km)	87381.49	17481.00	229828.20	1785

Table C.3. *Countries included in the empirical work for Chapter 2.*

Albania [3]	Dominica [3]	Kiribati [3]	Poland [2,3]
Algeria [3]	Dominican Rep. [2,3]	Korea, Rep. [2,3]	Portugal [1,2,3]
Andorra [3]	Ecuador [2,3]	Latvia [2,3]	Romania [2,3]
Argentina [2,3]	Egypt [2,3]	Liechtenstein [3]	Russia [2,3]
Armenia [3]	El Salvador [3]	Lithuania [2,3]	Samoa [3]
Australia [1,2,3]	Estonia [2,3]	Luxembourg [1,2,3]	Singapore [2,3]
Austria [1,2,3]	Fiji [2,3]	Madagascar [2,3]	Slovak Republic [3]
Bahamas [2,3]	Finland [1,2,3]	Malawi [2,3]	Slovenia [3]
Bangladesh [2,3]	France [1,2,3]	Malaysia [2,3]	South Africa [2,3]
Barbados [2,3]	Germany [1,2,3]	Mali [2,3]	Spain [1,2,3]
Belgium [1,2,3]	Ghana [2,3]	Malta [2,3]	Sweden [1,2,3]
Belize [2,3]	Greece [1,2,3]	Mauritania [3]	Switzerland [1,2,3]
Benin [3]	Grenada [2,3]	Mauritius [2,3]	Syria [2,3]
Bolivia [2,3]	Guatemala [2,3]	Mexico [2,3]	Tanzania [3]
Botswana [2,3]	Guyana [2,3]	Mongolia [2,3]	Thailand [2,3]
Brazil [2,3]	Honduras [3]	Morocco [2,3]	Trinidad and Tobago [2,3]
Bulgaria [2,3]	Hungary [2,3]	Mozambique [3]	Tunisia [2,3]
Cameroon [2,3]	Iceland [1,2,3]	Namibia [2,3]	Turkey [2,3]
Canada [1,2,3]	India [2,3]	Nepal [2,3]	United Kingdom [1,2,3]
Cape Verde [3]	Indonesia [2,3]	Netherlands [1,2,3]	United States [1,2,3]
Chile [2,3]	Ireland [1,2,3]	New Zealand [1,2,3]	Uruguay [2,3]
Colombia [2,3]	Israel [2,3]	Nicaragua [2,3]	Venezuela [2,3]
Costa Rica [2,3]	Italy [1,2,3]	Norway [1,2,3]	Yemen [2,3]
Croatia [3]	Jamaica [2,3]	Pakistan [2,3]	Zambia [2,3]
Cyprus [2,3]	Japan [1,2,3]	Panama [2,3]	Zimbabwe [2,3]
Czech Republic [2,3]	Jordan [2,3]	Paraguay [2,3]	
Denmark [1,2,3]	Kenya [2,3]	Peru [2,3]	

Notes: *Countries were included in the empirical work according to data availability.*
[1] *Included in the OECD regression for Tables 2.4, 2.8, and 2.10.*
[2] *Included in the world regressions for Tables 2.5, 2.9, and 2.11.*
[3] *Included in the preliminary statistics for Tables 2.1, 2.2, 2.3, 2.6, and 2.7.*

Appendix D

Summary Statistics and List of Countries for the Empirical Work in Chapter 3.

Table D.1. *Extension of the suffrage and electoral change in Europe*

Country	Manhood / Universal Suffrage	Change to PR
Austria	1907/1919	1915-1922
Belgium	1894 (1919)/1949	1899
Denmark	1849 (1913)/1915	1855 (partial); 1915
Finland	1906/1906	1906
France	1870/1945	
Germany	1870 (1849)/1919	
Iceland	1920/1920	
Italy	1912 (1919)/1945	
Ireland	1918/1923	
Luxembourg	1901/1919	
Netherlands	1894/1917	1915-1922
Norway	1898/1915	1915-1922
Spain	1900	
Sweden	1909/1920	1909
Switzerland	1874	1891 (partial)
United Kingdom	1918/1929	

Notes: *Information compiled from Finer (1997, p. 1638); and Rokkan (1970)*

Table D.2. *Summary statistics for the historic sample [1860-1930]*

Variable	Mean	Med	Std. Dev.	Obs.
Central Government Expenditure / GDP	0.27	0.08	0.55	65
Trade Openness	0.63	0.37	0.72	71
Population ('000)	16228.34	6142.00	17201.40	99
Bank notes circulation	0.18	0.05	0.39	71
Emigrants per '000	0.03	0.01	0.03	97
Agricultural production / GDP	28.93	30.00	13.40	59

Table D.3. *Summary Statistics for OECD countries [1971-1996]*

Variable	Mean	Med	Std. Dev.	Obs.
Central government expenditure / GDP	34.36	34.57	10.05	579
Public goods expenditure / GDP	11.30	11.11	4.02	575
Subsidies and transfers / GDP	19.79	19.92	7.87	575
Effective number of parties	3.48	3.17	1.38	588
Legislative seats	285.46	212.00	176.89	588
Rae fractionalization index	0.67	0.68	0.11	588
Molinar's Weighted Number of Parties	2.66	2.29	1.18	588
Absolute number of parties	6.89	6.00	3.32	586
GDP per capita	11952.81	11873.00	3415.61	598
Population (millions)	33353.87	9860.00	52312.10	598
Population density	128.05	91.44	125.78	598
Urban population	73.86	75.77	14.54	598
Trade openness	64.68	58.26	35.51	598
Senior population	12.53	12.83	2.31	598
Dependency ratio	0.35	0.35	0.03	598
Land Area ('000 sq km)	1316.80	267.99	2872.74	598
Ethnic fractionalization	21.74	13.00	20.69	598
Religious fractionalization	33.91	22.00	24.69	598

Table D.4. *Summary statistics for world countries [1981-1996]*

Variable	Mean	Med	Std. Dev.	Obs.
Central government expenditure / GDP	29.92	28.91	12.11	1329
Public goods expenditure / GDP	14.63	13.57	6.98	1208
Subsidies and transfers / GDP	12.16	9.18	9.66	1210
Effective number of parties	2.92	2.45	1.52	1324
Legislative seats	203.40	159.00	156.95	1541
Rae fractionalization index	0.52	0.58	0.25	1467
Molinar's Weighted Number of Parties	2.04	1.76	1.16	1467
Absolute number of parties	5.35	5.00	3.41	1466
Average district size	0.48	0.28	0.40	1411
GDP per capita	6094.73	4218.23	5162.96	1630
Population (millions)	29.98	7.94	86.95	1785
Population density	152.54	53.68	459.64	1641
Urban population	56.14	56.13	22.44	1802
Trade openness	74.50	62.80	48.68	1630
Senior population	7.27	4.93	4.39	1751
Dependency ratio	0.41	0.40	0.08	1733
Land Area ('000 sq km)	87381.49	17481.00	229828.20	1785
Ethnic fractionalization	35.38	30.00	27.83	1343
Religious fractionalization	0.34	0.28	0.23	867

Table D.5. *Countries included in the empirical work for Chapter 3*

Albania [1]	Dominican Republic [1,4,5]	Kiribati [1]	Poland [1,4,5]
Algeria [1,5]	Ecuador [1,4,5]	Korea, Rep. [1,4,5]	Portugal [1,3,4,5]
Argentina [1,4,5]	Egypt [1,4,5]	Latvia [1,5]	Romania [1,5]
Armenia [1]	El Salvador [1,4,5]	Lithuania [1]	Russia [1,5]
Australia [1,3,4,5]	Estonia [1,5]	Luxembourg [1,3,4,5]	Samoa [1]
Austria [1,3,4,5]	Fiji [1]	Madagascar [1]	Slovak Republic [1]
Bangladesh [1,5]	Finland [1,2,3,4,5]	Malawi [1,5]	Slovenia [1]
Barbados [1,4,5]	France [1,2,3,4,5]	Malaysia [1,5]	South Africa [1]
Belgium [1,2,3,4,5]	Germany [1,2,3,4,5]	Mali [1]	Spain [1,3,4,5]
Belize [1]	Ghana [1,5]	Malta [1]	Sweden [1,2,3,4,5]
Benin [1]	Greece [1,3,4,5]	Mauritania [1]	Switzerland [1,2,3,4,5]
Bolivia [1,4,5]	Grenada [1]	Mauritius [1,4,5]	Syria [1]
Botswana [1,4,5]	Guatemala [1,5]	Mexico [1,5]	Tanzania [1]
Brazil [1,4,5]	Guyana [1]	Mongolia [1]	Thailand [1,5]
Bulgaria [1,5]	Honduras [1,4,5]	Morocco [1,5]	Trinidad and Tobago [1,4,5]
Cameroon [1,5]	Hungary [1,5]	Mozambique [1]	Tunisia [1,5]
Canada [1,3,4,5]	Iceland [1,3,4,5]	Namibia [1,5]	Turkey [1,5]
Cape Verde [1]	India [1,4,5]	Nepal [1]	United Kingdom [1,2,3,4,5]
Chile [1,5]	Indonesia [1,5]	Netherlands [1,2,3,4,5]	United States [1,3,4,5]
Colombia [1,4,5]	Ireland [1,3,4,5]	New Zealand [1,3,4,5]	Uruguay [1,4,5]
Costa Rica [1,4,5]	Israel [1,4,5]	Nicaragua [1,5]	Venezuela [1,4,5]
Croatia [1]	Italy [1,2,3,4,5]	Norway [1,2,3,4,5]	Yemen [1]
Cyprus [1]	Jamaica [1,4,5]	Pakistan [1,5]	Zambia [1,5]
Czech Republic [1,5]	Japan [1,3,4,5]	Panama [1,5]	Zimbabwe [1,5]
Denmark [1,2,3,4,5]	Jordan [1,5]	Paraguay [1,5]	
Dominica [1]	Kenya [1,5]	Peru [1,4,5]	

Notes: *Countries were included in the empirical work according to data availability.*
[1] *Included in the preliminary statistics for Tables 1, 6, and 7.*
[2] *Included in the historic European regressions for Table 2.*
[3] *Included in the OECD regression for Tables 3, 4, 8, and 9.*
[4] *Included in the world regressions for Tables 3, 4, 8, and 9.*

Appendix E

Source of data for samples used through the dissertation

Table E.1. *Variables and data sources*

Variables	Period	Sample	Source
Effective number of parties	1971/1990	OECD	IAEH
	1990/1996	OECD	CPE
	1980/1996	WORLD	CPE
Molinar's NP	1971/1990	OECD	IAEH
	1990/1996	OECD	CPE
	1980/1996	WORLD	CPE
Rae fractionalization index	1971/1990	OECD	IAEH
	1990/1996	OECD	CPE
	1980/1996	WORLD	CPE
Absolute number of Political Parties	1971/1990	OECD	IAEH
	1990/1996	OECD	CPE
	1980/1996	WORLD	CPE
Majority Size	1971/1990	OECD	IAEH
	1990/1996	OECD	CPE
	1980/1996	WORLD	CPE
Average district size	1980/1996	WORLD	CPE
Single member constituencies	1980/1996	WORLD	CPE
Multi member constituencies	1980/1996	WORLD	CPE
Legislative seats	1971/1996	OECD/WORLD	CPE, CW, PH
Proportional Representation	1860/1930	HIST	F, R
	1971/1996	OECD/WORLD	CPE, DPI, PSW, PT
Presidential / Parliamentary Governments	1971/1996	OECD/WORLD	PT, PSW
Federalism	1971/1996	OECD/WORLD	T, PC, PSW
Bicameralism	1971/1996	OECD/WORLD	CPE, PC
Political Party Ideology	1971/1996	OECD/WORLD	DPI
Freedom Index	1971/1996	OECD/WORLD	FH

Table E.1. *Cont.*

Variables	Period	Sample	Source
Free Countries	1971/1996	OECD/WORLD	FH
Free and Partially Free countries	1971/1996	OECD/WORLD	FH
Central government expenditure	1860/1930	HIST	EHS
	1971/1996	OECD/WORLD	WDI
Public goods expenditure	1971/1996	OECD/WORLD	WDI
Subsidies and transfers	1971/1996	OECD/WORLD	WDI
Government Capital Expenditure	1971/1996	OECD/WORLD	WDI
Government expenditure on goods and services	1971/1996	OECD/WORLD	WDI
Government wages and salaries	1971/1996	OECD/WORLD	WDI
GDP	1860/1930	HIST	EHS
	1970/1979	OECD	PWT
	1980/1996	OECD/WORLD	WDI
GDP per capita	1860/1930	HIST	EHS
	1970/1979	OECD	PWT
	1980/1996	OECD/WORLD	WDI
GDP growth	1971/1996	OECD/WORLD	WDI
Population (millions)	1860/1930	HIST	EHS
	1971/1996	OECD/WORLD	WDI
Population density	1971/1996	OECD/WORLD	WDI
Urban population	1971/1996	OECD/WORLD	WDI
Trade openness	1860/1930	HIST	EHS
	1971/1996	OECD/WORLD	WDI
Open Countries	1971/1996	OECD/WORLD	SW
Trade Openness Index	1971/1996	OECD/WORLD	G
Senior population	1971/1996	OECD/WORLD	WDI
Dependency ratio	1971/1996	OECD/WORLD	WDI
Land Area ('000 sq km)	1860/1930	HIST	EHS
	1971/1996	OECD/WORLD	WDI
Bank notes circulation	1860/1930	HIST	EHS
Emigrants per '000	1860/1930	HIST	EHS
Agricultural production	1860/1930	HIST	EHS
	1971/1996	OECD/WORLD	WDI
Ethnic fractionalization	1971/1996	OECD/WORLD	C, PT
Religious fractionalization	1971/1996	OECD/WORLD	C
Scandinavian Law	1971/1996	OECD/WORLD	E
French Law	1971/1996	OECD/WORLD	E
British Law	1971/1996	OECD/WORLD	E

Table E.1. *Cont.*

Variables	Period	Sample	Source
Protestants	1971/1996	OECD/WORLD	E
Common Law	1971/1996	OECD/WORLD	T
Year of State Formation	1971/1996	OECD/WORLD	PSW
Land Lock	1971/1996	OECD/WORLD	E
Gini coefficient	1971/1996	OECD/WORLD	DS, DK
Corruption	1971/1996	OECD/WORLD	M, T
British Colony	1971/1996	OECD/WORLD	T
Democracy 50-95	1971/1996	OECD/WORLD	T

References to sources:

C: Cox, Gary. 1997. *Making Votes Count.* Cambridge: Cambridge University Press.

CPE: Inter-Parliamentary Union. 1977-1998. *Chronicle of Parliamentary Elections.* Geneva: International Centre for Parliamentary Documentation.

CW: Maddex, Robert. 1995. *Constitutions of the World.* Washington, D.C.: Congressional Quarterly

DK: Dollar, David and Aart Kraay. 2001. Growth is Good for the Poor. World Bank Development Research Group. Downloadable from (*http://www.worldbank.org/research/growth/wpauthor.htm*)

DPI: *Database of Political Institutions.* Downloadable from (*http://paradocs.pols.columbia.edu/datavine/MainFrameSet.jsp*)

DS: Deininger, Klaus and Lyn Squire. 1996. A New Data Set Measuring Income Inequality. *World Bank Economic Review* 10 (3): 565-591

E: Easterly, William. 1999. Life During Growth. *Journal of Economic Growth* 4 (3): 239-275. Downloadable from (*http://www.worldbank.org/research/growth/ddlife.htm*)

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EHS: Mitchell, Brian. 1998. *European Historical Statistics, 1750-1993.* New York: Columbia University Press.

FH: *Freedom House Index.* Downloadable from (*http://freedomhouse.org/ratings/index.htm*)

G: Gwartney, James, Skipton, Charles, and Robert Lawson. 2000. Trade, Openness and Economic Growth. Unpublished manuscript.

IAEH: Mackie, Thomas. 1991. *The International Almanac of Electoral History.* London: Macmillan.

M: Mauro, Paolo. 1995. Corruption and Growth. *Quarterly Journal of Economics* 110: 681-712

PC: Henisz, Witold. 2000. *Political Constraints.* Downloadable from (*http://www-management.wharton.upenn.edu/henisz/*)

PH: *Political Handbook.* Downloadable from (*http://paradocs.pols.columbia.edu/datavine/MainFrameSet.jsp*)

Table E.1. *Cont.*

PT:	Persson, Torsten and Guido Tabellini. 1999. The Size and Scope of Government: Comparative Politics with Rational Politicians. 1998 Marshall Lecture. *European Economic Review* 43: 699-735. Downloadable from (*http://www.igier.uni-bocconi.it/en/data/comparative.htm*)
PSW:	Derbyshire, J. Denis and Ian Derbyshire. 1996. *Political Systems of the World.* New York: St. Martin's Press
PWT:	Heston, Alan and Robert Summers. 1995. *Penn World Tables.* Downloadable from (*http://pwt.econ.upenn.edu/*)
R:	Rokkan, Stein. 1970. *Citizens, Elections, Parties. Approaches to the Comparative Study of the Processes of Development.* New York: David McKay Company, Inc.
SW:	Sachs, Jeffrey D. and Andrew M. Warner. *Trade Openness Indicators.* Downloadable from (*http://www.cid.harvard.edu/ciddata/ciddata.html*)
WDI:	World Bank. 1999. *World Development Indicators [CD-Rom]*, Washington, DC.
T:	Treisman, Daniel. 2000. The Causes of Corruption: A Cross-National Study, *Journal of Public Economics* 76: 399-457.

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