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**The Impact of Forms of Government and  
Electoral Rules on Public Spending**

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## Prohlášení

Prohlašuji, že jsem bakalářskou práci vypracoval samostatně a použil pouze uvedené prameny a literaturu.

V Praze dne 2.6.2008

.....  
Pavel Hrbek

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## **Abstract**

This thesis studies the impact of forms of government and electoral rules on public spending. The author provides necessary knowledge base about political institutions in the first part of his thesis. Later, he introduces a theoretical model of government spending involving electoral rules in parliamentary democracies in which coalition governments have higher spending than single party governments. Moreover, government spending is affected by electoral rules only indirectly. The author supports these predictions using empirical evidence in the last part of his thesis.

JEL calssifications: H00, D72, D78.

Keywords: electoral rules, party systems, forms of government, fiscal policy.

Tato bakalářská práce analyzuje vliv vládních forem a volebních systémů na výši veřejných výdajů. Autor v první části své práce poskytuje komplexní přehled o politických institucích. Dále představuje teoretický model vládních výdajů. Model zahrnuje volební systémy v parlamentních demokraciích a poukazuje na fakt, že v nich koaliční vlády vykazují větší výdaje, než vlády jednostranické a že výše vládních výdajů jsou nepřímo ovlivněny volebním systémem. Tyto teorie jsou v poslední části práce za pomoci empirických pozorování potvrzeny.

JEL Klasifikace: H00, D72, D78.

Klíčová slova: volební systémy, stranické systémy, formy vlád, fiskální politika.

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# 1. Introduction

Political institutions are essential players in shaping economic policies. Political economists already have theoretical approaches which provide explanation for the impact of institutions on policy. The term institution as such has broad explanations and meanings such as norms and informal rules. However, in my thesis is the term institution understood as formal rule.

There are two fundamental categories of political institutions that are mentioned many times throughout my thesis because these two categories are main objects of my study. I am talking about forms of government and electoral rules. Forms of government refer to the question whether the system is parliamentary or presidential and to the way that decision making powers are divided between executive and legislature. Electoral rules refer to district magnitudes and electoral formulas that translate votes into seats. This category also refers to the rules for choosing candidates to the governing office.

Now I can state the crucial question: How do forms of government and electoral rules affect government spending? The aim of this thesis is to try to give the answer to it. I do this by providing necessary knowledge base about political institutions; by introducing a theoretical model of a parliamentary democracy where electoral rules influence government spending; and by referring to empirical evidence to support predictions.

My theoretical model is predominantly based on Persson, Roland and Tabellini (2007) which is originally studied in Persson, Roland and Tabellini (2003). I make an attempt to modify the model a little bit and instead of original four parties in legislature I use three parties. By this model I show that electoral rules have a significant effect on fiscal policy. Specifically, proportional elections are associated with larger government spending, larger budget deficit and larger welfare states, than majoritarian elections. I also show that the size of public spending is affected by the composition of government: coalition government vs. single-party government. I treat politicians as opportunistic and the policy preferences of parties as endogenous. The voters are observed to discriminate between parties which form coalition government at the elections; while they don't discriminate single-party government because they cannot differ between merged parties. This results in an electoral conflict between coalition partners in government. Therefore I cover in my model options whether the party remains a party on its own or whether the party merges with other party. These options



lead to a more fractionalized party system under proportional electoral rule than majoritarian electoral rule.

I confront my predictions with empirical data from up to 50 parliamentary democracies in the post-war period mainly presented by Persson, Roland and Tabellini (2007); with data from 83 democracies in the 1990s presented by Persson, Roland and Tabellini (2004); and with data from 85 countries from the early 1960s to the late 1990s presented by Persson, Roland and Tabellini (2002). Using these data sets I prove the indirect effect of electoral rules that proportional electoral rules induces higher government spending than majoritarian electoral rules. Indirect effect because proportional elections induces higher spending by party formation and the impact of coalition government. I also prove that a change of form of government from a parliamentary to a presidential reduces spending programs with many beneficiaries; and that presidential regime under majoritarian electoral rule produces smaller welfare spending.

The thesis is organized as follows: Chapter 2 introduces fundamental categories of political institutions for better understanding of the theoretical model in Chapter 3; Chapter 3 introduces a theoretical model of policy choices and party formation under proportional electoral rule and under majoritarian electoral rule; Chapter 4 provides empirical evidence to support theoretical predictions; Chapter 5 concludes and summarizes my findings.

## **2. Categorizing Political Institutions**

*A man is not the right subject of politics study but institutions.*

John Plamenatz

I will discuss two key features in modern constitution, electoral rules and form of government. However, many potentially important constitutional features, including judicial arrangements, sub national institutions, vertical arrangements in federations budgetary procedures, delegation to independent agencies and referenda are left out, as stressed in Persson and Tabellini (2004).

However, before I start to discuss these two aspects and before I get to the actual examination of the impact of forms of government and electoral rules on public spending, I first need to outline main features of electoral systems and provide basic political

terminology. Usually there are several possible definitions of the same term therefore I will try to provide the most cogent one.

## **2.1. Public Spending**

I will keep in line with Persson and Tabellini (2002) in defining public spending and distinguish between three types of economic policy on the beneficiary basis.

Benefits can be given to many citizens, a narrow group of citizens and a specific group of politicians. The example of benefits for many citizens could be public goods, or redistributive programs such as pensions. The second group doesn't differ much from the first one with the exception that public goods are local and redistributive programs are group-specific. The last group of economic policy creates rents for politicians. Under the term rents one can understand either salary for public officials or the financing of political parties, but also forms of corruption. The very benefits given to the politicians are the most discussed among voters and strive after limiting these rents. Unfortunately for voters, they don't succeed in this limiting.

## **2.2. Politicians**

One type of motivation of politicians is self-interest. They care only about being in office or about the rents they receive. It could be said that politicians are opportunistic because, in order to reach their goals, they implement whatever policy, only if they get what they want. From this point, there are distinguished two types of politicians: the rent-seeking politicians who care about getting rents for themselves, and the office-seeking politicians who care only about winning the elections.

A partisan politician is, as described by Persson and Tabellini (2002), a politician who care about the well-being of particular groups in society and choose policy so as to maximize a social welfare function that puts disproportionate weight on these groups.

Persson and Tabellini (2002) also add that opportunism and partisanship are not necessarily mutually exclusive because politicians may be forced to act according to a consistent ideological view in order to preserve their voters' loyalty.

## **2.3. Political Party**

A political party is the organized and voluntary association of people that makes efforts to gain a political power in elections by mutual competition. Political party intends to form a government and puts through its political ideology.<sup>1</sup>

## **2.4. Electoral System**

An electoral system is a specific method that ensures the organization of election and the recognition of election results – summary of legal, organizational, political and ethic standards. It serves for transformation of voters' votes for elective representative body formation. Electoral systems are divided into two elementary systems according to the method of seat distribution from gained votes: the majoritarian and proportional representation.<sup>2</sup>

One has to keep in mind that one electoral system that perfectly fits to a specific country will not have the same effect on party fragmentation in the legislature in other country. Reynolds and Reilly (1997) give us some examples of factors of electoral system consequences which depend on the socio-political context. For example the way the society is structured in terms of ideological, religious, ethnic, racial, regional, linguistic, or class divisions; the type of democracy, if it is an established democracy, a transitional democracy, or a new democracy; the characteristics of party, whether it is an established party system, or whether party is unformed, and the total number of parties; and also if parties are close together or spread over the area.

The electoral system is said to be the easiest manipulated political institution because the right choice of electoral system can easily determine which party will be in power. The choice of electoral system also leads to different behavior of political parties and to the way they run campaigns.

## **2.5. Coalition Government**

A coalition overall is the alliance of political parties in order to reach specific goals.<sup>3</sup> According to the purpose there are several types of coalitions: hidden coalition, open coalition and temporary coalition.

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<sup>1</sup> There are some political parties with a long history where voters support is traditional. These parties are called catch-all parties in well developed democratic states. Such parties could be Labour Party and Conservative Party (Tory) in Great Britain, Republican and Democratic Party in the USA or Christian Democratic Union (CDU)/Christian Social Union (CSU) and Social Democratic Party (SDP) in Federal Republic of Germany.

<sup>2</sup> The space between them is filled with semi-proportional system.

<sup>3</sup> One must take into consideration that each political party is following its own self-interests.

A coalition government is a joint action of two or more political parties after election that have similar program. A coalition government is formed in order to set up government.<sup>4</sup> Coalition partners have to share seats and are formed either in order to have absolute majority in parliament<sup>5</sup> or in a time of national crisis such as war. This kind of coalition is seen in countries in parliamentary regimes with proportional electoral rule. This kind of coalition is seen for example in Germany, Italy, the Nordic countries, the Benelux, Ireland and others.<sup>6</sup>

## **2.6. Formation of Government<sup>7</sup>**

A government formation isn't clear from the outcome of election and from the allocation of seats in the new legislature. There rises space for bargaining process among political parties about forming coalitions in order to make sure that the government is supported by a majority of the legislators. Parties negotiate about cabinet seats, portfolio allocation and a common policy program.

Parties are willing to form a coalition government together if they don't differ in political ideology because their costs of policy compromises are very small.

A party with a strategic position, something like a median voter, has the strongest bargaining power because, thank to its position, can form a government with any other political party. The probability of being in final government is very high.

A party with the highest number of seats in government usually acts as the agenda-setter and tries to receive the biggest payoffs. It is usually easier for governing party to reform government than for a new political party.

## **2.7. Electoral Rules**

The possible definition of an electoral rule might be that it includes the district magnitude, the electoral formula and the ballot, where a district magnitude is the number of legislators to be chosen from an electoral district. The electoral formula is the rule which governs the translation of votes into seats. The ballot structures determine how citizens cast their ballot.<sup>8</sup>

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<sup>4</sup> However majority government formed by a single party is more stable.

<sup>5</sup> Because neither party would gain majority in the parliament.

<sup>6</sup> A historic example of coalition government after elections in 2002 in the Czech Republic. The coalition government was formed by Czech Social Democratic Party (ČSSD), Christian Democrats (KDU-ČSL) and Freedom Union-Democratic Union (US-DEU).

<sup>7</sup> For further information see L.Ederberg, M.Tjernström and R.Kennedy (2006)

<sup>8</sup> A common possibility of recording votes is that the vote is a single mark.

## 2.7.1. Majoritarian Electoral Rule

Majoritarian system is older than proportional system, discussed later, and is typical for Anglo-Saxon countries.

The core of majoritarian system is that only winning political party or candidate wins seats. Sometimes this system is blamed for lack of representation of real composition of nation. A nonwinning party will not get any seat even though it has a high number, but not sufficiently enough, of votes. Therefore this system is generally used for elections to one man office holder such as president, governor, mayor, etc.

There are three basic types of majoritarian system: electoral system of simple majority; electoral system of absolute majority; and the less used and very specific, electoral system of alternative voting. I will discuss a little bit the first two types.

Electoral system of simple majority is the simplest electoral system. This system is in most cases used in one seat electoral district. The winner, also called first past the post<sup>9</sup> is a candidate who gets the highest number of votes. It does not have to be necessarily more than 50% of votes. Usually the sufficient percentage is around 30% of votes depending on the number of candidates.

Electoral system of absolute majority is an electoral system in which the candidate needs to get the absolute majority of votes, which is more than 50% of votes, in electoral district. There are many voting rounds possible but the most common is the two round voting (two-ballot, runoff election). This two round voting happens when in the first round, which is very common, no candidate is elected. In most cases just the first two most successful candidates pass on to the second round. There are various conditions and combinations possible to be put on the access to the second voting round.<sup>10</sup>

### 2.7.1.1. Countries with Majoritarian Electoral Rule:

Australia, Bahamas, Bangladesh, Barbados, Belarus, Belize, Botswana, Canada, Chile, France, Gambia, Ghana, India, Jamaica, Malawi, Malaysia, Mauritius, Nepal, Pakistan, Papua New Guinea, Singapore, St. Vincent&Granada, Thailand, Trinidad&Tobago, USA, Uganda, UK, Zambia, Zimbabwe

Source: Persson and Tabellini (2002) Table 4.2

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<sup>9</sup> This term is an analogy to horse racing, where the winning horse is the first to pass the finish.

<sup>10</sup> For example in France each candidate needs to get at least 12.5% of votes in the first round in order to pass on to the second.

## 2.7.2. Proportional Electoral Rule

The basic principle of proportional system is the correspondence between gained votes and received seats. In other words it should guarantee the equality of percentage number of seats to percentage number of votes.<sup>11</sup> This system is probably the most common and is used for parliamentary voting, municipal council voting, etc.

Mathematical equations that convert votes into seats are used, in order to get the final result of who gets how many seats. There are two general types of proportional electoral system. The very most used type is the party list system which is then divided according to the type of ballot. The next less used type is proportional voting system of single transferable vote.

Party list system is further divided according to how much voters can influence the order of candidates in the ballot. Therefore there are two variations of party list system; open and close ballots. In open ballots voters can influence the order of candidates and the close one cannot.

Under the single transfer vote no party list is used but voters vote for specific candidate. A voter has just one vote but in the ballot can write preferences of favorite candidates.<sup>12</sup> This single transfer vote allows voting for individuals and also proportional voting. In the same time the quality of candidates are taken into account without considering their party classification.

### 2.7.2.1. Countries with Proportional Electoral Rule:

Argentina, Austria, Belgium, Bolivia, Brazil, Bulgaria, Colombia, Costa Rica, Cyprus (G), Czech Republic, Denmark, Dominican Republic, Ecuador, El Salvador, Estonia, Finland, Germany, Greece, Guatemala, Honduras, Hungary, Iceland, Ireland, Israel, Italy, Latvia, Luxembourg, Malta, Mexico, Namibia, Netherlands, Nicaragua, Norway, Paraguay, Peru, Poland, Portugal, Romania, Russia, Senegal, Slovak Republic, South Africa, South Korea, Spain, Sri Lanka, Sweden, Switzerland, Taiwan, Turkey, Uruguay, Venezuela,

Source: Persson and Tabellini (2002) Table 4.2

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<sup>11</sup> An interesting remark by Norris (2004), Chapter 1, is that more women are usually elected to office under proportional than majoritarian electoral systems

<sup>12</sup> At least one preference must be marked.

## **2.8. Political Regimes**

In a political science is the question of political regimes well discussed and very controversial. However this topic is very important because it concerns with various methods of forming state organs which define forms of government and determine state functioning.

A political regime could be understood as normative subsystem of political system. It means that system principles, formal and informal rules of game could be included. As for function of political regime, it can be said that it sets limits of political activity freedom. Basically it is a set of norms and its subject, and the way these norms are exercised.

From the definition one could comprehend such political regime in one way and somebody else the other way round. There are four most common dichotomic conceptions: democratic and autocratic, consensual and majoritarian, parliamentary and presidential, authoritative and totalitarian. In my thesis I will consider the presidential and the parliamentary, because these two are the main forms of government in democratic states.

### **2.8.1. Parliamentary System**

A parliamentary system, also called parliamentarianism, is one of the most common regimes among democratic countries. The executive branch and the legislative branch are hard to separate, because the executive branch depends on the support of the legislative branch. They cooperate when decision is being made and support each other. Therefore the parliament directly influences the executive branch, because government can work only if representative body has a confidence in it. While the head of state, the president, and the head of government, the prime minister, are clearly divided. Although the head of state is not in most cases elected directly and the prime minister enjoys the support of leading party in legislature for being elected.

The fundamentals of parliamentary regime can be summarized in political accountability of government in face of government, the participation of government in law creation process, and the right of the head of state to dissolve parliament under certain circumstances. However, the head of state is separate from premier or chancellor. The composition of government must be accepted by parliament, although the head of state nominates to a post the prime minister and ministers.

Sartori (2001) classifies parliamentary regimes according to relation between premier and the rest of the government. He sees premier as the first one above unequal. It means that premier cannot be removed from office by parliamentary voting because he nominates and calls off members of cabinet. The second relation is that the premier is the first among

unequal which means that premier is hardly deprivable by parliament and that he changes the composition of cabinet. The last relation is the first among equals which means that premier has a little control over his ministers and has to accept the composition of government.

Other classifying of parliamentary regimes could be according to the relation between the government and parliament. There can be then premier parliamentarism where government dominates parliament. The opposite thing is parliamentarism with prevalence of legislature. In the middle is so called party controlled parliamentarism.

The opponents of parliamentary system usually claim that there is a lack of control over the legislative power due to inefficiency of opposing and veto legislation which was passed by the parliament.

There are known two forms of parliamentary democracies. The first one, characteristic for its consensual debating method, is called Western European Parliamentary Model and is used for example in Germany. The second one, characteristic for its aggressive method of discussion, is called Westminster Model. This model is in use in a number of Commonwealth nations.

#### 2.8.1.1. Countries with Parliamentary Regime:

Australia, Austria, Bahamas, Bangladesh, Barbados, Belgium, Belize, Botswana, Bulgaria, Canada, Czech Republic, Denmark, Estonia, Fiji, Finland, France, Germany, Greece, Hungary, Iceland, India, Ireland, Israel, Italy, Jamaica, Japan, Latvia, Luxembourg, Malaysia, Malta, Mauritius, Nepal, Netherlands, New Zealand, Norway, Papua New Guinea, Poland, Portugal, Romania, Senegal, Singapore, Slovak Republic, South Africa, Spain, St. Vincent&Granada, Sweden, Taiwan, Thailand, Trinidad&Tobago, Turkey, UK, Ukraine

Source: Persson and Tabellini (2002) Table 4.2

#### 2.8.2. Presidential System

A presidential regime from the parliamentary one differs. A presidential system, also known as a congressional system, is one of the main forms of government in democratic countries.

In presidential systems there is exact separation of executive power from legislative power which is the most important condition of this system. It means that parliament has absolute power over legislation but has no executive means. Unlike president has absolute executive power but has no legislative one. In order not to have one power stronger than the other there is a system of so called checks and balances which is a mutual limitation of



legislative and executive powers. The executive branch is elected separately from the legislature and is not accountable to it. To make it clearer it means that president needs an approval of parliament when decisions are being made. The same counts for parliament. A parliament when passes bill needs an agreement from president. A directly elected president<sup>13</sup> is not only a head of the state, but also a head of the government in the same time. President establishes members of government and other administrative officials.

Defenders of presidential system usually highlight four advantages. First is stability because president is in office for a fixed term. Second is separation of powers because the presidency and the legislature, both watch over one another.<sup>14</sup> The third one is direct mandate because the direct election supports legitimacy. The last one is speed and decisiveness because president can react to emerging situation quicker than parliament.

#### 2.8.2.1. Countries with Presidential Regime:

Argentina, Belarus, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cyprus (G), Dominican Republic, Ecuador, El Salvador, Gambia, Ghana, Guatemala, Honduras, Malawi, Mexico, Namibia, Nicaragua, Pakistan, Paraguay, Peru, Philippines, Russia, South Korea, Sri Lanka, Switzerland, USA, Uganda, Uruguay, Venezuela, Zambia, Zimbabwe

Source: Persson and Tabellini (2002) Table 4.2

#### 2.8.3. Political Regimes Remarks

Persson, Roland and Tabellini (1996) provide a result to a difference between Presidential and Parliamentary democracies. They say that “the procedure for appointing the executive is direct in presidential system, but indirect, through the legislature, in a Parliamentary system.” In other words in a presidential regimes the executive is elected directly by the citizens whereas in parliamentary regime the government, as the executive, is appointed by elected parliament.

An interesting distinction between presidential and parliamentarian regime is that under presidential is the date of election fixed, while under parliamentarian regime is not.<sup>15</sup>

Persson, Roland and Tabellini (1997) mention about two executive differences between presidential and parliamentarian regime. They say that in parliamentary regime, where parliamentary majority supports the executive power, executive is indirectly accountable to the electorate while in presidential regime the executive is elected directly. The

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<sup>13</sup> President is usually elected directly by the people, less commonly by the legislature.

<sup>14</sup> It is sometimes criticized because neither the president nor the legislature wants to take full liability for taken action.

<sup>15</sup> with some exceptions as Norway

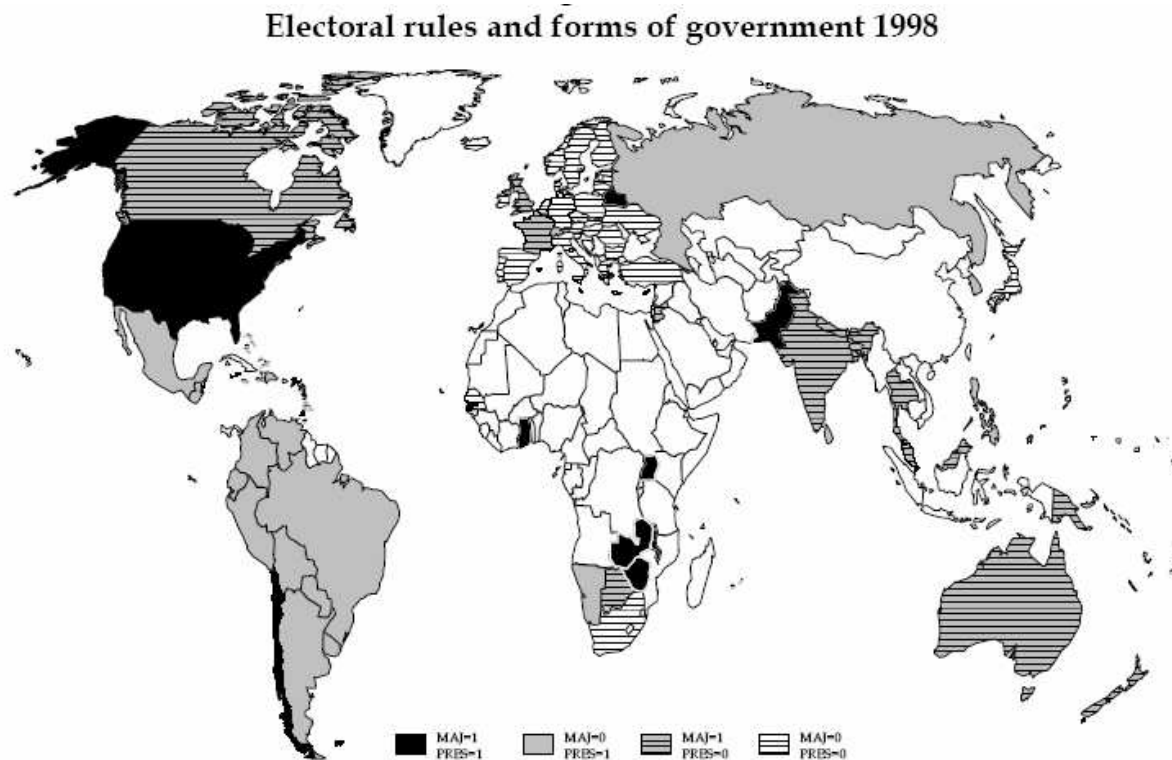
second executive difference is that the president is a single person executive, in parliamentary systems there are collective executive which include politicians supported by coalition of constituencies and by parties.

Another difference concerns to the agenda setting powers over legislation. In presidential systems, the congressional committees take care of it so that president has full executive powers and smaller agenda-setting powers whereas in parliamentary system it is the cabinet ministries so that government has executive powers and acts as the agenda setter, initiating all major legislation and drafting the budget. (Persson and Tabellini (2004))

Also the degree of legislative cohesion is different under both regimes. In presidential system the legislative majorities change issues quite often, while in parliamentary system representatives from coalition parties in government almost don't differ in voting on legislative proposals.

In *Figure 2.1* below I illustrate the world map with combinations of political systems and electoral rules in the year 1998<sup>16</sup> from 85 countries. Presidential regimes are presented as striped areas, and parliamentary regimes as solid areas. Majoritarian elections are indicated with darker shade and lighter shade indicates proportional elections.

*Figure 2.1*



Source: Persson and Tabellini (2002), Figure 4.1

<sup>16</sup> The last year of data included in the cross-sectional average for the 1990s. Persson and Tabellini (2002)

## 2.9. Political Accountability

*“Where the control of officials is weak, one would not expect citizens to allow officials to command many resources.”*

John Ferejohn

Political accountability refers to the constraints placed on the behavior of public officials by organizations and constituencies with the power to apply sanctions on them. As political accountability increases, the costs to public officials of taking decisions that benefit their private interests at the expense of the broader public interest also increase, thus working as a deterrent/disincentive to corrupt practices. (The World Bank)

Accountability thus means that voters are able to easily identify and monitor private interests of public officials, then who is responsible for policy decision making, actions taken, and get rid of those officeholders whose performance is inefficient.<sup>17</sup>

Transparency is one feature that identifies the degree of accountability. One could look at the relationship between citizens and governments as at principal-agent relationship. Principals, represented by voters, choose their leaders, the governments representing the agents. The World Bank says that transparency via public scrutiny has proven to be one of the most powerful forms of monitoring public officials.<sup>18</sup>

In electoral rules is the tradeoff between representativeness and accountability very sharp. Under plurality rule politicians are forced to be accountable while under proportional representation to represent different voters in the legislative process. I observe a similar tradeoff in forms of government. A presidential regime is highly accountable, because its executive powers are directly accountable to voters and because it provides checks and balances by a clear separation of executive and legislative prerogatives. On the other hand a parliamentary regime is highly representative because in the legislature there can be a heterogeneous coalition.<sup>19</sup>

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<sup>17</sup> An interesting role in political accountability plays mass media. A government is more accountable and responsive to its citizens' needs when a mass media monitor the actions of incumbents. Many times the broadcasted information by mass media plays a very important role in voters voting decisions because many times citizens have imperfect information about the government actions and therefore they have biased opinions.

<sup>18</sup> Such transparency can be fostered by a number of measures, including: opening sessions of the parliament, government, and the courts to the public; registering lobbying activities; and publishing the voting records of parliamentarians, annual reports of government bodies, trial records, and the decisions of judges.

<sup>19</sup> For further references see Persson and Tabellini (2002)

## 2.10. Political Representation

*...and whenever the People shall chuse their Representatives upon just and undeniably equal measures suitable to the original Frame of the Government, it cannot be doubted to be the will and act of the Society, whoever permitted, or caused them so to do.*

John Locke

Political representation is intuitively clear but there is one crucial problem. The problem is whether representatives should act as delegates or trustees. A representative who acts as delegate follows the expressed preferences of his/her voters in order to be elected and voters by the vision of fulfilling of these promises vote for them. In case that the representative fail and doesn't fulfill what he promised, voters will punish him/her by taking him/her out of office in next election.

On the other hand a representative who acts as trustee follows his/her own judgment and best of knowledge so that he/she proceeds the best action. However, the delegate representative and the trustee representative, they both behave differently and in many cases act controversially. Pitkin (1967) on this account concludes that standards for evaluating representatives are in contrary with generalizations, and moreover that democratic citizens are likely to disagree about what representatives should be doing.

Rehfeld (2008) claims that there is no particular ethics of what representatives should do on account of political representation. He argues that to "treat the trustee and delegate problem as unique or even particular to political representation is a conceptual error", because the traditional distinction between them obscures a more complex conceptual level such as: the aims of legislation; the proper source of judgment lawmakers should rely on when voting on law; and the motivations they use to act.

Mansbridge (2008) replaces the traditional delegate and trustee concept with her own four ideal types of political representation in modern democracies, by which she provides different methods that democratic citizens could be represented within a democratic regime. She does so because she claims that the terms trustee and delegate were used in 18<sup>th</sup> century and that these terms nowadays already lost their real meaning. She describes the political representation as legitimate forms of representation and the four ideal types are: promissory, anticipatory, gyroscopic and surrogate. However representatives don't act purely as one type but they mix them.

Representation of parliament could be characterized in three forms as described by Reynolds and Reilly (1997). These forms are: geographical representation which says that members of parliament are ultimately accountable to the area they are chosen for by a region;<sup>20</sup> functional representation of a parliament which means that this system should reflect the will of the people, the party-political situation and ideological division within society; and descriptive representation which is sometimes called as a “mirror of the nation” because it should reflect a spectrum of all characteristic features of the nation.

### 3. The Model

My analysis of government spending in parliamentary democracies under proportional and majoritarian electoral rule is predominantly based upon studies of Persson, Roland and Tabellini (2007). These studies are originally in Persson, Roland and Tabellini (2003) with the exception that the original study examines a more general case where parties have a skewed distribution of their voters across districts. In my analysis I will follow and slightly modify the most recent model presented by Persson, Roland and Tabellini (2007)<sup>21</sup> by using only three parties in whole legislature instead of four.

I begin with a standard economic policy setting of special-interest politics.

Let's assume that population is consisted of 3 economic groups, of equal size normalized to unity, and indexed by  $J$ . Preferences of each individual from group  $J$  are:

$$V^J(\mathbf{g}) = 1 - \tau + H(g^J). \quad (3.1)$$

Where  $\tau$  is a head tax  $\tau \geq 0$ ,  $g^J$  is a local public good benefiting economic group  $J$ ,  $H$  is a well-behaved concave utility function and  $\mathbf{g}$  is the policy instruments vector. Income of individual is normalized to 1 for all individuals. The government budget constraint equates total tax revenue to total spending:

$$3\tau = \sum_J g^J. \quad (3.2)$$

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<sup>20</sup> Region could be a province or an electoral district, a town or a city.

<sup>21</sup> They simplify many assumptions and admit that their model isn't a general theory but an “example of the forces at work.”

<sup>22</sup> Persson, Roland and Tabellini (2003) add, in their model for 4 political parties in legislature, political rents,  $4\tau = \sum_J g^J + \sum_P r^P$ . I don't add it because as it is shown in Persson, Roland and Tabellini (2006) and (2007), the results are about to be the same.

The vector of policy instruments,  $\mathbf{g} = [\tau, \{g^j\}]$ , induces a conflict of interest among economic groups over the allocation of the (targeted) spending on local public goods,  $\{g^j\}$ .

### 3.1. The Political System

Persson, Roland and Tabellini (2007) look at the political system as at a multistage game where all stages happen in one electoral period. The game has four stages. The first stage, a party formation stage, is when the three political parties can either form separate parties or merge into larger parties. The second stage, a government formation stage, is when a government is formed. The third one, a policy formation stage, is when a government sets economic policy. And finally the fourth stage, an election stage, is when voters vote according to their welfare. In my study I compare equilibrium under proportional and majoritarian elections because the electoral rule is the only institution that changes in this game.

#### 3.1.1. Party Formation

The legislature consists of three political parties,  $P=1,2,3$ , each representing one of the economic groups.<sup>23</sup> I assume that each party has an initial seat share of 1/3, as discussed below. Parties make a strategic decision whether to act as a separate party or whether to merge.<sup>24</sup> In case of merging, both parties must agree to merge. With this assumption I get for my three parties these outcomes. A three-party system ( $P=1,2,3$ ), and a two-party system ( $P=12,3$ ,  $P=1,23$  or  $P=13,2$ ). The possible party configurations are denoted as  $N=II_{12}$ ,  $II_{23}$ ,  $II_{13}$ ,  $III$ , where  $N$  stands for equilibrium number of parties. In my analysis I allow party merging and coalitions only between two parties, therefore  $N=I$  is from my model excluded.<sup>25</sup> By notation  ${}_N W^P$ , I will understand the expected payoff of party  $P$ , at the start of the period. If the party  $J$  is a separate party in legislature, then its expected payoff is the same as the expected payoff of the party in coalition  ${}_N W^J = {}_N W^P$ , with  $P = J$ . If two parties merge, then each one expects to get one half of the expected payoff from the merged party  ${}_N W^J = \frac{1}{2} {}_N W^P$ .

<sup>23</sup> Since I want to have the period to be symmetric I should have in each period the same number of parties in legislature. This is violated in a case of merging parties because voters are not able to discriminate between merged parties as discussed later. On the other hand merged parties can split again after elections. The equilibrium outcome will be the same.

<sup>24</sup> Persson, Roland and Tabellini (2003), (2006) and (2007) simplify, in their 4-party system, the strategy by only allowing mergers between groups 1 and 2, and groups 3 and 4 respectively. Thus they get three outcomes of polar cases: a two-party system ( $P=12$  and  $P=34$ ), a four-party system ( $P=1,2,3,4$ ), and a three-party system ( $P=12,3,4$  or  $P=1,2,34$ ). This could be put through a critique because they don't put much weight on parties 2 and 3.

<sup>25</sup> It could be justified by diverse ideology of each party, but this is not explicitly modeled in my analysis.

### 3.1.2. Government Formation

Each party  $P$  can be either in a single-party government ( $G=S$ ), in a coalition government ( $G=C$ ), or outside of government ( $G=O$ ) at the government formation stage. One has to take into account that a government needs the support of at minimum half of the legislature. Thus, a government is always formed and each party is included in government with a probability equal to its seat share in the legislature. (Persson, Roland and Tabellini (2007)) The minority governments and surplus coalitions are not taken into account by assumption.

### 3.1.3. Policy Formation and Payoffs

First, one has to keep in mind that parties are opportunistic, so they care only about seats in the next legislature. Then, each party  $P$  with government status  $G$  and with the expectations operator  $E(\cdot)$  that refers to the electoral uncertainty remaining at the policy formation stage, wants to maximize its expected seat share,  $E(s_G^P)$ . The expected seat share for  $N$  parties in legislature is then denoted by  $E({}_N s_G^P)$ .

In order to reward the party for being in government and thus create a trade-off in the choice whether to merge Persson, Roland and Tabellini (2007) add a benefit<sup>26</sup>  $R_G$  from being in government. They treat this benefit as exogenous and assume that  $R_S < 2R_C$ . This means that total value of being in coalition government for two small partners exceeds the value of being in single-party government for a large party. By this they want to say that a party in coalition that has a specific power over cabinet portfolios sets such policy that would benefit the party itself. Thus the expected payoff of party  $P$  in a government of type  $G$  is:

$${}_N W_G^P = R_G + E({}_N s_G^P) \cdot 1, \quad (3.3)$$

where the second term on the right hand side is the expected seat share of re-elected government which is multiplied by one as a continuous value. The expected payoff of party out of government is just the expected seat share in opposition:

$${}_N W_O^P = E({}_N s_O^P). \quad (3.4)$$

If the government is led by a single party, the party is the only player that sets the policy instruments  $\mathbf{g}$ . Conflict of interest inside the single party government disappears,

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<sup>26</sup> Persson, Roland and Tabellini (2007) don't say where this benefit comes from. Intuitively one could expect that benefit is paid to the party in government from taxes but because they treat the benefit as exogenous it can be assumed that this benefit stands for some ego rent or that tax for rent for party in government is negligible for individual voter.

because voters can reward or punish the single party as one unit, yet to be described. If the government is held by a coalition, then each party of the coalition has its own different view on how the spending in local public goods,  $\{g^J\}$ , should be allocated. Each member of the coalition has unilateral decision making power over the specific public goods benefiting the economic group represented by the party. Next assumption is that a coin is tossed among coalition members about who will choose the spending on the public goods that will benefit parties out of government, because it isn't important who controls these policy instruments. I will suppose that tax revenues  $\tau$  are residually determined in order to have balanced budget after decisions making about spending. While in this pre-electoral stage it is only intuitively expected that coalition governments face a common-pool problem,<sup>27</sup> in policy formation, in post electoral-stage, this is to be evident.

### 3.1.4. Elections and Voters

I consider voters to vote sincerely and purely retrospectively<sup>28</sup> based on economic considerations and that punish or reward the incumbent government according to their individual utility. If their individual utility is above a given reservation utility level, then voters reward the incumbent government and if it is below then they punish the incumbent government. However, ideology is also important because voters are always attached more to their own party than to other parties. In other words, voters in group  $J$  reward their own party  $J$  more often than other parties. Specifically, voter  $i$  in group  $J$  votes for group of legislators  $J$  when the group is in government, if:

$$V^J(\mathbf{g}) \geq \omega^i + \delta + V^{*J}. \quad (3.5)$$

The voter will vote for opposition in opposite case. To explain this equation a little bit more, let's assume that party  $P = 1+2$ , where  $J = P$  forms a coalition government. Then if (3.5) holds, voter  $i$  votes for such party that represents him/her and not for the coalition partner party to which he/she isn't ideologically attached.<sup>29</sup> In case that the inequality (3.5) turns the other way, voter  $i$  votes for opposition. This creates a conflict among parties in a coalition government. A political party  $P$  in government will please voters that represents, rather than group of voters represented by the coalition partner. In case that party  $P$  isn't in government and the inequality (3.5) holds, then a vote of individual  $i$  is given to the parties in

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<sup>27</sup> For further information about common pool problem see Persson and Tabellini, Political Economics (2002) Chapter 7.

<sup>28</sup> There is then an electoral commitment from previous elections.

<sup>29</sup> At least some voters are ideologically attached to a party, and are able to discriminate between parties in a coalition government.



coalition with the same probability. If the inequality (3.5) doesn't hold then voter  $i$  votes for party  $J$ . If party  $P = 12$ , where  $J = P$  forms a government of merged parties and if (3.5) holds, then voter  $i$  votes for both parties if he/she likes it or not because they appear as one party. In opposite case voter  $i$  votes for opposition.

The swing voter  $\omega^i = V^J(\mathbf{g}) - V^{*J} - \delta$  in any group  $J = 1,2,3$ , is defined as indifferent between voting either for government party or for opposition party. If some voter in the same group has a value greater than  $\omega^i$ , then the voter votes for the party in opposition. The cumulative distribution function of  $\omega^i$  is denoted as  $F(\cdot)$ . Thus the fraction of voters in group  $J$  voting for the party in government is  $F(V^P - V^{*P} - \delta)$  and for the opposition votes the complement to one.

The terms in equation (3.5) are as follows:  $\omega^i$  is an individual component of reservation utility that is uniformly distributed within each group of voters representing individual attachment to a party, with mean zero and density  $\phi$ ;  $\delta$  stands for a random shock to the popularity of the opposition that is common to all voters. Let's assume  $\delta$  to have uniform distribution with mean zero and density  $\psi$ . So the dispersion of voters' bias within each group is measured by  $\phi$ , it also determines the responsiveness of voters to policy favors.  $\psi$  is a measure of aggregate mobility between governments and opposition; the last term  $V^{*J}$  is equal to  $V^J(\mathbf{g}_G^*)$ , where  $\mathbf{g}_G^*$  is the equilibrium policy vector for a given type of government, given party structure and given electoral rule.

From these assumptions stated above one may get an intuitive idea that in the equilibrium on average half of the voters vote for the incumbent government and half for the opposition. The incumbent government knows the distributions for  $\omega^i$  and  $\delta$  during policy setting but the aggregate popularity shock is for incumbents not revealed.

Voters vote retrospectively, as it is mentioned earlier in the text, and through this, voters can influence the composition of government. On the other hand the incumbent government can choose different  $\mathbf{g}$ , by which they change the voters' welfare. Persson, Roland and Tabellini (2007) believe that it is important to model professional politicians as strategic and fully rational. However, voters are not modeled as fully rational and strategic players.

## 3.2. Policy Choices under Proportional Electoral Rule

Under proportional election each party receives, according to its vote share the same amount of seat share. Thus expected vote shares and seat shares are equal,  $E(v_G^P) = E(s_G^P)$  and therefore the assumption about expected seat-share maximization can be represented as expected vote-share maximization.

### 3.2.1. Single Party Government

Without loss of generality, any combination of two parties would have the same qualitative predictions. Suppose then, that party  $P = 12$  is in government and party  $P = 3$  is in the opposition. The overall vote share of the government party is:

$$v_S^P = \frac{1}{3} \left[ \sum_{J=1}^3 F(V^J - V^{*J} - \delta) \right], \quad (3.6)$$

The sum is multiplied by 1/3 because each economic group represents one third of the electorate. A swing voter's distribution function,  $F(\omega) = \frac{1}{2} + \phi\omega$ , is uniform and same in each group. Let's see what this distribution function says in case of single party government.

Let's consider a single party government formed by parties  $P = 12$ . The first economic group  $J = 1$ , under the assumption of  $V^J = V^{*J}$ , then reward with probability 1/2 both governing parties, because it cannot reward just its own party, and with probability 1/2 the opposition party. The same scenario is for the second. For the third group the group votes with probability 1/2 for opposition and also for single party government.

If I consider now that at the time of policy setting, the expected value of the popularity shock is equal to zero, then I can calculate the expected vote share for party  $P$  as:

$$E(v_S^P) = \frac{1}{2} + \frac{\phi}{3} \sum_{J=1}^3 (V^J - V^{*J}). \quad (3.7)$$

*Derivation:*

$$\begin{aligned} E(v_S^P) &= E \left[ \frac{1}{3} \sum_{J=1}^3 F(V^J - V^{*J} - \delta) \right] = E \left[ \frac{1}{3} \sum_{J=1}^3 F(\omega^i) \right] = \frac{1}{3} E \sum_{J=1}^3 \left( \frac{1}{2} + \phi\omega \right) = \frac{1}{3} \left[ E \left( \sum_{J=1}^3 \frac{1}{2} + \sum_{J=1}^3 \phi\omega \right) \right] = \\ &= \frac{1}{3} \cdot 3 \cdot \frac{1}{2} + \frac{1}{3} E \left( \sum_{J=1}^3 \phi\omega \right) = \frac{1}{2} + \frac{\phi}{3} \sum_{J=1}^3 E(\omega) = \frac{1}{2} + \frac{\phi}{3} \sum_{J=1}^3 E(V^J - V^{*J} - \delta) = \\ &= \frac{1}{2} + \frac{\phi}{3} \sum_{J=1}^3 \{ E(V^J) - E(V^{*J}) - E(\delta) \} = \frac{1}{2} + \frac{\phi}{3} \sum_{J=1}^3 (V^J - V^{*J}) \end{aligned}$$

■

From the equation it is visible that the expected vote share for party  $P$  in government is continually proportional to the weighted indirect utilities of all voters. Each group gets the same weight and measures the response of the expected seat shares to economic policy. In the equilibrium  $V^J = V^{*J}$  for all  $J$  is the expected seat share for the party in government at the party formation stage:  $E(v_S^P) = \frac{1}{2}$ . This result is also visible right away from the distribution function if each economic group's votes are realized to be weighted by one third. If the assumptions of the equilibrium with rational expectations that  $V^J = V^{*J}$  for all  $J$  and that  $E(\delta) = 0$  are added; and the weighted votes to the expected votes are converted, I obtain that the expected vote shares are exactly equal for a single party in government and for the party in opposition:  $E({}_{II} s_S^P) = E({}_{II} s_O^P) = \frac{1}{2}$ . This must also hold from the symmetry of the model.

If (3.7) is maximized with taking into account conditions (3.1) and (3.2) then I get the equilibrium policy:

$$g_S^{*J} = H_g^{-1}(1), \text{ all } J. \quad (3.8)$$

*Derivation:*

$$g^* = \arg \max \sum_{J=1}^3 V^J, \text{ where } \sum_{J=1}^3 g^J = 3\tau$$

$$\sum_{J=1}^3 V^J = 3 \cdot (1 - \tau) + 3 \cdot H(g^J) = 3 - 3\tau + 3H(g^J) = 3 - \sum_{J=1}^3 g^J + 3H(g^J) = 3 - 3g^J + 3H(g^J)$$

$$\frac{\partial \sum_{J=1}^3 V^J}{\partial g} = \frac{\partial (3 - 3g^J + 3H(g^J))}{\partial g} = 0$$

$$-3 + 3H(g^J) \cdot g^J = 0 \Rightarrow 3H(g^J) \cdot g^J = 3 \Rightarrow g^J = \frac{1}{H(g^J)}$$

$$g^J = H^{-1}(g^J)$$

■

From the equation of policy equilibrium is seen that there is no overspending on groups represented in government not even on groups represented in opposition. It is because single-party government is not subject to an electoral common-pool problem since voters treat the single-party as an entity.

### 3.2.2. Coalition Government

Consider, without loss of generality, parties 1 and 2 form a government and party 3 is in opposition. The individuals in group  $J = P$ , where  $P = 1$  or 2 is one of the parties in

government. Using the reasoning for voters, the fraction of voters  $F(V^P - V^{*P} - \delta)$  is in group  $J = P$  voting for party  $P$  and  $1 - F(V^P - V^{*P} - \delta)$  is the fraction of voters who votes randomly for parties in the opposition. The vote share for each party and the seat share in the next legislature for each party, in coalition government,  $P = 1+2$  is:

$$v_C^P = \frac{1}{3} \left[ F(V^P - V^{*P} - \delta) + \frac{1}{2} F(V^3 - V^{*3} - \delta) \right]. \quad (3.9)$$

Let's explain what the equation says. The whole term in square brackets is multiplied by  $1/3$  because I deal with 3 parties in legislature. The first term in square brackets is the share of satisfied reservation utility of voters in group  $P$ . The second term reflects the share of satisfied voters from the out-of-government group  $J=3$ . This second term is multiplied by  $1/2$  because the group out-of-government split their vote with the same proportion between the two parties in the coalition in government. From the equation it can be seen that parties in governing coalition get all votes from their own groups but none of the votes from the group of its coalition partner. This results into conflict between coalition partners. Thus the expected vote share for party  $P$  is:

$$E(v_C^P) = \frac{1}{4} + \frac{\phi}{3} \left[ (V^P - V^{*P}) + \frac{1}{2} (V^3 - V^{*3}) \right]. \quad (3.10)$$

From the expression it is notable that a group represented by a party in the opposition has half the weight of the groups that are represented by a party in government.

*Derivation:*

$$\begin{aligned} E(v_C^P) &= E \left\{ \frac{1}{3} \left[ F(V^P - V^{*P} - \delta) + \frac{1}{2} F(V^3 - V^{*3} - \delta) \right] \right\} = \frac{1}{3} E \left[ F(\omega^P) + \frac{1}{2} F(\omega^3) \right] = \\ &= \frac{1}{3} \left[ E(F(\omega^P)) + \frac{1}{2} E(F(\omega^3)) \right] = \frac{1}{3} \left[ E\left(\frac{1}{2} + \phi\omega^P\right) + \frac{1}{2} E\left(\frac{1}{2} + \phi\omega^3\right) \right] = \\ &= \frac{1}{3} \left[ \frac{1}{2} + \phi E(\omega^P) + \frac{1}{2} \cdot \frac{1}{2} + \frac{1}{2} \phi E(\omega^3) \right] = \frac{1}{3} \cdot \frac{1}{2} + \frac{\phi}{3} E(V^P - V^{*P} - \delta) + \frac{1}{3} \cdot \frac{1}{4} + \frac{\phi}{6} E(V^3 - V^{*3} - \delta) = \\ &= \frac{1}{4} + \frac{\phi}{3} [E(V^P) - E(V^{*P}) - E(\delta)] + \frac{\phi}{6} [E(V^3) - E(V^{*3}) - E(\delta)] = \\ &= \frac{1}{4} + \frac{\phi}{3} \left[ (V^P - V^{*P}) + \frac{1}{2} (V^3 - V^{*3}) \right] \end{aligned}$$

■

If I follow the steps about the distribution function of a swing voter and assume that a coalition government forms parties  $P = 1+2$ . The first economic group  $J$  then reward with probability  $1/2$  its own party governing party, with probability  $0$  its coalition partner and with probability  $1/2$  the opposition party. The same scenario is for the second group. The third group

also rewards with probability of  $\frac{1}{2}$  the opposition party, but in case of governing parties, the third group rewards indifferently the whole coalition with probability of  $\frac{1}{2}$ .

If one realizes now that each economic group's votes are weighted by one third. Then if the assumptions of the equilibrium with rational expectations that  $V^J = V^{*J}$  for all  $J$  and that  $E(\delta) = 0$  are added; and the weighted votes are converted to the expected votes, like in a single party example, the expected vote shares for each party in coalition government is

$E({}_m s_C^P) = \frac{1}{4}$ . It is because of the possibility of voters to discriminate the coalition partner of its own party and because the coalition government equally split the votes from group of voters who are represented by opposition party. As for the seat shares for the party in opposition, I get interestingly  $E({}_m s_O^P) = \frac{1}{2}$ . These results come from the symmetry of the model.

To derive the equilibrium policy I need the party in the coalition to set  $g^J$ ,  $J = P$ , in order to be able to maximize (3.10) under condition of (3.1), (3.2) and given the choice of its coalition partner. As it is mentioned above in the text, the coalition partners are indifferent to who sets the spending on the groups out-of-government, because they both agree over it. Therefore party  $P = 1$  or  $2$  will optimize with respect to  $g^J$ ,  $J \neq 1 + 2$ .

The equilibrium policy under the conditions for spending is:

$$g_C^{*J} = \begin{cases} H_g^{-1}\left(\frac{1}{2}\right) & \text{if } J = 1,2 \\ H_g^{-1}(1) & \text{if } J = 3 \end{cases} \quad (3.11)$$

Here in coalition government is the allocation of local public goods different from allocation in a single-party government due to retrospective voting. Those groups which are represented in government by coalition have higher gains from spending on local public good in comparison to those groups represented by single-party. In a coalition government there is an electoral common-pool problem because the local public goods are chosen unilaterally by members of coalition and because coalition partners don't care about coalition partner's voters. The necessary financing comes out of taxes levied on all groups, and the resulting electoral losses are partly borne by the coalition partner. (Persson, Roland and Tabellini (2007)) It means that coalition partners spend more on their own voters. The groups that aren't represented in government have to pay higher taxes and get the same number of public goods as if they were in single-party government. There is no conflict over policy inside a single party in government because it is impossible for voters to discriminate between

different politicians who run all together the elections. In case of supporting government by parties that don't run the elections all together, voters are able to discriminate between these politicians. This leads to inside government competition.

To summarize the results from this section I may say that under proportional electoral rule, the overall level of government spending is higher under coalition governments than under single-party governments  $g_C^{*J} > g_S^{*J}$ . It is because coalition governments spend more on programs favored by the groups represented in government and because spending on programs favored by opposition groups are the same under both types of government. My results are in line with *Proposition 1* presented by Persson, Roland and Tabellini (2007).

### 3.3. Policy Choices under Majoritarian Electoral Rule

I will assume that the population is divided in a continuum of single-member electoral districts. Each district votes according to majoritarian electoral rule and the party wins the single seat<sup>30</sup> if it gets the largest vote share in the district. In case of a tie in a district a coin is tossed between the parties with the same vote share. I also assume that distribution of economic groups is the same in all districts. From the first-past-the-post feature of majoritarian elections is the expected seat share of a party dependent on the probability of exceeding a vote share threshold that depends on the overall number of parties  $N$  in the legislature:  ${}_N\bar{v}_G = \frac{1}{N}$ . The number of parties plays its role here in majoritarian elections because the more parties are there in the legislature the smaller the probability of having a necessary vote share to pass the minimum threshold is and the harder it is for a party to be in government.

#### 3.3.1. Single Party Government

Let's consider a two-party system ( $N = 2$ ), where parties  $P = 1$  form a single party government and party  $P = 2$  is in the opposition. If the vote share of the single-party is greater than  $\frac{1}{2}$  then it wins the legislature, and if its vote share is less than  $\frac{1}{2}$  it doesn't get any seat. One also has to realize that seat share for the single party incumbent is 1. In general, the single-party in government will be in the next legislature if its vote share is greater than the certain threshold  ${}_N\bar{v}_S = \frac{1}{N}$ . So the expected seat share in the next legislature really does depend on the overall number of parties in the legislature:

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<sup>30</sup> each district has just one seat in the next legislature

$$E({}_N s_S^P) = \Pr[v^P \geq {}_N \bar{v}_S] \quad (3.12)$$

where in my case  ${}_N \bar{v}_S = {}_H \bar{v}_S = \frac{1}{2}$  and where the probability is taken over the realization of  $\delta$ .

The expected seat share of the single-party in government is derived from the expression (3.12) when taking into account the expression (3.6) and a cumulative distribution function  $G(\delta) = \frac{1}{2} + \psi\delta$ , recalling that  $\delta$  is uniformly distributed with mean zero and density  $\psi$ :

$$E({}_N s_S^P) = \frac{1}{2} - ({}_N \bar{v}_S - \frac{1}{2}) \frac{\psi}{\phi} + \frac{\psi}{3} \sum_{J=1}^3 (V^J - V^{*J}). \quad (3.13)$$

This expected seat share is similar to the expected seat share for single party government under proportional electoral rule except for the second term on the right hand side. This term depends on the overall number of parties in the legislature, behaves as a constant and is important for the party formation analysis.

The equilibrium for spending  $g_S^J$  is the same as for a single party government under proportional electoral rule. See the expression (3.8). The response to policy changes by voters alters expected seat shares in a different way than under proportional elections, but the relative response of different groups stays exactly the same. (Persson, Roland and Tabellini (2007))

### 3.3.2. Coalition Government

Let's assume to have parties  $P = 1$  and  $2$  in a coalition government. It doesn't matter what random popularity shock  $\delta$  is realized because each party in coalition is affected in the same way, so that their vote share is identical,  ${}_N v_C^1 = {}_N v_C^2$  which comes from the equation (3.9). On the other hand due to homogeneity of electoral districts, it depends on realization of  $\delta$  who wins the whole legislature whether the two parties in government or the opposition. If the coalition wins the legislature then each party in government will, in equilibrium, get half of the seats in the legislature.

The expected seat share of party  $P = 1+2$  in a coalition government, under arguments stated above is:

$$E({}_N s_C^P) = \frac{1}{2} \Pr[{}_N v_C^P \geq {}_N \bar{v}_C] \quad (3.14)$$

where  ${}_N \bar{v}_C = {}_{III} \bar{v}_C = \frac{1}{3}$ , because there are two parties that are in government and one party in opposition; and where parties in government split all votes equally between each other.

The expected seat share in the next legislature for a party in a coalition government can be derived from the expression (3.14) using the assumptions about popularity shock  $\delta$  and the expression (3.9), as:

$$E({}_N s_C^P) = \frac{1}{4} - ({}_N \bar{v}_C - \frac{1}{4}) \frac{\psi}{\phi} + \frac{\psi}{3} \left[ (V^P - V^{*P}) + \frac{1}{2} (V^3 - V^{*3}) \right]. \quad (3.15)$$

From the expression it is visible that the second term on the right hand side depends on the number of parties in the opposition,<sup>31</sup> but because this term behaves as a constant, coalition government is not influenced by the number of parties in the opposition when they choose the optimal policy. From this expression it is notable that the weights attached to the groups that are represented by a party in government are twice that big than the weight attached to the group that is not represented by a party in government. So the relative weights are the same as under proportional electoral rule. A coalition government under majoritarian electoral rule, due to these arguments, sets the equilibrium of spending  $g_C^J$  according to (3.11). Thus coalition governments make the same decisions about spending, no matter what the electoral rule is, if electoral districts are homogenous.

To summarize my results so far, I may say that equilibrium public spending directly depends on the form of government and not directly on the electoral rule or the number of parties in opposition. As in previous case, my results go in hand with the *Proposition 2* presented by Persson, Roland and Tabellini (2007).

### 3.4. Intuitive Equilibrium

Before I start to calculate the party payoffs under each electoral rule, let's take an intuitive think over the possible party formations with taking into account the weights of each party. First, I have to set the nature. In my thinking I consider the party formation, government formation and elections. Next, I have to realize that parties are motivated to form the government by the benefit or rent in my case that is given to the governing party/parties. Without rent given to the party in government no party will make an effort to form the governing coalition or single party coalition.

Let's consider the very first stage when parties decide whether to form the single party or coalition. There is some probability of creating a single party when two parties merge

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<sup>31</sup> This isn't my case because I deal with only one party in opposition.



and some probability of creating the coalition. If I continue on this tree of probabilities I will have these following outcomes.

In a single party there are equal probabilities of merging of parties 1 and 2; 2 and 3; and 1 and 3. This probability is equal to 1/3. Thus the single party 12, 23, or 13, in case that one happens to be the governing party, will receive a rent:  $R_s$ . Voters attached to the merged party in a single party then will reward the whole governing party by its votes because merged parties act as one. So the individual utility of voters of governing parties is higher than the reservation utility; and for the party in opposition it is that the reservation utility of opposite party is higher than the individual utility.

In a coalition there are also equal probabilities equal to 1/3 of forming coalition among parties. I then have these possible configurations. Party 1 + 2 form a coalition; 2 + 3 form a coalition; or parties 1 + 3 form it. Parties in coalition will form government and receive rent:  $R_c$ . The voters then reward only their attached party by its votes if their party is in coalition government. So they can discriminate the coalition partner of their party by nonvoting for it. The party in opposition will not get anything and voters attached to this party are dissatisfied because their individual utility is lower than the reservation utility  $V^{3*} > V^3(1+2)$ .

If I am to find the equilibrium then under the assumption that  $R_s < 2R_c$ , it will always be better to be a separate party on its own and not merge with other party.

### 3.5. Electoral Rules and Party Formation

#### 3.5.1. Party Payoffs under Proportional Electoral Rule

I will calculate expected party payoffs for a three-party system ( $P=1,2,3$ ), and for a two-party system ( $P=1,2$ ).

First let's suppose a three-party system ( $P=1,2,3$ ). From the rules of government formation it implies that in a legislature with three parties, coalition government is possible. In the current period a party  $P$  can be either in a coalition government or in the party out of government, both with the same probability of 1/2. Thus the expected utility for any party  $P$ , at the start of the government formation stage, using (3.3) and (3.4) is:

$${}_m W^P = \frac{1}{2} [R_c + E({}_m s_c^P)] + \frac{1}{2} E({}_m s_o^P). \quad (3.16)$$

To obtain the expected utility I need to first calculate the expected vote share from the equation (3.10) under the equilibrium condition of  $V^J = V^{*J}$ . I get that the expected vote

share for a party in coalition government is:  $E({}_{III} s_C^P) = \frac{1}{4}$ . As for the party in opposition, I

get:  $E({}_{III} s_O^P) = \frac{1}{2}$ , because the seats lost by government parties are gained by the opposition:

$E({}_{III} s_O^P) = 1 - 2 \cdot E({}_{III} s_C^P) = \frac{1}{2}$ . Now I can calculate the expected payoff of a three-party

system for each party:

$${}_{III}W^P = \frac{1}{2}[R_C + E({}_{III} s_C^P)] + \frac{1}{2}E({}_{III} s_O^P) = \frac{1}{2}\left[R_C + \frac{1}{4}\right] + \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{2}R_C + \frac{3}{8}.$$

I obtain then:

$${}_{III}W^P = \frac{3}{8} + \frac{1}{2}R_C. \quad (3.17)$$

Now let's suppose a two-party system ( $P=12,3$ ). In this system it is possible to have only single-party governments. As in a previous case, by (3.3) and (3.4), the expected utility for party  $P$ , at the start of the government formation stage is:

$${}_{II}W^P = \frac{1}{2}[R_S + E({}_{II} s_S^P)] + \frac{1}{2}E({}_{II} s_O^P). \quad (3.18)$$

Where the first term means the expected utility of party  $P$  when it is in government; and the second term is the expected utility of party  $P$  when out of government. By using the equation (3.7) to calculate the expected seat share for parties in single-party government I obtain:

$E({}_{II} s_S^P) = \frac{1}{2}$ . As for the party in opposition, I get the same seat share, because the seats lost

by government parties are gained by the opposition:  $E({}_{II} s_O^P) = 1 - E({}_{II} s_S^P) = \frac{1}{2}$ . Hence, I can

calculate the expected utility as:

$${}_{II}W^P = \frac{1}{2}[R_S + E({}_{II} s_S^P)] + \frac{1}{2}E({}_{II} s_O^P) = \frac{1}{2}\left[R_S + \frac{1}{2}\right] + \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{2}R_S + \frac{1}{2},$$

so the expected utility of a party  $P$  in a two party system at the start of the government formation stage is:

$${}_{II}W^P = \frac{1}{2} + \frac{1}{2}R_S. \quad (3.19)$$

From these party payoffs I will try to find the strategy for all parties. I need to recall the assumption that if two political groups merge then each one expects to get one half of the expected payoff from the merged party. Using this assumption I receive the three party

equilibrium if  ${}_{III}W^P > \frac{1}{2}{}_{II}W^P$ . If one also recalls the assumption about the relative values of being in government  $R_C > 1/2 R_S$  it can be seen that the three party equilibrium holds. The dominant strategy for all parties is then to remain an independent party in government.

I may summarize that in my model with three parties in legislature, the party payoffs under proportional electoral rule has the equilibrium outcome with three parties represented in the legislature which leads only to coalition governments. Intuitively, in a proportional electoral rule merging, in terms of voter base, will not bring any profit because seat shares coincide with vote shares. Persson, Roland and Tabellini (2007) for their four parties in legislature in a proportional electoral system find that the unique equilibrium outcome has four parties represented in the legislature.

### 3.5.2. Party Payoffs under Majoritarian Electoral Rule

As I calculated expected party payoffs for a three-party system ( $P=1,2,3$ ), and for two-party system ( $P=1,2$ ) under proportional electoral rule, I will do the same for majoritarian electoral rule.

Suppose a three-party system ( $P=1,2,3$ ). The coalition of parties 1 and 2 can form government. From the equation (3.15), where  ${}_{III}\bar{v}_C = \frac{1}{3}$  and under the equilibrium condition  $V^J = V^{*J}$ , is the expected seat share for a party  $P$  in coalition government:

$$E({}_{III}s_C^P) = \frac{1}{4} - \frac{1}{12} \frac{\psi}{\phi}.^{32}$$

The equilibrium expected seat share of the party in opposition is the amount of seats lost by government.<sup>33</sup> Therefore, I have  $E({}_{III}s_O^P) = 1 - 2 \cdot E({}_{III}s_C^P) = \frac{1}{2} + \frac{1}{6} \frac{\psi}{\phi}$ . Using these results of equilibrium expected seat shares I can calculate the expected payoff of party  $P$  before government formation:

$${}_{III}W^P = \frac{1}{2} [R_C + E({}_{III}s_C^P)] + \frac{1}{2} E({}_{III}s_O^P) = \frac{1}{2} \left[ R_C + \left( \frac{1}{4} - \frac{1}{12} \frac{\psi}{\phi} \right) \right] + \frac{1}{2} \cdot \left( \frac{1}{2} + \frac{1}{6} \frac{\psi}{\phi} \right) = \frac{1}{2} R_C + \frac{3}{8} + \frac{1}{24} \frac{\psi}{\phi}$$

I obtain then:

$${}_{III}W^P = \frac{3}{8} + \frac{1}{24} \frac{\psi}{\phi} + \frac{1}{2} R_C. \quad (3.20)$$

<sup>32</sup> Since the expected seat share is between 0 and 1, there needs to be put a condition that:  $\psi \leq 3\phi$ .

<sup>33</sup> Under majoritarian electoral rule the expected seat share is actually the probability that a party will receive more votes than competing party.

Now let's suppose a two-party system ( $P=1,2$ ), where only single-party government is possible. I will first calculate the expected vote share for a party in government from the equation (3.13), where  ${}_H \bar{v}_S = \frac{1}{2}$  and under the equilibrium condition of  $V^J = V^{*J}$ . Thus I receive the equilibrium expected seat share for a party in government:  $E({}_H s_S^P) = \frac{1}{2}$ . The equilibrium expected seat share of the party in opposition is the amount of seats lost by government. Therefore I have:  $E({}_H s_O^P) = 1 - E({}_H s_S^P) = \frac{1}{2}$ . Using these results of equilibrium expected seat shares I can calculate the expected payoff of party  $P$ :

$${}_H W^P = \frac{1}{2} [R_S + E({}_H s_S^P)] + \frac{1}{2} E({}_H s_O^P) = \frac{1}{2} \left[ R_S + \frac{1}{2} \right] + \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{2} R_S + \frac{1}{2}.$$

It is seen that the expected utility of a party  $P$  in a two party system under majoritarian electoral rule is identical to that under proportional electoral rule expressed by equation (3.19).

Summarizing party payoffs under majoritarian electoral rule, I come to the result that the equilibrium under majoritarian elections is a three party system for the same reasoning as above under proportional elections. However, my key finding is that there is no difference between proportional electoral rule and majoritarian electoral rule in the expected utility of a party  $P$  in a two party system and is:  ${}_H W^P = \frac{1}{2} + \frac{1}{2} R_S$ . Persson, Roland and Tabellini (2007) come to the same result with four parties in legislature. It can be seen that there is also no difference in the expected utility of a party  $P$  in a two party system whether the opposition is consisted of two merged parties, case of four parties in legislature, or one party on its own, case of three parties in legislature.

### 3.6. The Model Remarks

My findings go generally in hand with those in original model presented by Persson, Roland and Tabellini (2007). I find that coalition governments have higher overall spending than single-party governments under proportional electoral rule. Next, I find that to remain an independent party in government is the dominant strategy under proportional electoral rule. The equilibrium public spending only depends whether the government is formed by coalition or by single party. Next result is that there are only coalition governments observed in a proportional electoral rule and the last result is that in a two party system, there is no

difference between proportional and majoritarian electoral rule in the expected utility of a party  $P$ .

## 4. Empirical Evidence

### 4.1. Government Spending in Parliamentary Democracies

Persson, Roland and Tabellini (2007) predict, according to their model, that proportional elections should rise higher government spending. In their empirical investigation they focus only on parliamentary regimes and omit all presidential democracies.<sup>34</sup> They use cross-sectional data set and panel data set for about 50 parliamentary democracies in the post war period. The cross-sectional data set covers observations of an average of annual data over the period 1990-98 and deals with 50 parliamentary democracies. Their panel data set includes 40 parliamentary democracies over the period 1960-98. They define a time period as a whole legislature in the panel and measure overall government spending in the last year of the legislature in order to let the political variables to exercise their full effect. For the rest of variables they include the averages over each legislative period.

In their data sets they use these variables for the electoral rules: *plurality rule* as a binary indicator, 1 for countries with plurality rule and 0 otherwise; *district magnitude* also as a binary indicator, 1 for single national district in proportional systems and 0 for systems with single-member district; and *threshold* for electoral threshold to be passed for being in legislature. For party structure they use *party fragmentation* defined as  $1 - \sum_P (s^P)^2$ , where  $s^P$  is the seat share of party  $P$ . For the types of government binary indicators are used. If the government is a single-party majority then the variable *single-party* is 1, otherwise 0. Variable *coalition* is 1 for coalition government and 0 otherwise. They use a variable *government spending* in % of GDP to measure the size of government. Other variables include *openness* to international trade, *population size*, *population over 65*, *per capita income*, *output gap*, *ethno-linguistic fractionalization*, *UK colony*, a binary indicator for *federalism* and *length of the legislature*

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<sup>34</sup> They follow Persson and Tabellini (2003)

The empirical results about political outcomes presented by Persson, Roland and Tabellini (2007) are in line with their predictions. They empirically prove that there are more fragmented party systems in larger electoral districts and that plurality rule is associated with less party fragmentation. Further in their analysis they also test the suggestion from the model that the electoral system's effect on the party structure influences only the type of government. Thus the evidence is that more party fragmentation increases the prevalence of coalition governments but decreases the incidence of single-party governments.

As far as government spending is concerned, their results from the cross section are such that large electoral districts increase spending, while plurality electoral rule decreases spending. From their regression analysis they come with next result that coalition governments tend to have higher spending. If a government would permanently switch from single party to coalition, the long-run spending would raise by about 7% of GDP. The panel estimates give the statistically significant result that coalition government is associated with higher public spending while single-party is the opposite case. The panel data presents different long run effect on spending than the OLS estimate in the cross section. Switching permanently from single-party government to coalition government would have the long-run effect on spending of about 3% of GDP. The panel estimates have similar results as cross section ones. Coalition government is associated with higher spending than single party government. Next result is that proportional electoral rule has higher government spending than majoritarian electoral rule.

In *Figure 4.1* is seen the variation in the size of government spending and incidence of coalition variables uncorrelated with policy determinants<sup>35</sup>. As stated above, coalition governments are associated with larger government spending. In *Figure 4.1* there are observations of 50 parliamentary democracies from 1990s. The regression function shows the long-run effect of being ruled by a coalition government on the size of government spending.<sup>36</sup>

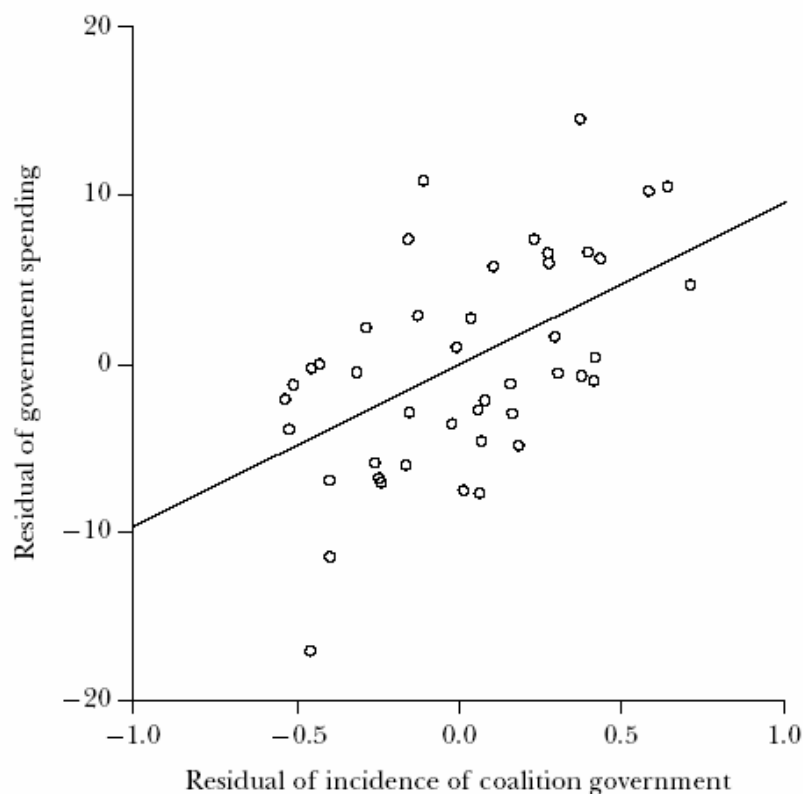
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<sup>35</sup> Policy determinants: per capita income, openness to international trade, the proportion of the elderly in the population, ethno-linguistic fractionalization, U.K. colonial origin, a dummy variable for federal political structures.

<sup>36</sup> For further information about the evidence see Persson and Tabellini (2004), page 89.

Figure 4.1

### Total Government Spending and Incidence of Coalition Governments



*Notes:* The residuals are obtained by regressing total spending by central government (in percentage of GDP) and the incidence of coalition governments, respectively, on the following variables: per-capita income, openness to international trade, the proportion of the elderly in the population, ethno-linguistic fractionalization, U.K. colonial origin, a dummy variable for federal political structures. The sample refers to 50 parliamentary democracies in the 1990s.

Source: Persson and Tabellini (2004)

## 4.2. Government Spending and the Form of Government

Persson, Roland and Tabellini (2004) study a presidential-congressional system with separation of powers and find out that the overall level of taxation and public spending is smaller than in the simple legislature. On the contrary in a study of parliamentary system without separation of powers, but with legislative cohesion, they claim that redistribution favors a stable majority supporting the government, but government waste is higher, and majority of the voters now support maximal taxes.

In their analysis they come to the conclusion that a parliamentary system has redistribution towards a majority, less under provision of public goods, more waste and a higher burden of taxation, whereas a presidential-congressional system has redistribution

towards a minority, more under provision of public goods, but less waste and a smaller size of government.

Persson and Tabellini (2004) focus on fiscal policy when discussing, how political institutions aggregate conflicting interests<sup>37</sup> into public policy decisions.

Parliamentary regimes are supposed to have higher overall spending and taxation than presidential regimes because parliamentary regimes are facing to a no-confidence vote. Unlike in presidential regimes there is no such risk of a no-confidence vote. Parliamentary regimes are said to have higher taxes and higher spending than presidential ones. It is because in parliamentary regimes there are so called residual claimants<sup>38</sup> on additional revenue who enjoy the benefit of spending.

Persson and Tabellini (2004) empirically prove their predictions that presidential regimes have lower overall spending and taxation than parliamentary regimes. For the evidence they used total government spending in percentage of GDP against a dummy variable for presidentialism in 83 democracies in the 1990s, after taking into account several other possible determinants of fiscal policy. From the *Figure 4.2* below it can be seen that a constitutional reform which changed the form of government from parliamentary to presidential in a country would lower the total size of government spending by about 5% of GDP in the long run.

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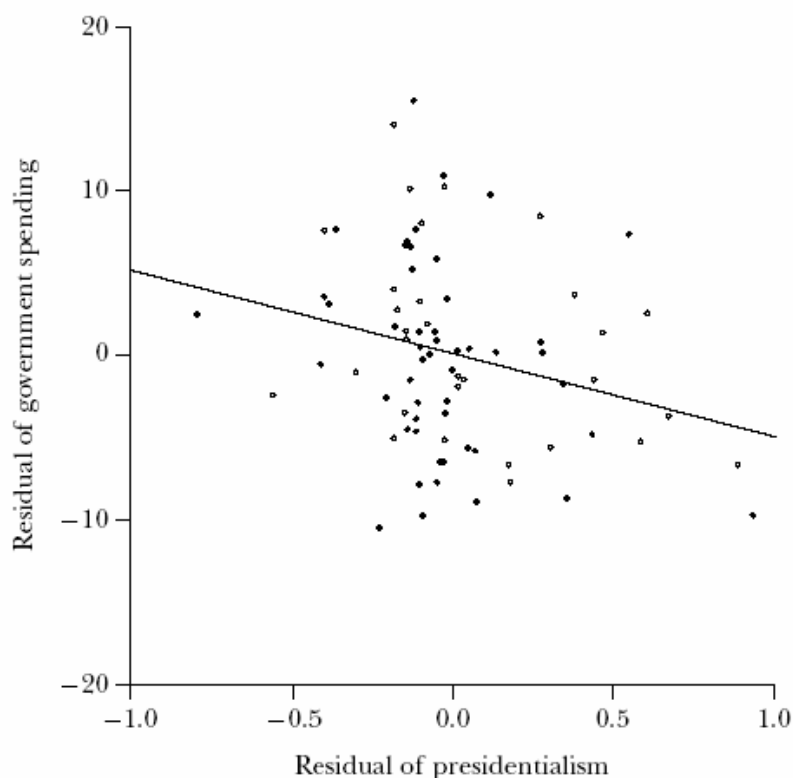
<sup>37</sup> For example: the voters' perceptions about the level and structure of taxation, tariffs, subsidies and regulations.

<sup>38</sup> Residual claimants are: the majority of voters; and the stable majority of incumbent legislator.



Figure 4.2

### Total Government Spending and the Form of Government



*Notes:* The residuals are obtained by regressing total spending by central government (in percentage of GDP) and a dummy variable for presidential regimes, respectively, on the following variables: per-capita income, openness to international trade, the proportion of the elderly and of the young in the population, ethno-linguistic fractionalization, quality and age of democracy, and dummy variables for plurality-rule elections, federal political structures, OECD countries, continental location and colonial origin. The sample refers to 83 democracies in the 1990s.

Source: Persson and Tabellini (2004)

Persson and Tabellini (2004) state that multimember districts and proportional representation both pull in the direction of programs targeting broad groups unlike single member districts and plurality vote both tend to pull in the direction of narrowly targeted programs benefiting small geographic constituencies. Many of political theorists used this view to study the influence of district magnitude and the electoral formula on the composition of government spending. For example Persson and Tabellini (2004) provide, without controlling for other determinants of welfare spending, the evidence to support the prediction that proportional electoral system leads to more spending in broad redistributive programs, such as public pension and welfare spending. From the *Table 4.1 (panel A)* below it can be seen that legislatures elected under proportional electoral systems have higher expenses on social security and welfare, (the budget deficit) comparing to those elected under majoritarian electoral systems almost 8% of GDP, (about 1% of GDP).

Table 4.1

**Political and Economic Outcomes in Parliamentary Democracies  
Classified by Electoral Rules**

	<i>Majoritarian</i>	<i>Proportional</i>
A. Economic policy outcomes		
Government spending	25.94 (9.05)	35.12 (9.30)
Social security & welfare spending	5.37 (4.98)	13.15 (5.40)
Budget deficit	2.92 (3.81)	3.86 (4.17)
B. Political outcomes		
Party fragmentation	0.54 (0.17)	0.70 (0.09)
Coalition governments	0.24 (0.41)	0.55 (0.47)
Single-party governments	0.63 (0.47)	0.17 (0.37)
N. obs.	138	187

*Notes:* Simple averages; standard deviations in parenthesis. Fiscal policy variables refer to central governments and are measured as percentages of GDP. Observations pooled across countries and legislatures. The number of observations refers to the political outcomes (some observations are missing for the policy outcomes).

Source: Persson and Tabellini (2004)

There are arguments that when proportional elections create a fractionalized party system then this fractionalized party system has a greater overall size of government spending. In *Table 4.1 (panel B)*, it is seen the evidence that political effects of the electoral rule may be large. Such political effects, as that in parliamentary democracies where proportional electoral rule is associated with a more fragmented party system, more frequent coalition governments and less frequent governments ruled by a single-party majority. The data on average and without conditioning on other determinants of fiscal policy say that about 10% of GDP more is spent by legislatures elected under proportional representation than by legislatures elected under majoritarian representation.

### **4.3. Government Spending across Democratic Countries**

Persson and Tabellini (2002) look at the data set including 85 countries which were considered as democracies in late 1990s and point out the various figures of the outcomes from study of the cross-sectional variation of policy. Their observations include total government spending as a fraction of GDP which stood around 60% in Sweden, above 50% in most of the countries of continental Europe, around only 35% in Japan, Switzerland, and the US. They also mention interesting variation in the composition of spending. In Europe there are high transfers unlike in Latin America where transfers are low. To support this they say that spending on the unemployed in the 1990s were in a range from 2% of total spending, the

case of Italy, to 17%, the case of Ireland, among the fifteen members of the European Union. They also claim that there are significant variations of outputs per worker and total factor productivity not only across continents but also across countries which reflects the enormous gaps in living standards.

There are visible common trends and some data similarities across time in the past. Persson and Tabellini (2002) highlight couple of them even though they observe actual differences in individual countries across the time. They notice that average government spending, in many countries, grew by about 10% of GDP from the early 1960s to the mid 1980s, to stabilize around a new higher level towards the end of the century. Budget deficits were, on average, below 2% of GDP in the early 1960s and the late 1990s, but reached 5% of GDP in the early 1980s.

Through their empirical evidences they use a data set including 85 countries for study the cross-sectional variation of policy as mentioned above. For study the time variation of policy, they use a data set with 60 countries where data are available for sufficiently long period. It means that they use annual observations for each of the years 1960-98.

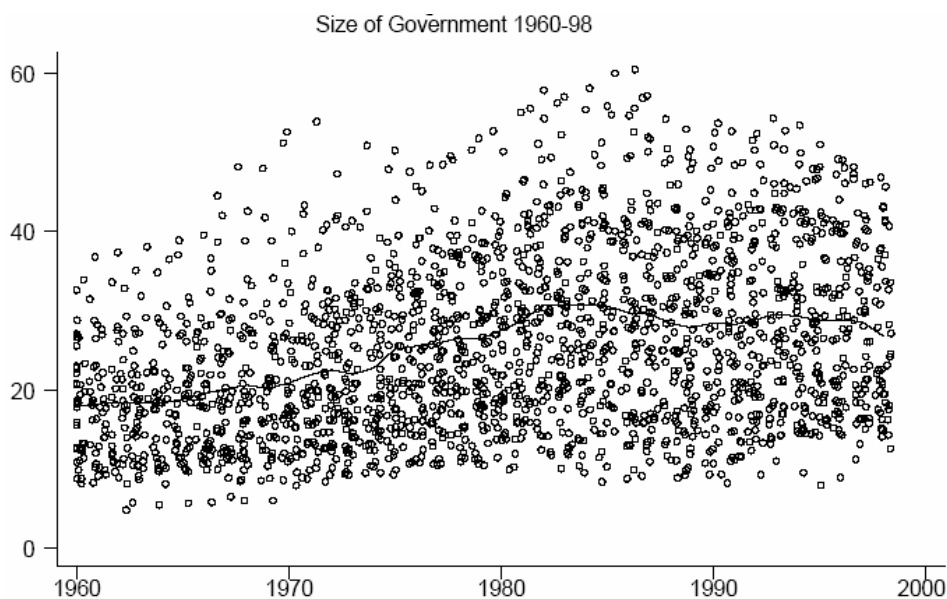
#### **4.3.1. Size of Government**

The size of government is different in every time period and changes from place to place. From the 1990s cross section, it is seen the range of government spending from 9.7%, the case of Guatemala, to 51.2%, the case of the Netherlands. The mean value is 29.8% of GDP and the standard deviation 10.4%. Measures for the years 1960-98 give the same results for the particular year. See the *Figure 4.3* below. The curve in the graph grows over time by about 8% of GDP from the 1960a to 1990s. Very significant growth is visible between 1970s and 1980s.<sup>39</sup>

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<sup>39</sup> For further information see Persson and Tabellini (2002), Page 41.

Figure 4.3



Source: Persson and Tabellini (2002)

#### **4.4. Government Spending in Presidential Regimes under Majoritarian Electoral Rule**

The goal of Persson and Tabellini (2002) is to estimate the effect of constitutional reforms, or in other words the change of government forms or the electoral rule. As it is mentioned earlier in the thesis the size of government is more likely to be reduced when the form of government is changed from a parliamentary to a presidential. This change would also reduce spending programs with many beneficiaries. For example: general public goods or broad welfare programs. Let's review the reason. Under presidential regime the major part of voters isn't residual requestors on additional tax revenues. The tax payers have in hands the power of checks and balances so that they can hold down the overall government spending of presidential regime.

There should also be a significant effect on fiscal policy when it is switched from proportional electoral rule to majoritarian. There are made some theoretical predictions that plurality rule and small electoral districts induce spending targeted to small geographic constituencies. (Persson and Tabellini (2002)) On the other hand proportional elections lead to programs with many beneficiaries because political parties look for agreements among large groups in population. Other predictions say that the size of budget deficit and the size of government are easily restricted under majoritarian elections. There are many reasons to it but the one concerning with the party structure is as follows: majoritarian elections help to solve

the common pool problems<sup>40</sup>, by eliminating the amount of parties, which are the most probable reasons of deficits and large governments.

#### **4.4.1. Size of Government**

The size of government is deeply analyzed by Persson and Tabellini (2002). They put the question whether the constitution influence the size of government or not. They measure the size of government using central government spending and revenue in percent of GDP. Persson and Tabellini (2002) with their OLS model<sup>41</sup>, estimate a highly statistically significant estimation that a presidential regime reduces the size of government by 6% of GDP. Other estimation found is that majoritarian elections with about 3% of GDP reduce the size of government.

Later in their analysis they add indicator variables<sup>42</sup> for geographical location and colonial origin. Their estimation gives a result that majoritarian elections reduce the size of government by a little bit more than 5% of GDP. In further analysis they separate the constitutional variables into three smaller partitions and the effect is that majoritarian electoral rules in a proportional-parliamentary country and a presidential form of government would reduce the size of government by 10% of GDP. They also try to exchange the spending for revenue in order to measure the size of government. With this exchange the effect of majoritarian elections is weaker but the effect of presidential regimes remains the same. Persson and Tabellini (2002) also take into account the weak democracies and better democracies.<sup>43</sup> They notice that some of the weaker democracies tend to be presidential regimes, which might introduce a systematic bias. After this separation the effect of presidential regimes is much stronger, while the effect of majoritarian election is the same.

#### **4.4.2. Composition of Government**

Welfare spending is other subject of study. Persson and Tabellini (2002) investigate whether presidential regime and majoritarian electoral rule have direct or indirect effects on welfare-state spending. They do this because the amount of money given from expenditure programs for pensions and unemployment insurance is quite large and receive it many

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<sup>40</sup> The common-pool problem refers to a situation where the benefits of government spending are concentrated to relatively narrow groups of beneficiaries, while the costs of raising revenues are shared among all taxpayers. (Persson and Tabellini (2002))

<sup>41</sup> They consider, in their OLS model, these variables: per capita income, openness, two demographic measures, age, quality of democracy and dummy variables for federal and OECD countries. For further information about the model and variables see Chapter 3 and 4 in Persson and Tabellini (2002)

<sup>42</sup> Indicator variables are correlated with constitution selection.

<sup>43</sup> Determination of weak and better democracies is done by GASTIL index.

beneficiaries in the population. Therefore they expect smaller welfare spending in presidential regimes and under majoritarian electoral rule.

From their OLS estimation<sup>44</sup> they estimate only statistically insignificant effect of reducing welfare-spending by about 2% of GDP by presidential regimes and majoritarian electoral rules. When they take the sample of better democracies, as above, the effect of presidential regime is now statistically significant and appears to be more than 4% of GDP; however the effect of majoritarian elections is not estimated precisely.

#### **4.4.3. Budget Surplus**

There were many countries in the 1970s and 1980s that had large budget deficits. These deficits couldn't be growing forever therefore there was a budgetary consolidation in 1990s. Persson and Tabellini (2002) want to avoid their conclusions of a constitutional effect on government deficits, on data from the periods of time when countries were recovering from large public debts, or at least they were trying to do so. Therefore they study only averages for the period 1960-1998 taken from 60-country panel.

Again using the same regressions as in size and composition of government they come with the estimation that countries with majoritarian elections have larger surpluses, about 2% of GDP, than countries with proportional elections. However, they are not successful in explaining any considerable fraction of the cross-country variation in the surplus. The reason why is that the adjusted  $R^2$  is only between 20% and 30%, which is for this kind of estimation very low.

#### **4.4.4. Remarks**

Government spending is strongly influenced by electoral rules. This is evident from empirical evidences stated above in the text. The conclusion is that majoritarian elections produce smaller governments, smaller welfare-state spendings and smaller deficits. From the statistical point of view these estimated constitutional effects are statistically significant, robust and quantitatively relevant. If a country is chosen randomly from a T.Persson and G.Tabellini's sample, predictions about that country would say that a constitutional reform from proportional to majoritarian elections reduces the size of central government spending by 4-5% of GDP, the size of welfare and social security programs by 2-3% of GDP, and the budget deficit by 1-2% of GDP.

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<sup>44</sup> Same estimation as used for the size of government.

In case of the form of government, the empirical result is that presidential regimes produce much smaller governments than parliamentary regimes. A reform from parliamentary to presidential regime would shrink the size of overall spending by about 5% of GDP, and the size of welfare programs by about 2% of GDP. (Persson and Tabellini (2002)) However, the effect on welfare spending is not estimated in a precise way because many presidential regimes have younger populations. It makes then harder to separate the effect of the constitution from the demographics effect in cross-country comparisons.

The interaction between the formal constitutional rules and the stages of democracy brings interesting effects. Older and better democracies have stronger constitutional effect on welfare spending. However, these older and better democracies under parliamentary-proportional constitutions are more likely to be larger welfare states.

#### **4.5. Government Spending and Variation across Countries**

There are 80 countries used to give the empirical evidence about variation across countries. Persson and Tabellini (2002) explain in their linear regression of central government expenditures 60% of the variation in the dependent variable. The results, *ceteris paribus*, are as follows: an additional 1% of old people (65 years and more), will rise spending by more than 1% of GDP; Central government spending is about 5% of GDP lower in federal states; the more open country the larger government; democracies that move from a Gastil score equal to 3.5 to the Gastil score of 1.5, will spend about 4% of GDP more.

For the government budget balance outcome are used 75 countries from the 1990s cross section. For the measure it is the budget surplus of the central government taken into account. Thus, the average country has a deficit of 2.2% of GDP with the standard deviation of 3.5%. The highest deficit has Greece with 11.4% of GDP and the highest surplus is observed in Singapore with its 12.4% of GDP. If 60 countries from the period of 1960-98 are taken and the mean deficit is calculated, it gives the mean deficit 2.9% of GDP and its standard deviation of 2.4%. From this data set it is obtained the highest average deficit of about 11% of GDP in Israel and the highest average surplus of about 4% of GDP in Botswana.

#### **4.6. Government Spending and Variation across Time**

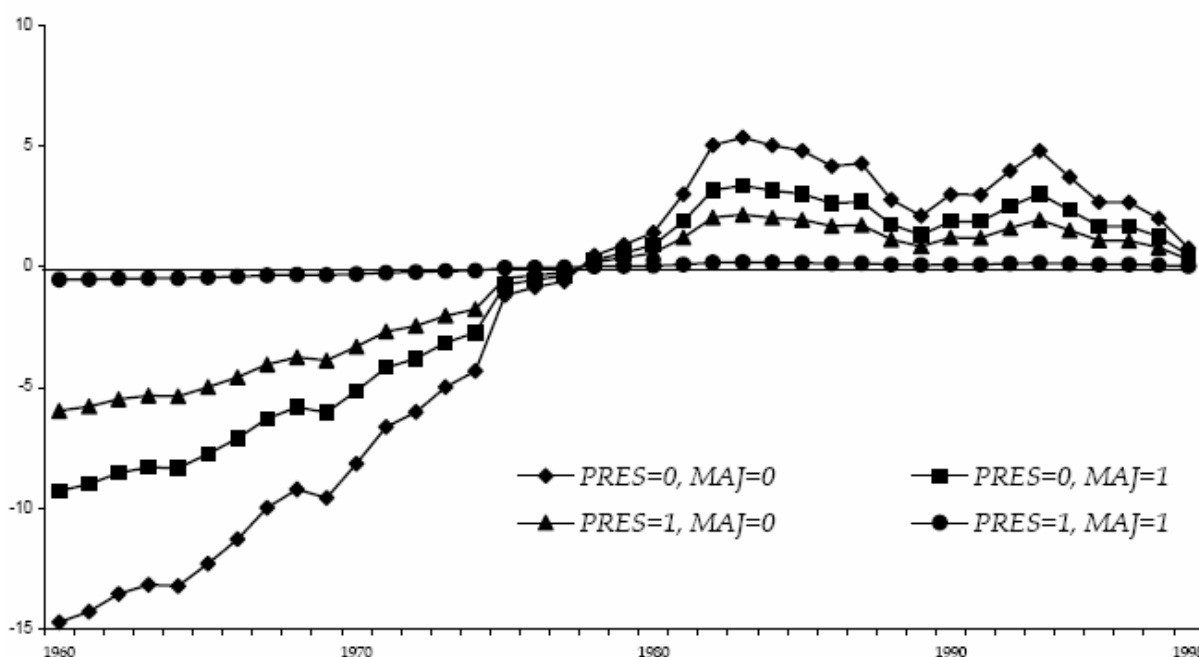
Persson and Tabellini (2002) also take into account the time variation in the data. They analyze the fiscal policy in the 60-country panel. Most of the data are since 1970s and/or

1960s. Their analysis is based on these variables expressed in percentage of GDP: overall government spending or revenue, welfare state spending and budget surplus.

From the estimation of the effect of unobserved common events with the dependent variable of social security and welfare spending in percent of GDP, Persson and Tabellini (2002) come with the result that unobserved common events will rise welfare spending of about 5% of GDP in proportional-parliamentary countries. As for the total government spending, the unobserved common events which rise welfare spending of about 5% of GDP in proportional-parliamentary countries will raise welfare spending of about 4% of GDP in majoritarian-parliamentary countries, of about 2.5% of GDP in proportional-presidential countries, and of about 1.5% of GDP in the last combination, in majoritarian-presidential countries. See the *Figure 4.4* which shows the estimated effect of unobserved common events in four combinations of countries below.

*Figure 4.4*

#### Unobserved common events and the size of government



Source: Persson and Tabellini (2002)

In case of budget surplus, the proportional-parliamentary countries increase the deficit by 8% of GDP, when there are unobserved common events. This increase is only in a period of time from 1961 to early 1980s. From the highest deficit in 1980s the deficit declined to 4%



of GDP after unobserved common events. Unlike in presidential democracies the unobserved common events didn't have that whopping impact.

Other finding is related to the degree of persistence. Overall spending is less persistent in presidential than in parliamentary countries. (Persson and Tabellini (2002))

More than 500 executive elections are used to study the case when all constitutional groups have to respond to the election date in the same way. The fiscal policy variables that are used for this study are: overall spending, overall revenue, budget surplus and welfare spending. The results are such that in the year after the elections the spending, on average, is reduced by 0.3% of GDP. However, there is insignificant effect on overall spending in the election year. In terms of taxes, taxes are cut by about 0.4% of GDP during an election year. (Persson and Tabellini (2002)) The budget surplus gets better right after the elections during the year but it gets much worse in the election year, however, this effect is statistically insignificant and small. The results from welfare spending findings are not evident. The tax is cut by about 0.6% of GDP in majoritarian countries and the welfare-state spending, especially transfers, in proportional elections increase by about 0.2% of GDP in the election year and about the same amount in the post-election year. Presidential regimes cut spending by about 0.8% of GDP right after the election, so the unpopular fiscal-policy is made after distribution. Governments in parliamentary regimes improve the budget surplus by about 0.75% of GDP by postponing tax hikes by about 0.8% of GDP. The parliamentary regimes cut taxes by about 0.5% of GDP in an average election year. In a summary it can be concluded that governments in all countries do cut taxes in the election year.

Persson and Tabellini (2002) state very nice result in line with the general idea from comparative politics research that majoritarian elections is mainly a vehicle for promoting accountability, while proportional elections are mainly a vehicle for promoting representation.

## **5. Conclusion**

In my thesis I have presented political institutions as essential players in shaping economic policies and categorized political institutions to provide basic background of understanding. Mainly I have focused on two fundamental categories of political institutions: forms of government and electoral rules. After stating the crucial question of how forms of government and electoral rules affect government spending, I have introduced a theoretical model of a parliamentary democracy where electoral rules influence government spending

which counts with three parties in legislature instead of original 4 parties in legislature modeled by Persson, Roland and Tabellini (2007).

By this model I have showed that proportional elections are associated with larger government spending, larger budget deficit and larger welfare states, than majoritarian elections. Moreover, I have theoretically showed that under proportional electoral rule, the overall level of government spending is higher under coalition governments than under single-party governments. It is because coalition governments spend more on programs favored by the groups represented in government; and because spending on programs favored by opposition groups are the same under both types of government.

If the parliamentary government is supported by a single-party majority, then there is an electoral conflict between government and opposition because voters cannot discriminate between merged parties in single-party government. On the other hand if the government is supported by two parties forming coalition, then voters can discriminate between coalition partners and electoral conflict is within the coalition government which leads to higher spending under both majoritarian and proportional electoral rule. Our theoretical model thus predicts that government spending is affected by the type of government and not by the electoral rule.

I have modeled candidates as strategic therefore under majoritarian electoral rule are parties more likely to merge in order to win in each electoral district unlike under proportional electoral rule. This leads to that single-party governments are observed under majoritarian electoral rule and coalition governments under proportional electoral rule. My theoretical model thus predicts that government spending depends on electoral rule indirectly by government and party formation.

Empirical evidence based on findings of Persson, Roland and Tabellini (2007), Persson, Roland and Tabellini (2004) and Persson, Roland and Tabellini (2002) strongly support my theoretical predictions. I have presented empirical estimates relying on the observed variation across parliamentary democracies, and variation across time in connection with electoral reforms. Both estimates support that proportional electoral rule indirectly induces higher government spending than majoritarian electoral rule through more party formation and the impact of coalition governments. Presented empirical estimates also support the prediction that a constitutional change of form of government from a parliamentary to a presidential reduces the size of central government spending by about 5% of GDP. By about 5% of GDP would also reduce overall public spending the shift from proportional to majoritarian electoral rule.

# Bibliography

- [1] **Bardhan, Pranab and Tsung-Tao Yang**, June 2004. “Working Paper No. E04-341.” Political Competition in Economic Perspective
- [2] **Besley, Timothy, Robin Burgess and Andrea Prat**, February 28, 2002. ”Mass Media and Political Accountability.” Department of Economics, London School of Economics
- [3] **Čerba, Otakar**, prosinec 2003 – únor 2004. Databázové systémy GIS, “Volební systémy”, Kapitola 11. Geografie voleb,
- [4] Citizens’ Assembly on Electoral Reform <http://www.citizensassembly.bc.ca/public>
- [5] **Darkwa, Dr. Osei**, 11/25/97. “Introduction to Social Welfare.”
- [6] **Disch, Lisa**, “Representation “Do’s and Don’ts”: Hanna Pitkin’s *The Concept of Representation*.” Professor of Political Science, University of Minnesota
- [7] **Dovi, Suzzane**, 2 January 2006, “Political Representation.”, Stanford Encyclopedia of Philosophy, <http://plato.stanford.edu/>
- [8] **Ederberg, Linda, Maja Tjernström and Ray Kennedy**, 2006. „Formation of Government. “ ACE Encyclopedia. The Electoral Knowledge Network. <http://aceproject.org/>
- [9] **Johnson, Dr. Paul M.**, A Glossary of Political Economy Terms, Auburn University, <http://www.auburn.edu/~johnspm/gloss/>
- [10] **Kunicová, Jana and Susan Rose-Ackerman**, April 20, 2004. “Electoral rules and constitutional structures as constraints on corruption.”
- [11] **Lassen, David Dreyer**, November 2001. “Political Accountability and the Size of Government: Theory and Cross-Country Evidence.” Economic Policy Research Unit and University of Copenhagen,
- [12] **Lederman, Daniel, Norman Loayza and Rodrigo Reis Soares**, November 2001. “Accountability and Corruption, Political Institutions Matter.” The World Bank
- [13] **Locke, John**, 1989. “Second Treatise, §§157—58.” Chapter 13, The Founders Constitution.
- [14] **Mansbridge, Jane**, “Rethinking Representation”, American Political Science Review, 97, no.4: 515-28
- [15] **Norris, Pippa**, spring 2004. “Voting Rules and Political behaviour.”

- [16] **Persson, Torsten and Guido Tabellini**, 2002. "Political Economics, Explaining Economic Policy" The MIT Press, ISBN: 0-262-16195-8 (hc)
- [17] **Persson, Torsten and Guido Tabellini**, 2002. "The Economic Effects of Constitutions, What do the data say?"
- [18] **Persson, Torsten and Guido Tabellini**, July 2002. "Do electoral cycles differ across political systems?"
- [19] **Persson, Torsten and Guido Tabellini**, March 2004. "Constitutional Rules and Economic Policy Outcomes." *American Economic Review*.
- [20] **Persson, Torsten and Guido Tabellini**, October 5, 1998 "The size and scope of government: Comparative politics with rational politicians"
- [21] **Persson, Torsten and Guido Tabellini**, winter 2004. "Constitutions and Economic Policy."
- [22] **Persson, Torsten, Gerard Roland and Guido Tabellini**, April 2006. "Electoral rules and government spending in parliamentary democracies."
- [23] **Persson, Torsten, Gerard Roland and Guido Tabellini**, January 2007. "Electoral rules and government spending in parliamentary democracies."
- [24] **Persson, Torsten, Gerard Roland and Guido Tabellini**, July 17, 1996. "Separation of powers and accountability: Towards a formal approach to comparative politics."
- [25] **Persson, Torsten, Gerard Roland and Guido Tabellini**, July 23, 1997. "Comparative Politics and Public Finance."
- [26] **Persson, Torsten, Gerard Roland and Guido Tabellini**, November 2003. "How do electoral rules shape party structures, government coalitions, and economic policies?"
- [27] **Pitkin, Hanna Fenichel**, 1967, "The Concept of Representation." University of California Press, ISBN:0520021568
- [28] **Rehfeld, Andrew**, 02.08.08, "Democratic Lawmaking and Political Representation." Washington University in St. Louis
- [29] **Reynolds, Andrew and Ben Reilly**, 1997. "The International IDEA Handbook of Electoral System Design." ISBN 91-89098-00-5
- [30] **Sartori, Giovanni**, 2001. "Srovnávací ústavní inženýrství. Zkoumání struktur, podnětů a výsledků."
- [31] **The World Bank**, Anti Corruption, <http://web.worldbank.org/>

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Akademický rok 2007/2008

## TEZE BAKALÁŘSKÉ PRÁCE

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Garant studijního programu Vám dle zákona č. 111/1998 Sb. o vysokých školách a Studijního a zkušebního řádu UK v Praze určuje následující bakalářskou práci

Předpokládaný název BP:

The Impact of Electoral Rules on Public Spending.

Charakteristika tématu, současný stav poznání, případné zvláštní metody zpracování tématu:

In my thesis, I would like to analyze the effect of electoral rules and forms of government on the size and composition of government spending. At first, I will present a knowledge concerning to how electoral rules shape party structures, and economic policies and review relevant approaches based on relevant literature (mostly from the papers written by Torsten Persson and Guido Tabellini). Next, I will take the model from the paper "Electoral rules and government spending in parliamentary democracies" (Torsten Persson, Gerard Roland & Guido Tabellini, April 2006) and try to analyze it and extend it. Last, I will discuss the conclusions.

Struktura BP:

Introduction  
Categorizing political institutions  
    Electoral rules  
        Proportional electoral rule  
        Majoritarian electoral rule  
    Forms of government  
Political accountability  
Political representation  
Model analysis  
    Equilibrium  
    Policy choices under proportional electoral rule

Policy choices under majoritarian electoral rule  
Electoral rules and party formation  
Conclusion

Seznam základních pramenů a odborné literatury:

- Persson, Torsten and Guido Tabellini.** 1999. "The Size and Scope of Government: Comparative Politics with Rational Politicians, 1998 Alfred Marshall Lecture." *European Economic Review*. April, 43, pp. 699–735.
- Persson, Torsten and Guido Tabellini.** 2000. *Political Economics: Explaining Economic Policy*. Cambridge, Mass.: MIT Press.
- Persson, Torsten and Guido Tabellini.** 2003. *Economic Effects of Constitutions*. Cambridge, Mass.: MIT Press.
- Persson, Torsten and Guido Tabellini.** 2004. "Constitutional Rules and Economic Policy Outcomes." *American Economic Review*. Forthcoming.
- Persson, Torsten, Gerard Roland and Guido Tabellini.** 1997. "Separation of Powers and Political Accountability." *Quarterly Journal of Economics*. 112:4, pp. 1163–202.
- Persson, Torsten, Gerard Roland and Guido Tabellini.** 2000. "Comparative Politics and Public Finance." *Journal of Political Economy*. 108:6, pp. 1121–161.
- Persson, Torsten, Gerard Roland and Guido Tabellini.** 2003. "How Do Electoral Rules Shape Party Structures, Government Coalitions and Economic Policies?" Mimeo, Bocconi University.
- Persson, Torsten and Guido Tabellini.** 2004b. "Constitutions and Economic Policy." *Journal of Economic Perspectives* 18, 75-98.
- Persson, Torsten, Gerard Roland and Guido Tabellini.** January 2007. "Electoral rules and government spending in parliamentary democracies."
- Persson, Torsten, Gerard Roland and Guido Tabellini.** April 2006. "Electoral rules and government spending in parliamentary democracies."

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