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BAKALÁŘSKÁ PRÁCE

Separation of Powers in Budget Process

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Děkuji PhDr. Martinovi Gregorovi, PhD. za nenahraditelnou pomoc při orientaci v tématu a podnětné vedení při psaní této práce.

Prohlašuji, že jsem svou bakalářskou práci napsal samostatně a výhradně s použitím citovaných pramenů. Souhlasím se zapůjčováním práce a jejím zveřejňováním.

V Praze dne Jakub Matějů

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Název práce: Dělba moci v rozpočtovém procesu
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Abstrakt: Rozpočtové instituce mají významný vliv na konečnou podobu veřejného rozpočtu. V této práci zkoumáme efekty dělby moci v rozpočtovém procesu. Rozdělením moci nad rozpočtem rozumíme možnost legislativy omezovat exekutivu pomocí institucionálních nástrojů. Ukážeme, že taková možnost by byla legislativou využívána a vedla by k (i) zmírnění redistribuce, (ii) disciplinování lobbystických aktivit, (iii) menší extrakci politických rent, (iv) vyrovnávání politických cyklů. Dále by tato separace vedla k netriviálním efektům, závislým na dalších politických proměnných, jakými jsou například relativní velikosti skupin, které legislátoři reprezentují, nebo informační asymetrie mezi legislativou a exekutivou.

JEL Klasifikace: D78, H61, H41

Klíčová slova: rozpočtový proces, dělba moci, státní výdaje, legislativa, exekutiva

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Abstract: Fiscal institutions have significant effect on the final shape of public budget. In this paper, we survey institutional effects of separation of powers in budget process. The separation is pronounced via additional institutional tools given to the legislature. We show that option to constrain the executive using these tools would result in (i) mitigated redistribution, (ii) mitigated lobbying, (iii) mitigated political rents, (iv) political cycles smoothing. More, the separation leads to some nontrivial effects, contingent on other political variables, e.g. relative size of legislator's constituency and information asymmetry between the legislature and the executive.

JEL Classification: D78, H61, H41

Keywords: budget process, separation of powers, government spending, legislature, executive

to Jana, who does not care about formalized political economy at all

Chapter 1

Introduction

"Institutions matter."

-wisdom of institutional economics

Traditionally, the budget is proposed by the executive, approved by the legislature and finally implemented again by the executive. The aim of this paper is to examine effects of additional powers given to the legislature. For example (see van Winden (2005)), should we expect any significant changes in size and distribution of the EU budget if the European Parliament (the legislature) was given power to impose constrains on spending of the European Commission (the executive)? This issue is not only a self-explaining theory. It has an ambition to help in developing, analyzing and evaluating the real institutional setting of budget process in particular countries.

This paper is organized as follows: First, we survey recent literature covering the topic. Second, we examine the possible effects of enlarged legislature power. We categorize the effects into four main groups:

- Mitigated redistribution
- Mitigated lobbying
- Mitigated political rents
- Political cycles smoothing
- Effects depending on relative size of constituency

We present the effects isolated. If we introduced a gen̈eral, overall model, the effects would merge altogether and show nothing. Therefore, we isolate them to obtain straight implications between examined institutional tools and effects on shape of the final budget.

We have strong empirical background for this theoretical survey: both Linert (2005) and Wehner (2005) show that effects of fiscal institutions variation is significant. Also

Primo's (2006) theoretical paper is backed by strong data, verifying his hypothesis about considerable impact of fiscal constrains.

1.1 Normative and Positive Approach

As we have signed before, the aim of this study is to analyze variations of institutional setting of budget process. This issue has a strong normative dimension. However, our goal is to find answer to the question "What are the effects of additional legislature's budget powers?", rather than "Should the legislature be given more power over the budget?". The main reason for which we pass the normative aspect to others are unclear normative criteria. Should the budget be large or small? Should it contain a large fraction of direct subsidies and transfers, or rather be spent mainly via producing some general public good? Answers to these questions involve variety of further problems and need complex treatment. This is, however, beyond scope of this survey. The main body of our study is an analysis of the effect of budgetary institutions, not evaluation. However, sometimes we define some kind of "social optimum" by simple maximization of aggregate welfare functions. We do this not to set a normative criterion, more likely we need to set some fixed benchmark to categorize the results. Such defined "social optimum" seems to serve us well in this way. Thus, we are legitimated to use terms as "underprovision" or "overoptimal". Our discourse is a strictly positive theory, although the results may be interpreted in normative way.

1.2 Separation of Powers in the Budget Process

The first step is to examine the present state: who has more power over the budget? What are the present budgetary commons? Does the legislature agree to whatever the executive proposes, or (to the contrary) does the proposal exactly match legislature's preferences, implied by a dissolution threat over the executive? As Wehner (2005) asks: Who has the real power over the purse? According to recent research,the solution lies primarily in the form of government, particularly in separation of budgetary powers. The budget power manifests via confidence vote and via agenda-setting powers.

We distinguish between two extremes of budgetary agenda-setting: the Parliamentary systems and the Presidential-Congressional regimes.

1.2.1 Parliamentary Regimes

In parliamentary systems we see little power separation. The budget law approval is usually directly linked to the government confidence vote. Therefore, both members of coalitional parties and the legislature are considerably disciplined: by rejecting the budget proposal, the legislature often causes severe government crisis leading to dissolution of cabinet, or further, the whole legislature. The default is costly, so the executive proposes a budget draft, which is likely to pass. The legislature then has little discretion to affect the shape and size of government spending, while facing the threat of default. These motivations cause a relatively stable pro-executive coalition. As a result, the role of legislators reduces merely to financial oversight. The legislature position could be strengthened by creation of influential parliamentary committees. However, any extra legislative interference in the budget process is often considered as exploiting budgetary commons in favor of local interests, which is detrimental to welfare. Paradoxically, under parliamentary regimes the parliament has a very limited role.

Westminster and non-Westminster democracies Leinert (2005) distinguishes between Westminster (represented mainly by the United Kingdom) and non-Westminster (represented by continental-European regimes, such as Germany) parliamentary systems. Westminster types show even less budgetary power separation than non-Westminster types. In Westminster countries, members of the government are also parliament members, which is not necessary in other systems. Also, by tradition, the monarch follows recommendation of his ministers. This setting (together with tradition-based legislative of Westminster countries) results in weak power separation, if any.

1.2.2 Presidential-Congressional Regimes

In presidential-congressional systems (represented above all by the United States), the power separation is considerable. The President, with assistance of his ministers (chosen from outside of the legislature), introduces a draft budget. Powerful Congress committees then come with their amendments and alternative budget proposals. Rejection of the budget proposal is not considered as a cabinet crisis. In addition, the executive may dispose with a line-item veto, which could be counteracted only by a supermajority coalition.

1.2.3 Intermediate Regimes

In intermediate regimes, the situation is much less evident. Leinert (2005) states that budget power separation varies considerably among intermediate regimes. Also Wehner (2005) suggests that the power of the purse is discrete and non-trivial in case of these half-the-way systems.

This is the reason why we will focus on the intermediate regimes and moderate parliamentary (non-Westminster in Lienert's (2005) terms) systems in this survey. While in congressional and powerful parliamentary (Westminster) regimes the situation is almost clear, in case of intermediate and common parliamentary systems the additional institutions could significantly influence the budget.

However, some of the additional tools (for example the budget process separation as examined in Ferejohn-Krehbiel) could remind of the congressional regime institutional setting.

1.3 Modeling the Issue

In this survey we focus on formalized modeling. We will present models illustrating each examined effect. In most cases, we use models established in the literature, to which we introduce a few extensions. One original model is created.

We use game theory to model the core conflict between two players: the legislature and the executive. In most cases the executive is the agenda-setter, who designs the final budget. The legislature is the player (or a group of players, which could also include the executive player) who is capable of constraining the executive with the herein examined extra powers. We try to determine the effects of such additional competence.

There are a few cases where the design of the original model does not exactly match the above institutional setting. Sometimes we deal with this by transforming the particular setting of the model to fit with our assumptions. In other cases we leave the original setting unchanged, accepting that budget design and approval are complex processes, which could be interpreted in several ways. The discussion about validity of presented assumptions is at any rate open.

To make the long story short, we treat the separation of budgetary powers as a strengthening of authority of the legislature manifestated by additional institutional tools.

1.3.1 Institutional Tools Constraining the Executive

There are several such tools, listed below. It could seem that the effects of these tools is similar, that the institutional constrains are substituable. The opposite is true, the tools could have different, nontrivial and often unexpected effects.

Total Spending

The most studied leeway is a prerogative to set total spending. This tool is in fact the simplest form of power separation. The process could be expressed by a two-stage game. In the first round, the legislature selects total government spending and therefore determines also the liability-side: the tax rate or size of the deficit. In the second round, the decision over the distribution is made. This kind of budget process separation was adopted in the United States in 1974 by the "Congressional Budget and Impoundment Control Act of 1974". The case was examined using spatial modeling in fundamental work of Ferejohn and Krehbiel (1987). We will discuss their approach later. Dharmapala (2002) revises their results using other modeling approaches and adding a lobbying option. We will examine this as well.

Spending Cap

Spending caps are maximum spending limits. These could be imposed on total spending as well as on particular items. However, a budget cap applied on total spending seems often identical to the spending target tool (in case where the spending cap is binding), we will examine this further.

Earmarks

Earmarks are minimum spending limits, which are mostly applied to single items. By the same logic, the minimal spending would (in case of narrower executive interests) take no effect while applied on the total spending. Therefore, these bottom constrains on spending are usually imposed on particular projects preferred by the legislature.

Deficit Cap

Deficit cap is a limit determining maximum deficit of the public finance. In other words, it sets the maximum saldo between current tax revenues and public expenditures. This tool, sometimes meant to discipline the executive in spending, may conversely often result in higher taxes, as shows Gregor (2007).

Amendments

The legislature may amend the draft budget to move it closer to his or her optimum. However, this tool seems not very operational (see Lienert (2005)), especially among the intermediate regimes, which we want to study. Such changes in the budget proposal are costly traded off for concessions to the executive in other questions. Therefore, we assume that option to amend the budget does not bring significant power separation among the intermediate regimes and we abstract from this option in further models.

Chapter 2

Effect: Mitigated Redistribution

"Stop us before we spend again!"

-Senator Charles Robb, in Primo (2006)

The first effect we will examine is a mitigation of redistributing policies. First, we will show that the suppression of redistributive projects is a straightforward result of a budget cap imposed by the legislature. Second, we will revise these results using spatial modeling.

2.1 Simple Model

For the beginning, we design a simple model, comparing results with and without a spending cap.

In the model, we assume a political economy in which the legislators each represents one group. The powerful legislator (the executive) is chosen by Nature (equiprobably) among the whole legislature. This assumption represents stochastic nature of elections in the most simple way.

The executive has a policy-setting power over the budget, there is no need to form coalition to approve the budget proposal. This could be explained by a commonly observed situation: the powerful executive forms a coalition which represents majority in the legislature and which supports the executive in crucial issues (e.g. budget). In spite of this, the coalitions members could act independently in other cases, e.g. the separated voting over budget cap.

The executive might be constrained by additional tools of fiscal control, which could be given to the legislature. We examine here the spending cap and earmarks institutions.

We consider N a set of n competing groups. The budget composition is simple: x_i is a sum of expenditures devoted to group $i \in N$. We abstract from any public good provision. t_i denotes a tax burden imposed on i. Deficit budgeting is not allowed, i.e. the budget constraint binds by

$$\sum_{i=1}^{n} x_i \leq \sum_{i=1}^{n} t_i$$

The utility function is quasilinear and given by

$$u_i = \sqrt{x_i} - t_i$$

As we stated before, the elections winner becomes a final policy-setter and the probability of being elected is same for all groups, i.e. $\frac{1}{n}$

2.1.1 Without Budget Cap

With no budget cap constraint, the winner $j \in N$ sets the budget policy to optimize his or her utility, setting $x_i = 0 \ \forall i \neq j$:

$$u_j = \sqrt{x_j} - t_j, \quad \text{where} \quad t_j = \frac{1}{n} \sum_{i=1}^{n} x_i = \frac{1}{n} x_j$$

$$x_j^* = \arg\max_{x_j} \left(\sqrt{x_j} - \frac{1}{n} x_j \right)$$

$$x_j^* = \frac{n^2}{4}$$

2.1.2 With Budget Cap

With a budget cap, the winner optimizes under additional constraint: $x_j \leq \overline{X}$. Therefore:

$$\text{if} \quad \overline{X} > \frac{n^2}{4} \quad \text{then} \quad x_j^* = \frac{n^2}{4}$$

$$\text{if} \quad \overline{X} < \frac{n^2}{4} \quad \text{then} \quad x_j^* = \overline{X}$$

The utility of the executive is

$$u_j = \sqrt{x_j} - \frac{1}{n} x_j$$

The utility of any other legislator is

$$u_{-j} = -\frac{1}{n} x_j$$

The expected utility of any of the players (recalling the equiprobability of becoming the executive) is therefore:

$$E(u_i) = \frac{1}{n} \sqrt{x_j} - \frac{1}{n} x_j$$

The ex ante optimization leads to

$$x_i^* = \frac{1}{4} \quad \forall i \in N$$

Therefore, every i would agree to set $x_i = \frac{1}{4} \quad \forall i \in N$ before the executive is determined. This could not be done solely by imposing the budget cap. So far there is no institutional tool to force the executive to appropriate any funds to other players. However, an improvement in the ex ante utility could be made by setting a constitutionally constraining budget cap $\overline{X}$. Consider following procedure:

1. $\overline{X} = \frac{1}{4}$ is proposed. This constraint is binding: $\frac{1}{4} < \frac{n^2}{4}$ (in fact it becomes a target spending)

2. This proposal passes unanimously (the proposal is a condorcet winner, there is no other proposal to improve any of the particular utilities by that time).

3. The agenda-setter $j \in N$ is determined.

4. $x_j = \frac{1}{4}, \quad x_{-j} = 0$ is selected by the agenda-setter j.

It can be shown that all players are ex ante better off imposing the binding cap:

$$E(u_i)^{CAP} = \frac{1}{n}\sqrt{\frac{1}{4}} - \frac{1}{4n} = \frac{1}{4n} > E(u_i)^{SIMPLE} = \frac{1}{n}\sqrt{\frac{n^2}{4}} - \frac{n^2}{4n} = \frac{2-n}{4}$$

From this, we also see that the symmetric expected utility decreases with number of players in both cases (cap and no cap), as there is less probability of becoming the agenda-setter. And finally: it is obvious, that the equilibrium resulting from the option to impose the budget cap involves less redistribution.

2.1.3 Extension: Earmarks

To move closer towards the ex ante optimum shown above, we introduce earmarks to the model. The legislature could now impose a minimum spending requirements $\overline{x}_i$ on particular projects. This option forces us to revise the expected utility: we can no longer expect that the winner would not appropriate any funds to other players. The new expected utility is (assuming symmetry of losers):

$$E(u_i) = \frac{1}{n}\sqrt{x_j} + \frac{n-1}{n}\sqrt{x_{-j}} - \frac{1}{n}\sum_{k=1}^{n} x_k$$

where

$$\sum_{k=1}^{n} x_k = x_j + (n-1)x_{-j}$$

and therefore rearranged

$$E(u_i) = \frac{1}{n}\left(\sqrt{x_j} - x_j\right) + \frac{n-1}{n}\left(\sqrt{x_{-j}} - x_{-j}\right)$$

which gives ex ante optimization results:

$$x_j = x_{-j} = \frac{1}{4}$$

Remember, this holds for unanimous players. We propose following solution:

1. Earmarks vector $\overline{\mathbf{x}}: \quad x_i = \frac{1}{4} \quad \forall i \in N$ is proposed.
2. Both pass unanimously.
3. The agenda-setter is determined.
4. $x_j = \frac{n^2}{4}, \quad x_{-j} = \frac{1}{4}$ is selected by the agenda-setter j.

We prove the proposition using backward induction. At the final stage, the executive maximizes his or her utility function, subject to the earmarks $\overline{\mathbf{x}}$ set in the first stage:

$$u_j = \sqrt{x_j} - \frac{1}{n}\left((n-1)x_{-j} + x_j\right)$$

The optimization leads to the same amount of x_j as in the simple budget case: $x_j = \frac{n^2}{4}$. We see that it is not contingent on the earmarks. Proceeding to the first stage, the whole legislature anticipates this decision an maximizes expected utility as shown above.

$$E(u_i) = \frac{1}{n}\left(\sqrt{x_j} - x_j\right) + \frac{n-1}{n}\left(\sqrt{\overline{x}_i} - \overline{x}_i\right)$$

The optimization gives $\overline{x}_i = \frac{1}{4} \quad \forall i \in N$. Any other policy proposal will not beat this one.

Inserting the results into the expected utility, we get that the legislature is better off imposing the earmarks:

$$E(u_i)^{EARMARKS} = \frac{-n^2 + 3n - 1}{4n} > E(u_i)^{SIMPLE} = \frac{2-n}{4}$$

In other words, the legislature is weakly better off setting the earmarks as soon as $n \geq 1$, which is naturally satisfied in all cases.

2.1.4 Cap and Earmarks

The final setting would allow the legislature set the spending cap and earmarks jointly. This game has a trivial solution: the legislature has technically full power over the budget, and therefore it will determine the result consistent with his or her ex-ante optimum, which is shown above. The legislature will therefore leave no discretion to the executive. The results are:

$$G = \frac{n}{4}, \quad \overline{x}_i = \frac{1}{4} \quad \forall i \in N \quad \text{and} \quad x_j = x_i = \frac{1}{4} \quad \forall i \in N.$$

To conclude, we compare

$$E(u_i)^{CAP+EARMARKS} = \frac{1}{2} > E(u_i)^{CAP} = \frac{1}{4n} >$$

$$> E(u_i)^{EARMARKS} = \frac{-n^2 + 3n - 1}{4n} > E(u_i)^{SIMPLE} = \frac{2 - n}{4}$$

as soon as $n > 1$. Therefore, the legislature will likely prefer the option to constrain the executive in decisions over the budget.

Let $X = \sum_{i \in N} x_i$ denote the total spending. The results on X are following:

$$X^{EARMARKS} = \frac{n-1}{4} + \frac{n^2}{4} > X^{SIMPLE} = \frac{n^2}{4} > X^{CAP+EARMARKS} = \frac{n}{4} > X^{CAP} = \frac{1}{4}$$

In other words, the spending (virtually the redistribution in this case) is the lowest with budget cap in place, followed by both earmarks and budget cap (in these two cases, the legislature prevents the executive from extracting large subsidies by imposing the cap). Further, the simple budget process leads to higher spending, induced by the absence of the cap. And finally, the highest spending occurs when the executive is not constrained in spending on his or her own group and is moreover forced to address some spending to all groups.

However, this setting is too simplifying and quite unrealistic. First, the transaction costs for the legislature to make a detailed decision over the whole budget would be large. Therefore, it is reasonable to leave some decisions to the executive although the result might deviate from legislature's optimum. Second, there might be some kind of information asymmetry or an incomplete contract. The executive stands closer to financed projects and therefore has more detailed information about the real needs. If the legislature would not leave any discretion to the executive, the decision will be made behind a veil of ignorance.

2.2 Spatial Model of Divided Budget Process

Another modeling approach is a spatial model introduced by Ferejohn and Krehbiel (1987). The model describes a political economy where the agenda-setting legislators are seeking consensus among the legislature. The model examines situation with and without foregoing vote on the total spending.

We suppose three members of the legislature: $i \in \{1, 2, 3\}$. Further, we assume a two-dimensional budget: the funds could be divided between x and y. The budget is always balanced: $x + y = G$. We use an euclidean utility function:

$$u_i = -(x_i^* - x)^2 - (y_i^* - y)^2$$

where x_i^* and y_i^* are i's bliss points.

2.2.1 Undivided Budget Process

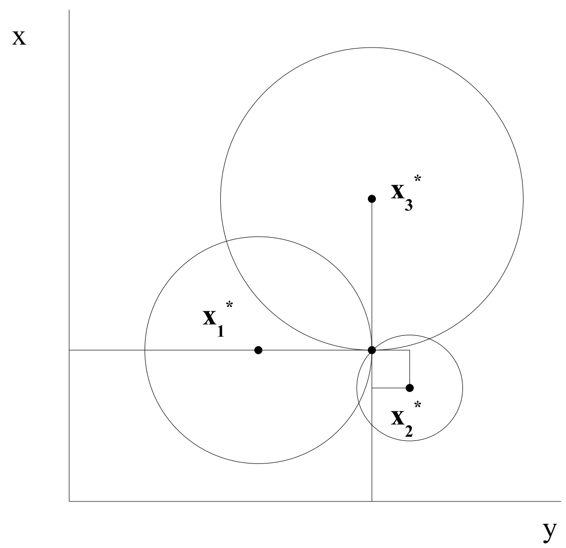
The game sequence is:

1. One of the players, for example the first player, proposes x. He or she needs at least another one player to form a coalition to approve the proposal. If the proposal is rejected, the same procedure is held with the proposal of the second player, then with the third one and so on.

2. After approval of x, the same procedure is held about y.

What is the best strategy for the first player? We will show that there will be no difference between optimal proposals of all three players.

We use a graphical illustration to clarify the problem:



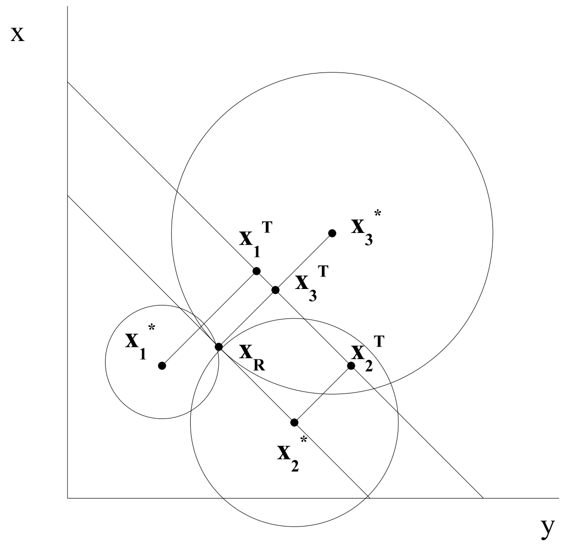
Absolute rationality of players is assumed (the players expect the real consequences of decisions they make). We use a backward induction: in the second round, it will be necessary to form a coalition of at least two players. This coalition would always include the third player because he is the median voter respect to y. Players 1 and 2 become involved in a Bertrand competition and at least one of them will finally support $y = y_2^*$.

The same procedure will run in the first round. The players expect the results of the second round, so they do not care about y and decide solely about x. The same logic is applied and the result is $x = x_3^*$, while the first player is now the median.

2.2.2 Divided Budget Process

Now consider another sequence:

1. The total spending G is proposed and approved in the same way as in the former setting.
2. The structure of the budget is approved in form of decision over x. y is therefore determined: $y = G - x$



Again, we use backward induction. Suppose that the players face total budget G determined in the first round. The bliss points will change under this constraint: Now we have to consider their orthogonal projection on the line of the total spending constraint. These projections have the shortest possible distance from the former bliss points. The induced optima (conditional on total spending) are $\mathbf{x}_1^T$, $\mathbf{x}_2^T$ and $\mathbf{x}_3^T$. By the same logic as in the first case the $\mathbf{x}_3^T$ is selected, as the third player is the median voter due to her preferences.

However, this decision depends on the total spending G, approved in the first round. From the picture it is obvious, that the third player will become the median voter, whatever G is determined.

Now, which G will be therefore exactly decided in the first round? Again, we apply the same logic: the one, which is preferred by the median voter. However, now we have to examine which player has median preferences with respect to the size of budget constraint. And again, from the picture it could be easily seen that the median is the second player. Therefore, the point $\mathbf{x}_R$ will be selected. $\mathbf{x}_R$ is a projection of the third's bliss point on the second's most desired constraint.

2.2.3 Comparison of Divided and Undivided Budget Process

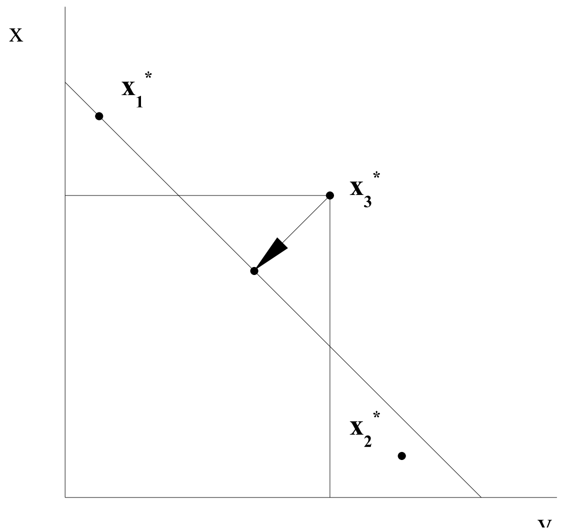
What is the conclusion? Does the adoption of the target spending tool lower redistribution? Not necessarily.

So far, our debate was focused on the total spending. There is a question if we could use the results of Ferejohn and Krehbiel (1987) also for redistributive politics, which we wanted to examine.

We could. We treat redistribution as a special case of public good, which benefits mainly one group. Consider following situation, showing that the results of division of the budget process are non-trivial:

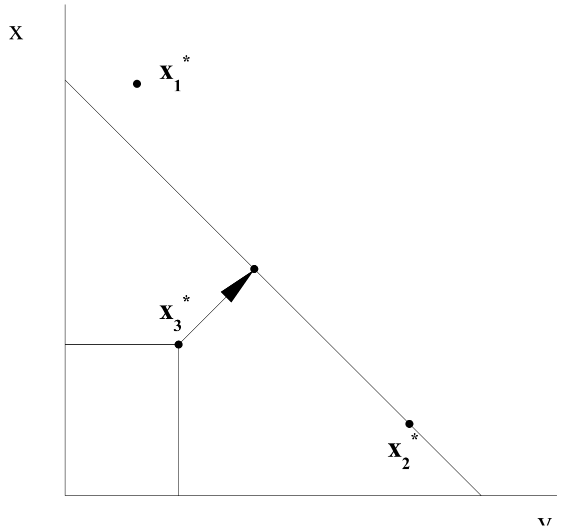
The first player prefers high x and low y. This could be expressed as a subsidy to group 1. However, the first player could want to address some funds also to group 2, motivated by altruism, or more likely by positive externalities spilling over from public consumption of the other group. However, he or she would never intend to give the group 2 as much as to the group 1, due to taxes, which go hand in hand with further expenses. Player two is facing the same situation on the other side. Player 3 has no group to subsidize but she could be a socialist or a conservative. Socialist's bliss is close to full subsidies for both groups. Conservative's bliss is close to zero budget. The results are following:

Socialist third player:



The redistribution is lower under divided budget process.

Conservative third player:



The redistribution is higher under divided budget process.

The results are quite paradoxical. When there is a conservative atmosphere, the budget process separation leads to higher redistribution. When there is a socialist atmosphere, the separation leads to lower budget.

However, the results could be viewed in another way: The division mitigate the effect of political ideologies. We will recall this finding in the fifth chapter.

Chapter 3

Effect: Mitigated Lobbying

"I either want less corruption, or more chance to participate in it."

-Ashleigh Brilliant

In this chapter, we consider an influence of interest groups as organized subsidy-seekers. The incentives of interest groups are pronounced via lobbying the legislators.

Politicians are not immune to lobbying. The institutions built to prevent lobbying could be sophisticated, the political rent could take various and often uncontrollable and hardly punishable forms. However, lobbying should not be expressed just as a corruption act. Consider for example lobby of an association of basic schools to get more money to finance a qualification programmes for teachers. But enough of these normative cogitations.

First, we introduce a model based on Persson-Tabellini (1994), extended by Mazza-van Winden (2005), showing that under centralized and separated budget decisions the lobbying leads not only to lower budget than without the separation, but furthermore to (quite suprisingly) lower government relatively to decentralized budgeting. The separation here means giving the legislature possibility to cap the spending before the appropriation. The decentralized process here means that every district has an independent budget. In other words, the funds addressed to particular district equals taxes extracted from this district. With centralization, a typical tragedy of budgetary commons occurs. However, this holds only until the lobbying option is considered.

Second, we focus on interest groups lobbying model by Dharmapala (2002), introducing a normative criterion of social optimum and showing that the separation leads to lower spending and higher welfare, in spite of the public good provision being suboptimal.

3.1 Model of Competitive Lobbying in Centralized Budget Process

The paper of Mazza and van Winden (2002) is a reaction to the influential study of Persson-Tabellini (1994).

Persson and Tabellini (1994) show that political centralization of public goods distribution will lead to the increase in the size of the budget. In their setting the interest groups under centralized policymaking would have a strong incentive to free-ride: they would tend to lobby the central government to increase their subsidies, while bearing only fraction of costs. The result is large budget under centralized budget process. The straightforward policy recommendation is to decentralize the budget if lower expenses are needed.

Mazza-van Winden use the same framework and extend the model to weaken Persson-Tabbelini's argument and policy recommendation. They show that more careful treatment of real institutions (separations of powers in budget process, i.e. allowing the legislature to set target spending first) leads to completely different results. The centralization under such separated policy results in smaller government, to the contrary. The basic idea is that if the budget process is divided and it is decided separately on the size and on the composition of the budget, the lobbying would focus on the composition decision and would not waste resources on the decision over the size. Moreover, the legislature internalizes waste from lobbying, hence wants to reduce the size of rent-seeking contest. The result is smaller total budget.

3.1.1 The Model

We consider two ($i = 1, 2$) groups competing in a game over the central budget. We use following quasi-linear utility function.

$$u_i = h(G_i) + 1 - t_i$$

where income is normalized to 1, t_i denotes a tax rate and G_i is an amount of public good. $h(G_i)$ is a strictly concave function evaluating utility from public consumption.

The legislators have two types of incentives:

1. Reelection: They seek reelection by choosing policy which maximizes public utility. In other words, up to the moment when the legislators are lobbied, they simply maximize $\sum_{i=1,2} u_i$ subject to the balanced budget constraint $\sum_{i=1,2} G_i = \sum_{i=1,2} t_i$.
2. Private utility: They evaluate benefits which they obtain from lobbying. We do not restrain the lobbying to have positive effect on the legislators utility. As we will show, the legislator could evaluate the lobbying negatively.

First, we determine the the results under decentralized budgeting, where every group bears the costs of it's own public good production. Then we add centralization and lobbying.

Second, we analyze a separated budget process with one-stage lobbying. Adding a both-stage lobbying, we show that the size of the budget decreases.

3.1.2 Budget Process with a Simple Government

Under decentralized budgeting, each group maximizes i's particular utility subject to balanced budget constraint: $G_i = t_i$. The implicitly expressed equilibrium is:

$$h_{G_i}(G_i) = 1 \quad \forall i \in \{1, 2\}$$

where the subscript denotes a derivative. We use following notation to get the optimal provision of G_i in decentralized budgeting explicitly:

$$G_i^{*DEC} = h_{G_i}^{-1}(1)$$

This is in fact the same result as would be obtained by joint utility maximization on the central level. However, if we add lobbying, the groups would have an incentive to free-ride and push the total spending up, bearing only half costs (in case of two players). Up to this point, the centralization seems to cause only rise in redistribution.

$$G_i^{*CEN} > G_i^{*DEC}$$

That is what Person-Tabellini (1994) showed.[1]

3.1.3 Centralized Budget Process with a Divided Government

Now, we consider a separated budget process: The legislature decides about the size and the executive about the composition.

In other words, in the first round, the unified tax t is determined and subsequently, the revenue shares s and $(1-s)$ are selected. The public good provisions for the groups are

$$G_1 = 2ts \qquad \text{and} \qquad G_2 = 2t(s-1)$$

Under this setting, the lobbying could have two possible targets. The interest groups could lobby the legislature to enlarge the overall target spending represented by t (and therefore increase their particular provisions). The second possibility is to lobby the executive, aiming to increase their revenue shares s and $(1-s)$, respectively.

One-Round Lobbying First, we let the groups lobby only the legislature. Thus, the group could only influence the total spending, not the proportions. Let $l_i(t)$ be a function of contributions contingent on the tax rate t. The contribution could be anything, which is costly for the interest group and beneficial for the politician.

Solving the game by backward induction, we start from the second round: Taking the t as given, the executive decides over the distribution. She maximizes the joint welfare $\sum_{i=1,2} u_i$. The optimization gives

$$h_{G_1}(G_1) = h_{G_2}(G_2)$$

[1] We will not prove this, see the original paper for details.

which leads directly to

$$s = \frac{1}{2}$$

In other words, the executive distributes the spending equally. Hence, the groups can not make an advantage over each other by lobbying.

In the first round, the legislature selects the spending to maximize

$$u_L = (L-1)\sum_{i=1,2} l_i(t) + \sum_{i=1,2} u_i(t)$$

where L denotes a relative importance of the contribution to the legislature. Note, that the contributions could be valued negatively in some cases.

It can be shown that $h_{G_1}(G_1) = h_{G_2}(G_2) = 1$, which is the same result as under decentralized budgeting. The result is quite intuitive: while the equal proportions are determined, the groups are under threat of free-riding, resulting in no lobbying activity. Thus $l_1 = l_2 = 0$.

Two-Round Lobbying Second, let the groups lobby also the executive. Let $e_i(s)$ denote the contributions to the executive contingent on the proportion s. The utility of the legislature now is

$$u_L = (L-1)\sum_{i=1,2} l_i(t) + \sum_{i=1,2} (u_i(s,t) - e_i(s))$$

and the utility of the executive is

$$u_E = (E-1)\sum_{i=1,2} e_i(t) + \sum_{i=1,2} (u_i(s,t) - l_i(s))$$

where E denotes a relative importance of the contribution to the executive (we assume $E > 1$ in order to the lobbying being effective). Now, the game proceeds in four stages:

1. Groups offer their contribution functions $l_i(t)$ to the legislature.
2. The legislature decides about the tax (and the total spending, at once).
3. Groups offer their contribution functions $e_i(t)$ to the executive.
4. The executive decides about the proportion s.

Again, we start solving the game by backward induction. It can be shown[2] that in the equilibrium again

$$h_{G_1}(G_2) = h_{G_2}(G_2) \quad \text{and therefore} \quad s = \frac{1}{2}$$

[2]see Mazza-van Winden (2005) for the proof

The straightforward consequence is, that the size of public goods G_i depends only on the first round. In other words, to compare G_i^{*DEC} and $G_i^{*CEN+DIV}$ (which denotes the size of the expenditure under (lobbied) divided budget process) we only need to know what is the relation between the former t^{*CEN} and the tax rate (let us denote it $t^{*CEN+DIV}$) decided in the first round of divided budget process, which we examine now. Mazza-van Winden show, that the result is:

$$t^{*CEN+DIV} < t^{*CEN} \quad \text{and therefore} \quad G_i^{*CEN+DIV} < G_i^{*CEN} = G_i^{*DEC}$$

This was the point of Mazza-van Winden. However, our goal is to determine effect of the power separation, rather than centralization. We could easily obtain the result by combining findings of Persson-Tabellini (1994) and the just presented results of Mazza and van Winden.

Persson-Tabellini have shown that

$$G_i^{*CEN} > G_i^{*DEC}$$

under undivided budget process. (Note that the budget process division affects only the centralized budget, there is no point of studying separation in divided power process, as we model the groups as an individual decision-makers.)

Mazza-van Winden results are

$$G_i^{*CEN+DIV} < G_i^{*DEC}$$

under divided budget process. Combination gives

$$G_i^{*CEN+DIV} < G_i^{*DEC} < G_i^{*CEN}$$

In other words, we could expect lower lobbying activity pushing up the spending if we allow the legislature to set the spending (via the tax rate) before executive decides about the composition of the budget.

The intuitive interpretation is that the lobbying groups do not waste their resources on lobbying the legislature (seeking to enlarge the total spending and facing the free rider problem among the groups), but instead they lobby the executive (competitively seeking to enlarge the proportion addressed to themselves). The resulting equilibrium is, however, again symmetrical, due to symmetry of groups and their preferences.

3.2 Congressional Budget Process Model with Lobbying

Examined introduction of additional budget control rules given to the legislature is close to adoption of The Congressional Budget and Impoundment Control Act of 1974 (CBA74). Before the CBA74, the budget was designed by piecemeal appropriations process with no constraining tools in operation. After the CBA74, the simplified process is:

1. President proposes a draft budget.
2. Budget Committee designs the budget resolution.
3. Appropriations Committee designs the budget.

Leaving the president aside (while his draft is only a non-binding recommendation), we have a separated top-down budgeting process as we have used it before. The Budget Committee has a very close role to the legislature and the Appropriations Committee to the executive (particularly for example the ministry of finance). Dharmapala (2002) comes with a model (allowing the players to lobby the government) which analyzes the impact of CBA74. The consequences of CBA74 were already examined by Ferejohn-Krehbiel (1987) using the spatial model which we have presented before. Dharmapala's work represents another view of the problem: here the budget committee and the appropriations committee are modeled as a two independent players with unique utility functions, contrary to a spatial legislative bargaining model of Ferejohn and Krehbiel.

While our survey is not focused particularly on the congressional budgeting, we will convert the model introduced by Dharmapala (2002) to the legislature-executive setting without loss of reality representation.

3.2.1 The Model

The framework of the model is a political economy with N identical districts, each populated by M individuals. Each of the individuals also belongs to $(K+1)$ categories, independent on the districts. The categories represent K interest groups and the additional one stands for individuals which are not involved in any of the groups. Let M_k denote the number of individuals belonging to interest group $k \in \{1 \dots K\}$ and M_I be a number of all individuals belonging to any of the interest groups. $M_{-I} = M - M_I$. Let I_k be a set of individuals in group k and I be a set of all individuals under any of the groups. The characteristic of an individual belonging to group k is, that she derives benefits from a subsidy for the group.

The aggregate utility of a district i is therefore

$$W_i = \omega - t + u(G) + \sum_{k=1}^{K} m_k h_k(b_k)$$

where ω is a present wealth of a district i, t is a flat tax, G is an amount of broad public good which benefits all individuals. b_k is a narrow public good which benefits only members of group k. m_k is a fraction $\frac{M}{M_k}$. $u(G)$ is an increasing and concave function satisfying

$$\lim_{G \to 0} u'(G) = \infty.$$

$h_k(b_k)$ is also an increasing and concave function satisfying

$$\lim_{b_k \to 0} h_k'(b_k) = \infty \quad \forall k = 1 \dots K.$$

The last assumption is constraining the budget to be balanced:

$$G + \sum_{k=1}^{K} b_k \leq Nt$$

Socially Optimal Budget Since all the districts are identical, the social welfare optimization has the following shape

$$\arg \max_{G,t,b_1 \dots b_k} \left(N(\omega - t + u(G) + \sum_{k=1}^{K} m_k h_k(b_k)) \right)$$

subject to the balanced budget constraint. The optimization leads to

Proposition 1 *The socially optimal budget is* $\{G^*, \mathbf{b}^*\}$*, where*

$$u'(G^*) = \frac{1}{N}$$

and

$$h_k'(b_k^*) = \frac{1}{Nm_k}$$

which implicitly defines the socially optimal budget. The optimal total spending (equaling the sum of taxes) is

$$S^* = G^* + \sum_{k=1}^{K} b_k^*$$

The proof is simple: from the utility and the budget constraint we form a lagrangean function

$$\Lambda = N(\omega - t + u(G) + \sum_{k=1}^{K} m_k h_k(b_k)) + \lambda(Nt - G - \sum_{k=1}^{K} b_k)$$

where λ is a lagrangean multiplier. The proposition is then a straightforward result of the optimization.

However, the proposition could be proven verbally, using elementary economic logic:

- Marginal social utility of public good production should equal the marginal social disutility from additional taxes.
- Marginal social utilities of the public good and the subsidies b_k should be the same.
- Marginal social utility of the subsidies equals marginal social disutility of additional taxes.

Above results give us a benchmark to categorize the effects of examined power separation.

Institutional Setting We assume N legislators, each representing one district. We distinguish between senior legislators and junior legislators. The senior legislators are determined by having some agenda-setting powers. The junior legislators have no other powers than voting on proposals. Therefore, they have no other incentives than maximizing their district's utility. This could be explained as maximizing the probability of being reelected.

Therefore, each junior legislator votes for the proposition, if $W^P \geq W^D$, where W^P is the wealth of the district if proposal passes and W^D is the wealth if the proposal is defeated on the floor and the default budget $\{G^D, \mathbf{b}^D\}$ is adopted. The inequality (to ensure unique solution) could be explained by a small cost of voting against own district.

Also, the senior legislators prefer to submit proposals which do not fail. Again, we could explain this by a small cost of losing the proposal.

We assume a simple majority voting under a closed rule. In other words, no amendments or commitments to logrolling bargains are allowed.

3.2.2 Undivided Budget Process with Lobbying

There is only one legislator with agenda-setting powers in the simple form of the budget process. We will call him E and treat him as the executive in our usual legislature-executive setting. E is a part of the whole legislature L. The game proceeds as follows.

1. E proposes a budget $\{G^P, \mathbf{b}^P\}$ lobbied by all interest groups $k \in 1 \ldots K$

2. L votes on the proposal by majority voting (under a closed rule). If the proposal passes, $\{G^P, \mathbf{b}^P\}$ is implemented, otherwise the default $\{G^D, \mathbf{b}^D\}$ is implemented.

The game could be solved by a backward induction. The last stage, where the junior legislators vote for the proposal if $W^P \geq W^D$ is quite trivial and it could be rewritten as the "junior legislators participation constraint", denote it P. The executive thus proposes the budget to satisfy this constraint, as a result of the cost of losing the proposal. Therefore, we just insert the constraint to the executive's optimization problem. P can be written as

$$\omega - t + u(G) + \sum_{k=1}^{K} m_k h_k(b_k) \geq W^D$$

We suppose that the executive is lobbied by all interest groups while deciding about the budget proposal. The new executive's utility function is a simple addition of the represented district wealth and a sum of utilities of all groups which lobby her:

$$W + \sum_{k=1}^{K} m_k(\omega - t + u(G) + h_k(b_k))$$

subject to the budget constraint and the participation P constraint.

Proposition 2 *Under the undivided budget process, the equilibrium budget* $\{G^*, \mathbf{b}^0\}$ *is implicitly defined by*

$$u'(G^*) = \frac{1}{N}$$

and

$$h_k'(b_k^0) = \frac{1 + m_I + \mu}{(2 + \mu)Nm_k}$$

where μ is a lagrangean multiplier for the participation constraint P:

$$\Lambda = \underbrace{(1 + m_I)(\omega - t + u(G)) + 2\sum_{k=1}^{K} m_k h_k(b_k)}_{E's\ utility} + \underbrace{\lambda(Nt - G - \sum_{k=1}^{K} b_k)}_{balanced\ budget}$$

$$+ \underbrace{\mu(\omega - t + u(G) + \sum_{k=1}^{K} m_k h_k(b_k) - W^D)}_{P}$$

We will not prove the proposition exactly. However, it is only a straightforward consequence of the lagrangean optimization.

As might be obvious from the proposition, the core results depend on the participation constraint P (if it is binding or not, i.e. if $\mu > 0$ or $\mu = 0$, respectively), which further depends on the size of the default, W^D.

Let $\{G^E, \mathbf{b}^E\}$ denote an optimal choice for the executive if P does not bind.

If W^D is such that P does not bind, $\mu = 0$ and $b_k^0 = b_k^E > b_k^*$ $\forall k = 1 \dots K$. Otherwise, $\mu > 0$ and $b^E > b_k^0 \geq b_k^*$ $\forall k = 1 \dots K$. $b_k^0 = b_k^*$ only if $W^d = W^*$. Consequently, the total spending comparison shows that

$$S^E > S^* \text{ if } P \text{ does not bind. } S^E \text{ is thus implemented.}$$

$$S^E > S^0 \geq S^* \text{ if } P \text{ does bind. } S^0 \text{ is thus implemented.}$$

In other words, the public good is on the level of our socially optimal benchmark under the undivided budget process. On the other side, the subsidies are overoptimal (except from theoretic case where $W^D = W^*$ and P does bind). The total spending therefore exceeds the social optimum benchmark in most cases. This could be explained by the lobbying incentives. The interest groups lobby to increase amount of subsidies, as they bear only a fraction of the costs. Conversely, they have no incentives to increase the public good, as it is nationwide optimal.

3.2.3 Divided Budget Process with Lobbying

Now we will introduce a second agenda-setting legislator. We will call her the budget committee and denote B. B has the power to propose a budget cap before E designs the budget. The interest groups will now have a possibility to lobby both agenda-setters.

If the agenda-setting legislators were lobbied as in the first case (by the same amount from all identical groups, now contributed to both legislators) the result would be the same, as both legislators share the same preferences over the budget size and distribution. Furthermore, in this setting the groups would be assumed to split their lobbying expenses equally among E and B, which we consider oversimplifying. What we want to study is how the budget process separation will influence the lobbying behavior and subsequently the budget itself. Thereby, we leave the players some discretion in targeting the lobbying.

Let y_k be a fixed "lobbying fund" of group k. Next, let $\gamma_k \in [0,1]$ be a fraction of y_k devoted to E. Thus, $(1-\gamma_k)y_k$ is devoted to B.

The game proceeds as follows.

1. Each group k chooses its γ_k.
2. B proposes the budget cap, lobbied by the interest groups.
3. L votes on the proposal. If the proposal passes, E has to accept this constraint (we denote it S^B) in the budget proposal. Otherwise, the process is the same as in previous case.
4. E proposes the budget $\{G^P, \mathbf{b}^P\}$, lobbied by the interest groups
5. L votes on the proposal by majority voting (under a closed rule). If the proposal passes, $\{G^P, \mathbf{b}^P\}$ is implemented, otherwise the default $\{G^D, \mathbf{b}^D\}$ is implemented.

For simplicity we assume that the budget cap, if adopted, is binding. There would be no reason for introducing not-binding constraint. To split ties, we further suppose that if the junior legislators are indifferent between voting yes or no while approving the budget cap, they vote yes.

We solve the game by backward induction again. To formalize E's optimization, we form a lagrangean function:

$$\Lambda = \underbrace{(1+\sum_{k=1}^{K}\gamma_k y_k)(\omega - t + u(G)) + \sum_{k=1}^{K}(1+\gamma_k y_k)m_k h_k(b_k)}_{E's\ utility} + \underbrace{\lambda(Nt - G - \sum_{k=1}^{K} b_k)}_{balanced\ budget}$$
$$+ \underbrace{\mu(\omega - t + u(G) + \sum_{k=1}^{K} m_k h_k(b_k) - W^D)}_{P^E} + \underbrace{\rho(S^B - G - \sum_{k=1}^{K} b_k)}_{budget\ cap}$$

The optimization implicitly determines E's best response functions contingent on S^B and γ_k: $G^+(S^B, \gamma_k)$, $\mathbf{b}^+(S^B, \gamma_k)$ and $t^+(S^B, \gamma_k)$. In the first stage, B faces these best response functions: she maximizes her utility

$$\arg\max_{S^B}\left((1+\sum_{k=1}^{K}(1-\gamma_k)y_k)(\omega - t^+(S^B,\gamma_k) + u(G^+(S^B,\gamma_k))) + \sum_{k=1}^{K}(1+(1-\gamma_k)y_k)m_k h_k(b_k^+(S^B,\gamma_k))\right)$$

subject to the participation constraint $W^P \geq W^D$, which we now denote P^B, as it is faced by B. The former participation constraint faced by E we denoted analogously P^E.

B's optimization gives best response function $S^{B+}(\gamma_k)$, contingent on γ_k. This best response function is finally faced by the interest groups, which select γ_ks to

$$\arg\max_{\gamma_k} \; m_k \left(\omega - t^+(S^{B+}, \gamma_k) + u(G^+(S^{B+}, \gamma_k)) + h_k(b_k^+(S^{B+}, \gamma_k))\right)$$

Proposition 3 *Suppose that K is sufficiently large. When $\{G^D, \mathbf{b}^D\} \neq \{G^*, \mathbf{b}^*\}$, the equilibrium is*

1. *All interest groups k selects $\gamma_k = 1 \quad \forall k = 1 \ldots K$.*
2. *B proposes $S^B < S^E$.*
3. *The proposal is enacted.*
4. *E proposes a budget $\{G^P, \mathbf{b}^P\}$, subject to the budget cap S^B, where $G^P < G^*$ and $b_k^P < b_k^E \quad \forall k = 1 \ldots K$.*
5. *The proposal passes unanimously.*

When $\{G^D, \mathbf{b}^D\} = \{G^*, \mathbf{b}^*\}$, following stages are different:

2. *B proposes any non-binding S^B.*
4. *E proposes $\{G^*, \mathbf{b}^*\}$.*

Therefore, when the number of pressure groups is sufficiently large, each focuses its whole lobbying activity on E, leaving B's decision over the budget cap unaffected.

As the proof involves lot of algebra, we will not present it here and ask the reader to see Dharmapala (2002) if interested.

However, the result is reasonable: as in previous model, a free rider problem emerges among the interest groups in lobbying. While lobbying B, a small increase in γ_k leads only to minimal increase in welfare, conversely when the groups focus on E, they are able to increase their subsidies far more effectively. Therefore, the interest groups set $\gamma_k = 1 \; \forall k$. As B is not lobbied, he or she selects binding S^B to constrain lobbied executive, whose incentive is to rise the total expenditures as a result of the lobbying. However, the cap should fulfill the participation constraint.

As the executive has an enforceable constraint on his or her spending decision, she will propose both lower G^P and b_k^P (compared to it's unconstrained optimum), due to rising and concave utilities from both narrow (b_k) and broad (G) public good. In addition, we should still remember that E has to fulfill the participation constraint.

The unconstrained optimum of the executive would lead to underoptimal G and overoptimal b_k, as the interest groups would internalize only fraction of the tax costs of rise in b_k and the whole costs of rise in G. Now the G^P under the budget cap is even lower that the latter underoptimum, while the joint effect (relative to the social optimum) on b_k is nontrivial.

And finally, if the default equaled the social optimum, the not-lobbied legislature would definitely select not-binding budget cap, as he or she anticipates that the execute would not dare to deviate from the social optimum (the participation constraint would not be satisfied and the proposal would be defeated).

From the propositions above we could derive the crucial result of our analysis: the total spending is larger under the undivided budget process with respect to the divided budget process. If the legislature has powers to constrain the spending, lobbying incentives are restrained to affect distribution prior to increase total spending.

From this scope of view the results confirm these of Mazza-van Winden in the previous section. Separation of powers causes the lobbying incentives to shift from the total budget increasing to distribution of the amount. Dharmapala (2002) further shows that general public good is underprovided and narrow public goods, which benefit only members of particular interest group, are overprovided if we consider lobbying interest groups.

Chapter 4

Effect: Mitigated Political Rents

"Politics have no relation to morals."

-Niccolo Macchiavelli

In this chapter, we use a model introduced by Persson and Tabellini (2000). This model differs from the former ones by introducing a reelection problem. Before, we have never focused on the incentive to stay in function. If we seek to set our models as realistic as possible, we could no longer ignore this feature.

Additionally, we will allow the legislators to extract some political rent, however, under threat of not being reelected. Political rent is also a phenomena which we could not neglect. Despite usually not being explicit, the effects of some form of political rent are far from being insignificant. Political rent could take form of various preferential treatments, leisure activities or holiday sponsoring, cheap residence, granted positions in state-owned enterprises or public institutions, etc. The political rent is definitely present. However, the rent extraction could be costly. Thereby we include an arbitrary coefficient measuring this transaction costs.

We will show that additional legislature powers (again represented by budget process separation-decision over total spending foregoes decision over the budget distribution) lead to tougher political competition, accompanied by lower political rents. Also, the taxation (equaling total spending) will be lower, with underprovided public good and mitigated redistribution.

4.1 Budget Process with Reelection Problem and Political Rents

First, we examine the basic case where the decision over total spending and budget distribution are carried out in a single moment. Also, there is only a one agenda-setting legislator (chosen by the nature), which proposes both jointly. This represents a common one-round budget process with the executive as the agenda-setter. Second, we examine the budget process separation. In this case, first agenda-setting legislator (the legislative committee with option to set total spending prior to the budget approval) proposes the spending level and the voting is held. Subsequently, the second agenda-setter (the executive designing the budget) proposes the budget and the relevant voting is held. Third, we will discuss the results and compare with the social optimum benchmark.

4.1.1 Simple Budget Process Case

Let the setting be as follows: $J = 1, 2, 3$ denotes a set of districts, each represented by appropriate legislator from the set l (we assume majoritarian voting system). Assume utility function:

$$W^J = c^J + H(g) = y - \tau + f^J + H(g)$$

where c^J denotes private consumption, g is amount of public expenditures, and $H(g)$ let be concave and increasing function evaluating utility from public good g. Then y denotes income, τ denotes taxation and finally f^J stands for transfers addressed to members of group J. Please note that there is no difference between expressing individual utility and aggregate utility of group J as long as all members of every J are identical. For simplicity we use the aggregate one. Further assume political rent r_l, which is included in the budget:

$$\sum_J \tau = g + \sum_J f^J + \sum_l r_l = g + f + r \quad (4.1)$$

where f denotes aggregate transfers and r denotes aggregate political rents. The political utility function can be written as:

$$v_l = \gamma r_l + p_l R$$

where $1 - \gamma$ could be expressed as transaction cost, p_l denotes probability of being reelected and R expresses universal value of the reelection. The game is set as follows:

1. Nature randomly selects agenda-setter a from the set l
2. Voters publish their reelection strategies ϖ^J (we assume coordinated voters in each district, however competing between districts)
3. Agenda-setter a (the executive) proposes the whole policy vector $\mathbf{q}$
4. Legislature votes on the proposal
5. Elections are held

The reelection strategies are set via p_l:

$$p_l = \begin{cases} 1 & \text{if } W^J(\mathbf{q}) \geq \varpi^J \\ 0 & \text{otherwise} \end{cases} \quad (4.2)$$

where ϖ^J denotes the optimal "reservation utilities", the minimal utilities needed to reelect the legislator.

If a's proposal does not pass, a default policy $\bar{p} : g = f^J = 0, \tau = r^l = \bar{r}$ is implemented.

The solution to the game is:

$$r^S = 3y - \frac{R}{\gamma} - \bar{r}$$
$$\tau^S = y$$
$$g^S = H_g^{-1}(1)(\text{subscript denotes a derivative})$$
$$f^{aS} = \frac{R}{\gamma} + \bar{r} - g^S > 0, f^{JS} = 0 \text{ for } J \neq a$$
$$\varpi^{aS} = H(g^S) + f^{aS}, \varpi^{JS} = H(g^S) \text{ for } J \neq a$$

All politicians are reelected.

where superscript S denotes simple budget process.

We will not prove the proposition exactly. Instead, we will explain the logic.

Basic ideas of the proof

1. $f^J = 0$ for $J \neq a$. Let $J = m$ be the second district in coalition with a and $J = n$ be the one excluded from the coalition. Then it is obvious that $r^n = f^n = 0$, otherwise a would do better by increasing r^a instead. Furthermore, the districts m, n are playing Bertrand: Each district has an incentive to overbid the rival by setting lower ϖ up to the point where $f^m = f^n = 0$. The explicit value is $\varpi^m = \varpi^n = y - \tau + H(g)$.

2. $r \geq 3y - \frac{R}{\gamma} - \bar{r}$. First, a would never offer m more than $\max[0, r_m]$, where r_m is such that
$$\gamma r_m + R = \gamma \bar{r}$$
At this point, m is indifferent between voting no, loosing the election and obtaining default payment and voting yes and being reelected. For simplicity suppose this $r_m \leq 0$. Second, a would prefer being reelected if
$$\gamma r_a + R \geq \gamma(3y - \bar{r}).$$
Note that on the left side $g = f = 0$, while a does not care about his voters in this case. Rearrange to obtain
$$r = r_a \geq 3y - \frac{R}{\gamma} - \bar{r}. \tag{4.3}$$
Persson-Tabellini (2000) argues that this is a sufficient voting rule: If the legislators would not be reappointed, they would allocate all resources to themselves, leaving the voters with minimal utility. Therefore both a and m are reelected satisfiying 4.3. Consequently, a would set the policy to reach the equality in 4.3, which maximizes his payoff while still being reelected.

3. $\tau = y$ as a result of allocation of all disposable resources to r_a.

4. Now we can complete the equilibrium: maximization of a's voters utility

$$\text{argmax } [f + y - \tau + H(g)] \text{ leads to } g = g^a = H_g(1).$$

Combination of 4.1 and 4.3 gives us

$$3(\tau - y) + \frac{R}{\gamma} + \bar{r} \geq f + g,$$

which together with $\tau = y$ leads to $f = f^a = \frac{R}{\gamma} + \bar{r} - g$ and finally $r = r^a = 3y - \frac{R}{\gamma} - \bar{r}$. Inserting these results in voter's utility function we obtain results for ϖ. [1]

4.1.2 Separated Budget Process Case

In this section we allow the legislature to determine the budget size first. The proposal of the total spending is made by another agenda-setting legislator a_τ and approved (or not) prior to the budget distribution proposal and voting.

The game is set as follows:

1. Nature randomly selects two different agenda-setters: a_τ (the one who decides on taxation and therefore on the expenditure constraint) and a_g (the one who decides on allocation of disposable resources).

2. Voters publish their reelection strategies ϖ^J (again we assume coordinated voters in each district, however competing between districts).

3. Agenda-setter a_τ (the legislative committee) proposes a tax rate τ.

4. Congress votes on the proposal. (if the proposal is rejected, the default tax rate $\bar{\tau}$ is imposed)

5. Agenda-setter a_g (the executive) proposes allocation of expenditures (size of g, f^J and r_l).

6. Congress votes on the proposal. (if the proposal is rejected, the default allocation is $g = 0, r_l = \bar{r}, f^J = \tau - \bar{r}$)

7. Elections are held.

We solve the game again using a backward induction. In the second phase, a_g again seeks support of the cheapest coalition partner. The cost of the partner is determined by the reservation utility ϖ^J, set by the district itself. Therefore, the districts again become involved in Bertrand competition, pushing the ϖ^J down to level where $f^J = 0 \quad \forall J \neq a_g$. The reason is simple: while paying taxes anyway, the districts prefer to get any transfers, how tiny it might be.

[1] For more detailed treatment see Persson and Tabellini (2000), chapter 10.

As a result, a_g has a full discretion in appropriating remaining funds. She will do it by simple utility optimization, which leads to public good underprovision. The exact equilibrium is $g^D = H_g^{-1}(1)$ (the superscript D denotes divided budget process).

Maximum rent, which could a_g extract, is equal 3τ. If she needs to pay additional coalition partner, she has to offer him more than default $\bar{r}$. Thus, she comes out with a payoff $\gamma(3\tau - \bar{r})$. Another possibility is to satisfy the voters. Assume that $\gamma\bar{r} \leq R$: it is better to be reelected with no rents than losing the vote and cash in the default rent. Moreover, remember that the reservation utilites of other districts are pushed to the minimum, demanding no transfers. Thus, there is no point for a_g to give any rents nor additional transfers to the coalition partner. Combining above results we get constraint on rents:

$$r^D \geq \max\left[3\tau - \frac{R}{\gamma} - \bar{r}, 0\right]$$

Next, we would examine decision process of agenda-setter a_τ. The logic is simple: as the relevant district receives no subsidies, the voters want the spending to be minimal, but still covering g^D as defined above. Therefore, the best outcome for the voters comes when $\tau = \frac{g^D}{3}$ with $f = r = 0$. This situation suits the above minimum rent constraint, as $g^D < \frac{R}{\gamma}$. Consequently, a_τ will make up with $r = 0$. Note that interests of a_τ are the same with the interests of it's district, as a_τ is not a residual claimant.

Moreover, to show that the legislators will seek reelection, realize that a_g would not offer a_τ more than $\gamma\bar{r}$. Recalling that $R > \gamma\bar{r}$, it is optimal for a_τ to please her voters and set the above minimal tax rate.

Finally, the voters in a_g have to settle for this tax rate, as making an excessive demand on their legislator would trigger breakdown and cause maximum rents. Appropriate reservation utilities are $\varpi^J = y + H(g^D) - \frac{g^D}{3} \quad \forall J$

As a result of reelection benefits, the legislators behave such that they stay in office and voters do not risk any deviations leading to high rents.

Above we have described one of the equilibria. However, there are other ones, contingent on the choices of ϖ^{a_τ} and ϖ^{a_g}. The equilibrium is every state where reservations utility choices of powerful districts are mutual best responses. The taxes could vary in the interval

$$\tau^D \in \left(\frac{g^D}{3}, \frac{1}{3}(\frac{R}{\gamma} + \bar{r})\right)$$

and the transfers

$$f^{a_g D} \in \left(0, \frac{R}{\gamma} + \bar{r} - g^D\right)$$

while considering the whole range of equilibria. This range trades off taxes and transfers to the powerful district.

We have already explained the value of the lower bound. The upper bound is given by maximum reservation utility which could the district a_g set (and therefore force their legislator to set nonzero and positive transfers), and which still does not (assuming that the district a_τ plays the best response: leaving a_g a discretion to extract needed funds for transfers to her constituency) trigger the breakdown leading to leviathan.

4.1.3 Conclusion

First, we derive a benchmark: the "social optimum" given by simple joint welfare maximization. $r^* = 0$, as the welfare effect of rents equals zero and the costs are fully internalized. The welfare optimization gives $H_g(g^*) = \frac{1}{3}$, which implicitly determines optimal public good provision. Further, the net transfers $f^{J*} - \tau^*$ are equal among the districts. If we consider at least small tax inefficiency, in optimum $f^* = 0$.

Now we have the social optimum fully determined. Summing the previous result we get:

$$r^S > r^D = r^*$$

$$\tau^S > \tau^D \geq \tau^*$$

$$g^S = g^D < g^*$$

$$f^S \geq f^D \geq f^*, \text{ although always } f^S > f^*$$

(the superscript S denotes simple budget process, D divided budget process and $*$ the social optimum).

We see that budget process separation leads to mitigated rents. This is a result of tougher political competition, where the spending-setter's district does not leave much discretion to the budget-setter. This effect is naturally not present if one legislator proposes the whole policy.

Also, the total spending (here represented by taxes) is lower under divided budgeting. The reason is again that a_τ does want to leave discretion to a_g only until g^D is financed. (with exception of the effects of the above decribed Nash game played between the districts).

The public good is underprovided in both cases, as only one third of the benefits is internalized by the appropriate agenda-setter a_g. This is anticipated by a_τ in her decision process.

And finally, the transfers are weakly lower under separated budget process. The maximum transfers the district a_τ would accept (the marginal equilibrium of the above districts game) are equal to equilibrium f^{a_g} under simple budget process.

Chapter 5

Effect: Political Cycles Smoothing

"Too often in recent history liberal governments have been wrecked on rocks of loose fiscal policy."

-Franklin Delano Roosevelt

In this chapter we examine effects of budgetary power separation on political cycles. We do this by adding a new dimension: intertemporal public expenditures distribution. Political cycles are complex and could take various forms and affect many political and economic variables. We focus on two particular forms of political cycles. First, we recall a result from second chapter to briefly show that the budget process separation mitigates the (budgetary) effect of ideological and political beliefs of the executive. Second, we introduce a simple original model of intertemporal public good distribution with respect to electoral cycles. We will show that the executive tends to rise public expenditures before the elections take place. The effects of this incentive could be, however, significantly mitigated by separating the budget process decisions, particularly by giving the legislature (which is not affected by the electoral cycle) power to constrain the total spending.

5.1 Mitigated Ideological Effects

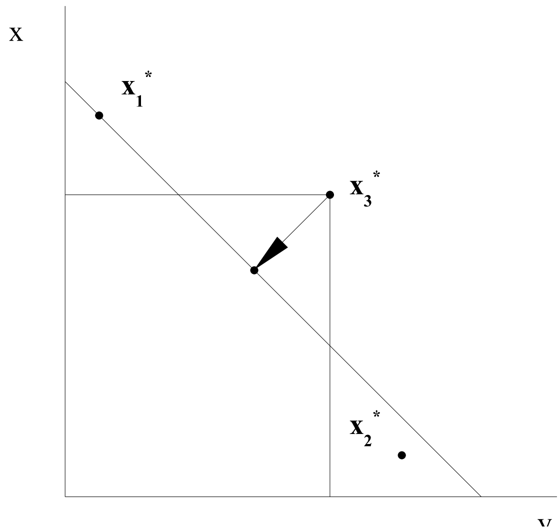
One face of political cycles is characterized by the conservative-liberal dichotomy. Simply, the spending is statistically lower when a conservative is controlling the power. Conversely if the powerful agent is liberal, the government is more likely large (there is much empirical evidence for this, see Primo (2006) for further treatment of the empirical dimension of the problem).

In this section we briefly recall the results of Ferejohn-Krehbiel (1987) model from the second chapter to show that these effects are substantially mitigated under separated budget process.

Again, consider following setting:

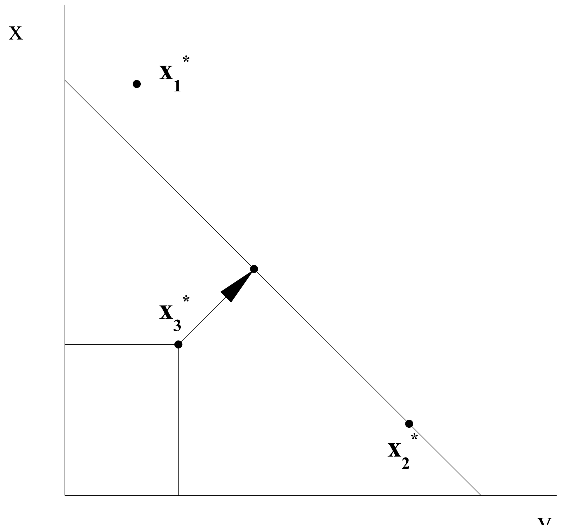
The first player prefers high x_1 and low x_2. This could be expressed as a subsidy to group 1. Although, the first player could want to address some funds also to group 2. However, never so much as to her own group 1, as an additional spending would rise the taxes. Player 2 is facing the same situation on the other side. Player 3 has no group to subsidize, but she could be a socialist or a conservative. Socialist's bliss is close to full subsidies for both groups. Conservative's bliss is close to zero budget. The results are following:

Socialist third player:



The budget is lower under divided budget process.

Conservative third player:



The budget is higher under divided budget process.

We see that there is no significant difference between the two cases under divided budget process. In other words, we have shown that under separated budget process, the effect of political ideologies of the third player is considerably mitigated.

5.2 Simple Model of Budget Process and Electoral Cycles

In this section, we present a simple model describing intertemporal distribution of public good with respect to electoral cycles.

We assume electoral cycle in public spending. It is expected that in the period after elections the public good provision would appear considerably lower than in the period before elections, where the executive tries to please the voters in order to be reelected.

The executive seeks reelection. In order to maximize probability of staying in office, she maximizes the voter's welfare. However, the welfare could be interpreted in several ways. We put in contrast two of them: the welfare could represent a medium or long-term utility, equaling marginal utility of public good and marginal disutility of taxes, determined by some type of social optimum. On the other hand, the welfare (which we would use) could be described as "populist utility". This utility more likely affects the elections outcome and it is determined by popularity of policies (and/or politicians), observed by the voters. For example, this type of utility would be influenced not only by the size of government expenditures, but also (and maybe more significantly) by the change in public good provision. In other words, we do not exactly model the voters utility, we just assume different incentives of the executive before and after elections.

However, we suppose that the legislature is not affected by these cyclical effects, as she could not present the increased public expenditures as her merit. The legislature could also have a completely different timing of her electoral cycle which occurs (besides the presidential systems) for example in relation between European Parliament and European Commission.

5.2.1 The Model

To simplify the analysis we consider a two-period political economy. The period $T1$ comes directly after the foregoing elections and the period $T2$ goes before the current elections. We assume that a tax rate change is a long-lasting procedure and could not be applied during the cycle. Therefore, the tax rate is selected at the beginning of the game and not changed afterwards. The voters observe the tax rate and the spending in periods $T1$ and $T2$, influenced by the change.

We formulate the joint utility for both periods, determining the elections outcome, as follows:

$$u_E = \log(g_1) + \log(g_2) + \log(\Delta g) - 2\tau$$

where g_1 and g_2 are the public good expenditures in appropriate periods, τ is the tax and Δg denotes the intertemporal public good provision change: $\Delta g = g_2 - g_1$. This function, expressing incentives of the executive, fulfills the above assumptions: the chance of being elected (measured by our "populistic utility") is rising and concave in amount of public good provided in both periods and further rising and concave in change of the public expenditures between the two periods.

Further, the budget is balanced: $\tau = \frac{g_1+g_2}{2}$.

The legislature, to the contrary, is not affected by the cyclicality and has a basic utility function

$$u = \log(g) - \tau$$

which summed for the two periods gives

$$u_L = \log(g_1) + \log(g_2) - 2\tau$$

5.2.2 Simple Budget Process

Under the simple budget process the executive is left maximal discretion. An objection could be made that even a simple budget process involves a legislature's approval. However, we abstract from this institution, as the legislature (as discussed in the first chapter) will not likely reject the budget proposal, as she would face the government crisis and possible early elections (and in many cases dissolution of the legislature board) if acting disobediently.

Therefore, though the formal legislature veto is present in many countries, the separation of powers is weak.

The game proceeds as follows:

1. The executive sets the budget policy vector $[g_1, g_2]$.

2. $T1$ passes, the voters consume g_1.

3. $T2$ passes, the voters observe the Δg and consume g_2.

4. The elections are held.

As the simple budget process is in fact an ordinary optimization of the voters "populistic utility", the solution is straightforward. The utility function with substitutions of τ and Δg is

$$u_E = \log(g_1) + \log(g_2) + \log(g_2 - g_1) - (g_1 + g_2)$$

The FOC's give

$$\frac{\partial u_E}{\partial g_1} = \frac{1}{g_1} - \frac{1}{g_2 - g_1} - 1 = 0$$
$$\frac{\partial u_E}{\partial g_2} = \frac{1}{g_2} + \frac{1}{g_2 - g_1} - 1 = 0$$

which leads to the following result:

$$g_1^{SIM} = \frac{3}{2} - \frac{\sqrt{3}}{2}, \qquad g_2^{SIM} = \frac{3}{2} + \frac{\sqrt{3}}{2}, \qquad \tau^{SIM} = \frac{3}{2}$$

5.2.3 Separated Budget Process

In the second setting, we let the legislature to impose a budget cap first.Another objection could emerge here: usually, the caps are imposed annually and the electoral cycle lasts a few years. Therefore, more realistically, we should deal with more than one budget cap. However, a model is always simplifying and this setting is enough to show the core results. The proposed extension would only bring more algebra with no relevant effect on the results.

Further, same as we abstracted from modeling the approval process of the budget draft, now we abstract from voting over the budget cap among the legislature. The reason is simple: all legislators have identical utility function. Due to this symmetry, whoever among the legislators proposes a budget cap, it is unanimously approved.

The game proceeds as follows:

1. The legislature sets the budget cap $\bar{G}$.

2. The executive sets the budget policy vector $[g_1, g_2]$, subject to the budget cap constraint.

3. $T1$ passes, the voters consume g_1.

4. $T2$ passes, the voters observe the Δg and consume g_2.

5. The elections are held.

We solve this game by backward induction. First, we determine the executive's optimum given the budget cap constraint $\bar{G}$. The appropriate lagrangean function is

$$L_E = \log(g_1) + \log(g_2) + \log(g_2 - g_1) - (g_1 + g_2) - \lambda(g_1 + g_2 - \bar{G})$$

where λ is a lagrangean multiplicator. We suppose that the budget cap is binding. The FOC's give:

$$\frac{\partial L_E}{\partial g_1} = \frac{1}{g_1} - \frac{1}{g_2 - g_1} - 1 - \lambda = 0$$

$$\frac{\partial L_E}{\partial g_2} = \frac{1}{g_2} + \frac{1}{g_2 - g_1} - 1 - \lambda = 0$$

$$\frac{\partial L_E}{\partial \lambda} = g_1 + g_2 - \bar{G} = 0$$

which leads to the following results, which determine executive's best response functions:

$$g_1(\bar{G}) = \bar{G}(-\frac{\sqrt{3}}{6} + \frac{1}{2}), \qquad g_2(\bar{G}) = \bar{G}(\frac{\sqrt{3}}{6} + \frac{1}{2})$$

and τ equals $\frac{\bar{G}}{2}$, of course.

Anticipating these best responses, the legislature sets the budget cap optimally:

$$u_L = \log(g_1(\bar{G})) + \log(g_2(\bar{G})) - \bar{G}$$

The FOC give

$$\frac{\partial u_L}{\partial \bar{G}} = \frac{1}{g_1'(\bar{G})} - \frac{1}{g_2'(\bar{G})} - 1 = 0$$

which leads to $\bar{G} = 2$. Inserting this in the best response functions we get the final equilibrium:

$$g_1^{SEP} = 1 - \frac{\sqrt{3}}{3}, \qquad g_2^{SEP} = 1 + \frac{\sqrt{3}}{3}, \qquad \tau^{SEP} = 1$$

Comparing the results we get

$$g_1^{SEP} < g_1^{SIM}, \qquad g_2^{SEP} < g_2^{SIM} \quad \text{and thus also} \quad \tau^{SEP} < \tau^{SIM}$$

and finally our core result

$$\Delta g^{SEP} < \Delta g^{SIM}$$

The lower spending effect of the budget process separation we have shown many times before.

The new effect is the smoothing of political cycles represented by mitigated difference in spending between the post-elections ($T1$) and the pre-elections ($T2$) period. Giving the legislature power to set the budget cap (identical to the target spending tool) the political cycle pronounces less.

The reason is simple: the legislature is not affected by the cycle and therefore has no incentive to make any differences between spending in the two periods. Therefore, she sets the budget cap to mitigate these distortions, although she leaves some discretion to the executive to ensure that sufficient amount of public good will be provided.

Chapter 6

Effects Depending on Relative Size of Constituency

Some authors claim that the effect of budget competence separation is nontrivial and depends substantially on other variables. So far we have presented a model, where the result depends on a political belief of powerful legislators (Ferejohn-Krehbiel (1987) applied on narrow projects). In this chapter we will examine how the effects of separation depend on the size of policymaker's constituency.

6.1 An Incomplete Contract Model of Separated Budget Process

If we try to model top-down budgeting, we can not omit an incomplete contract approach. One of the recent studies, which uses this type of modeling is Grosman-Helpmann (2006). We will follow their logic and show that the separation of budgetary powers leads to lower or higher total spending, contingent on the relative size of policymaker's constituency.

In this model the legislature sets a government spending cap, giving executive an expenditure constraint. Furthermore, the legislature earmarks her preferred projects by setting minimum spending levels. Legislature decides behind a veil of ignorance, expressed by a random variable. Executive then, with knowledge of the random parameter, allocates remaining resources.

This could be expressed as a information asymmetry in public good allocation. For the legislature, it is costly to gather (and consider in his or her decisions) all information about public good allocation preferences. Therefore, the effectiveness of the public projects is of stochastic nature from the legislature's scope of view. However, the executive is closer to these projects and observes the real preferences. Thus, the allocation effectiveness is deterministic for the executive. In Grosmann-Helpmann's (2006) model this is represented by realization of a random parametre, as we will show.

The resulting equilibrium depends on relative size of constituencies, which are represented by the two policymakers.

If the executive represents narrower constituency (as it is usual in parliamentary systems, where the executive is a subset of the legislature), the legislature would likely impose a binding budget cap if there is an option. The result of the separation of powers is (if we assume that the constraint is enforceable) a lower budget.

Conversely, if the executive represents broader constituency (which could occur in presidential systems, where the president is voted directly), the legislature more likely uses option to earmark preferred projects. The size of total spending is therefore higher compared to the simple budget process.

6.1.1 The Model

Let N be the set of groups of voters involved, with n items. Denote $L \subseteq N$ be a set of groups represented by legislature and $E \subseteq N$ be a set of groups represented by executive. The model is based on a quasi-linear utility function

$$u_i = \theta_i v(g_i) - t$$

where $i \in N, \theta_i$ stands for the random variable introduced above (could be explained as an expenditure effectiveness coefficient), g_i denotes amount of public expenditures addressed to group i, $v(g_i)$ is a concave function (expressing public good utilization) with a key property $\lim_{g_i \to 0+} v'(g_i) = +\infty$, which means extremely high marginal utility of the first dollar of government spending. t is a flat tax. Furthermore, denote $\bar{\mathbf{g}}$ as a vector of legislature earmarks and $G \geq \sum_{i \in N} \bar{g}_i$ as a spending cap. Moreover denote α^e and α^l as a fraction $\frac{1}{n}\sum_{i \in L} 1$, $\frac{1}{n}\sum_{i \in E} 1$ respectively. α^e and α^l therefore measures rate of internalization of tax costs by the executive and the legislature, respectively.

The timing of the game is as follows:

1. Legislature sets cap and earmarks without knowledge of θ.
2. The random parameter θ is realized.
3. Executive designs the budget with knowledge of θ.

On the last stage, the executive faces following optimization problem:

$$\mathbf{g}^e(\theta, \bar{\mathbf{g}}, G) = \arg\max_{\mathbf{g}} \left[\sum_{i \in E} \theta_i v(g_i) - \alpha^e \sum_{i \in N} g_i \right]$$

where $g_i \geq \bar{g}_i \quad \forall i \in N$ and $\sum_{i \in N} g_i \leq G$. Legislature anticipates such behavior and thus selects

$$[G^l, \bar{\mathbf{g}}^l] = \arg\max_{G, \bar{\mathbf{g}}} \varepsilon \left[\sum_{i \in L} \theta_i v(g_i^e(\theta, \bar{\mathbf{g}}, G)) - \alpha^l \sum_{i \in N} g_i^e(\theta, \bar{\mathbf{g}}, G) \right]$$

where $\bar{g}_i^l \geq 0 \quad \forall i \in N$ and $\sum_{i \in N} \bar{g}_i^l \leq G$. ε stands for the expectations operator. Some features could be concluded by a simple logic:

1. Legislature would never earmark spending on groups that are not part of its constituency.

$$\bar{g}_i^l = 0 \quad \forall i \notin L$$

2. Executive would never spend any of the resources on groups that are neither part of its own, nor of the legislature's constituency.

$$g_i = 0 \quad \forall i \notin (L \cup E)$$

6.1.2 Equal Interests

First, we examine the most simple situation. This could occur in parliamentary regimes with coalition government, where the coalition has a majority in parliament and it is cohesive enough. Therefore, the leading player in the legislature has the same preferences as the executive.

By logic, legislature would never impose any constraints (neither spending cap nor earmarks) on executive's decisions in this case. The reason is that executive makes the decision with knowledge of the random spending effectivity parameter, which is unknown to the legislature. Executive shares the same preferences over spending, but allocates the resources more effectively.

Proposition 1 (Equal Interests Solution) *Let* $E = L$. *Then* $\bar{g}_i^l = 0 \quad \forall i \notin L$, $\bar{g}_i^l \leq g_{min} \quad \forall i \in L$, *and* $G^l \geq \alpha^l n g_{max}$.

where $g_m ax$ and $g_m in$ are defined as executive's desired spending on a single group when the state of maximal or minimal effectivity occurs.

$$g_{min} = \arg\max_{g_i}[\theta_{min} v(g_i) - \alpha^e g_i], \quad g_{max} = \arg\max_{g_i}[\theta_{max} v(g_i) - \alpha^e g_i]$$

The logic is straightforward: the maximization problems of legislature and executive are equal while $E = L$. In this case, the legislature would leave the executive absolute discretion in budget policy because the executive has simply more information (the realizaton of random vector θ) to decide optimally. Therefore, the legislature would neither impose a binding budget cap, nor earmark projects in way that could bind executive's decisions.

6.1.3 Narrow Executive Interests

This situation often occurs in parliamentary regimes with minority governments. As the government is often compound of members of the parliament, we could say that the constituency of the executive is a subset of the constituency of the legislature. In other words, interests of the executive are narrow.

Let E be a subset of L. Therefore $\alpha^l > \alpha^e$. Intuitively, $\forall i \in L \setminus E$ the legislature must earmark desired spending, otherwise executive would set expenditures for these groups to zero.

Proposition 2 *Let $E \subset L$. Then*

1. $\bar{g}_i^l = 0 \quad \forall i \notin L, \bar{g}_i^l = arg\max_{g_i}[\hat{\theta}v(g_i) - \alpha^l g_i] > 0 \quad \forall i \in L \setminus E$ *and* $\bar{g}_i^l \leq g_{min} \quad \forall i \in E$.

2. $G^l < \sum_{i \in L \setminus E} \bar{g}_i^l + \alpha^e n g_{max}$.

where $\hat{\theta} = \varepsilon[\theta]$, which is an expected value of the random parameter θ. The legislature calculates with this expectation.

In other words, the legislature would impose binding earmarks on spending addressed to groups that are part of his or her constituency and are not under wings of executive. Further, the legislature would impose a binding cap the total spending.

The proof is intuitive and thus we will use only verbal reasoning.

The legislature earmarks spending which does not benefit the executive simply because there is no other way to force the executive to finance these projects. If the legislature would not impose binding earmarks, the spending on these groups would equal zero. The earmarks are determined by simple optimization of the legislature, with the random parameter estimate $\hat{\theta}$.

The other earmarks would not be binding, as the executive disposes with knowledge of θ_i, determining the effectiveness of spending on i and therefore also the particular optimum. This is not clear to the legislature, and thus she leaves discretion to the executive in cases, in which the executive is interested as well.

As the constituency of the legislature is broader, he or she internalizes larger fraction of tax costs. Consequently, the legislature prefers more rigid spending than the executive does. A free-rider problem emerges here: the executive would like to spend a lot on her narrow constituency, while bearing smaller fraction of tax costs. Therefore, a binding cap is likely to be imposed by the legislature.

6.1.4 Broad Executive Interests

This situation often occurs in presidential systems. The parliament is voted by districts and the presidential elections are nationwide. Therefore, the constituency of the leading majority in legislature could be smaller than the constituency of the president and his cabinet. We say, that interests of the executive are broader.

Let L be a subset of E. Therefore $\alpha^e > \alpha^l$. We will show that the legislature would choose between two strategies, contingent on the distribution of the random parameter of spending effectiveness θ and the ratio $\frac{\alpha^l}{\alpha^e}$.

The first, rigid strategy is to leave no discretion to the executive. In other words, the legislature sets earmarks $\bar{g}_i^l = \bar{g}^l$ for all groups in L and cap the spending by $G^l = \alpha^l n \bar{g}^l$. Therefore, sufficient spending on the preferred groups is ensured and no further discretion is left for the executive, as it would only rise spending which benefits groups from $E \setminus L$ and thus rise taxes without any benefits for the legislature.

Other strategy, the flexible one, becomes actual when the fluctuation of random parameter is higher and the difference between constituencies is small. In this case the legislature would leave some discretion to the executive, as the legislature does not know the exact effectiveness of spending.

Proposition 3 *Let $L \subset E$. Then*

1. *If $\frac{\alpha^e}{\alpha^l} > \frac{\theta_{max}}{\theta_{min}}$, then the legislature leaves no discretion to the executive: $\bar{g}_i^l = g^l = arg\max_g \left[\hat{\theta}v(g) - \alpha^l g\right]$ and $G^l = \alpha^l n \bar{g}^l$*

2. *If $\frac{\alpha^e}{\alpha^l}$ is close to 1, the legislature leaves some discretion to the executive: $G^l > \alpha^l n \bar{g}^l$*

where $\hat{\theta} = \varepsilon[\theta]$.

We will not prove this proposition exactly. However, we will explain the basic logic. As we stated above, the legislature chooses between two strategies: rigid budget (the first part of the proposition) and flexible budget (the second part of the proposition).

We rewrite the first condition: $\frac{\alpha^e}{\theta_{max}} > \frac{\alpha^l}{\theta_{min}}$. If this holds, the legislature prefers to spend more on group $i \in L$ if $\theta_i = \theta_{min}$ than the executive would spend on the same group if the effectiveness of spending was the highest, i.e. if $\theta_i = \theta_{max}$. Therefore, if this conditions holds, the legislature would in all states of the world need to force the executive to spend more on constituents of the legislature.

In addition, the legislature would not allow the executive to spend on groups which are not preferred by the legislature. Consequently, a binding budget cap would be imposed. Therefore, the legislature leaves no discretion to the executive.

To prove the second part, we just realize that if $\frac{\alpha^e}{\alpha^l}$ is close to 1, the situation is similar to the case of equal interests. The legislature is better off leaving discretion to the executive, as the executive is simply better informed about the effectiveness of public spending.

6.1.5 Conclusion

Grossman-Helpmann (2006) shows that effects of budgetary power separation (represented by additional budget control tools) are nontrivial and depending on the relative size of constituency of the two players and quality of information which the legislature has about the effectiveness of the public spending.

If the constituencies are close to equal, the legislature would leave full discretion to the executive. In other words, there would be no effect of the option to earmark and cap the spending, as the legislature does not want to bind the executive.

If the legislature serves a broader constituency (which is common in intermediate parliamentary regimes, which we focused on), a binding budget cap is likely to be imposed. However, the legislature will also constrain the executive by earmarks. The joint effect is therefore not transparent in this case.

If the legislature serves much narrower constituency (not the case where the constituencies are close to equal) and the information about the spending is sufficiently good (represented by small fluctuation of the introduced random parameter), the legislature will likely bind the executive with both earmarks and budget cap, leaving no discretion. The result on the size of the budget is again not transparent.

As we see, the effects on the final size of the budget is nontrivial. However, following the analysis of Grosman-Helpmann (2006), we were at least able to determine which tools would be used by the legislature (if there was an option to do so) and whether would these institutions be binding or not.

Chapter 7

Conclusions and Extensions

"Political institutions matter."

-transformed wisdom of institutional economics and motto of this paper

The aim of this survey was to analyze effects of separation of powers in the budget process. We used the common setting, where the separation manifests via additional powers of the legislature.

We examined the effects independently to isolate the implications between particular institutional instruments and the effects.

However, there are also alternative views of fiscal governance. We will present this possible avenue for further research at the end of this chapter.

7.1 Summary

To conclude, we sum up the effects of power separation, which we have shown in our survey.

Mitigated Redistribution

The budgetary power separation mitigates redistribution. First, we have shown that the suppression of redistributive projects is a straightforward result of a budget cap or spending target (imposed by the legislature). Second, we introduced spatial model of Ferejohn-Krehbiel (1987) to show, that the results might not be such obvious. Using the spatial modeling we have shown that the effect on redistribution depends on the preferences of third, independent player. Budgetary process division appears to mitigate an impact of the third player's political ideology.

Mitigated Lobbying

Introducing models of Mazza-van Winden (2005) and Dharmapala (2002) we have shown that the budgetary power separation leads to mitigated lobbying. More precisely, the lobbying is not suppressed, the incentives are rather redirected not to cause waste. When the decision is separated, the interest groups would not dissipate their funds to influence the size of spending, but rather lobby the executive to influence the distribution of the amount.

Mitigated Political Rents

Using a textbook approach of Persson-Tabellini (2000) we have shown that separation of powers in budget process leads to lower extraction of political rents. The executive plays role of the residual claimant (and therefore extracts relatively high amount of political rents). The division of budget process allows the legislative committee (capable of setting the tax rate first) to constrain disposable funds of the executive. As a result, the political rents received by the executive are mitigated.

Political Cycles Smoothing

Apart from the Ferejohn-Krehbiel (1987) application, showing that the effects of ideological orientation of the third player are mitigated under separated budgeting, we introduce an original model which shows that the separation leads to mitigation of electoral cycles. The legislature is often not much affected by the electoral cycle of the executive. Therefore, the incentives to rise spending before elections are considerably suppressed when the legislature has option to constrain the executive.

Effects Depending on Relative Size of Constituency

And finally, we introduce model of Grossman-Helpmann (2006) which shows that the effect of further institutional tools given to the legislature is nontrivial and depends on relative sizes of constituencies of the legislature and the executive. Further, we suggest contingency on the quality of information, which has the legislature when the decision over the constrains is held.

7.2 Alternative Approach to Fiscal Governance

In most cases we examined options of the legislature to constrain the executive in her budget design process by setting the spending target, budget or deficit cap and earmarks. However, there are also another views of budget process and separation of powers over public finance.

Separation of budgetary powers could be viewed in another way: as Gregor (2007) argues, budget and deficit caps are likely to be imposed by the executive, contrary to the common view, where the legislature constrains the executive. This is motivated by observed medium-term strategies, which are being set by the executive. These plans often constrain total spending. Although it might seem, that such institutions constrain the executive itself, the real purpose is to discipline the legislators not to deviate from the plan.

Above assumption implies that such institutional tools (now given to the executive) should not be interpreted as a political constrains (as it was before: the caps and targets constrained executive's policy), but it conversely acts more likely as a broadening of executive's policy power and therefore as a very opposite of political constrains. In other words, these types of budget constrains give the executive more powers compared to the legislature.

We will not present here the details of Gregor's (2007) model, as it does not exactly cover our topic. However, we will present his core results, as some of them are valuable even for our issue.

The results could be summed into a few points:

- The caps are not substitutable.
- Spending cap decreases level of taxation rather than rising future spending.
- Deficit cap lowers deficit mainly by increasing the tax rate, not by restraining the current spending.
- The caps increase political volatility.

All above results are interesting, but the first one is the most valuable for our paper.

It states that the caps are not substitutable, that the two caps work in completely different ways, although they might both appear to have similar effects (and might be imposed with similar incentives).

Particularly in this case the spending cap lowers taxes and the deficit cap rises taxes, however they might have been both meant to lower the spending.

This finding could be transformed to our setting. It warns us before underestimating the role of institutions and shows that careful analysis and design of rules, under which the budgetary game proceeds is necessary.

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