The Excess Power Puzzle of the EU Budget[1]

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1 Introduction

It is a constant topic of debate how the European Union (EU) spends the money it collects from its member states. Various discussants see severe problems in the EU's budget spending and argue that the budget allocation procedures should be revised. In fact, the European Commission (EC) is currently investigating foundations for such a revision. This paper focuses on the question how the budget allocation is determined in the current system. Being able to answer to this question is of fundamental importance for the assessment of the budget and for a successful reform of the budget procedures.

The recent research offers two main views on the determination of the EU budget allocation across member states. The first one, the '*needs view*,' assumes that the budget follows the declared policy objectives of the EU. In a nutshell, these objectives say that the budget should be allocated to poor EU regions. This entails solidarity on the part of the wealthiest member states. The second view, the '*power politics view*,' argues that the EU budget is primarily determined by selfishness; the member states use their political power to obtain as much return to their own country as they can rather than care about redistributing the common funds into regions where the funds are the most needed. Studies indicate that none of the two views alone can explain the EU budget allocation, while there are indications that both views might play a role in the determination of the EU budget spending. This line of research is the starting point of the present study.

A key to our analysis is a '*power distribution*' that specifies how much each member state has voting power (in relative terms) in the Council of Ministers (CM), the key decision maker of the EU budget spending. By game theoretical arguments, the '*power distribution*' yields a unique division of the cake (i.e., the EU budget). As in Kauppi and Widgrén (2008), our analysis makes use of the fact that the decision procedures on the EU budget spending differ across so called '*compulsory*' and '*non-compulsory*' expenditures. The underlying point is that the CM is the primary decision maker on the former part, while the European Parliament (EP) has potential power to decide on the latter part of the budget spending. Previous analyses suggest that the members of EP (MEPs) may be more willing to promote solidarity between EU states than the representative ministers

in the CM. Therefore, we expect that the allocation of the compulsory expenditure may differ significantly from that of the non-compulsory expenditure.

Using a data set covering the period 1976-2006, we find that the power distribution matches fairly well with the shares of compulsory expenditure, while it matches rather poorly with the shares of non-compulsory expenditure. Furthermore, we find that the allocation of the non-compulsory expenditure is somewhat slanted towards poor member states. These observations are consistent with previous evidence and support the hypothesis that a part of the budget spending may be attributed to power politics, while another part is likely to be driven by solidarity and needs of the member states. Nevertheless, when we take a closer look at the actual budget shares and compare them with the power distribution in detail, we find some puzzling patterns. In particular, we note that France receives systematically more from the budget than the power distribution implies, whether we look at the compulsory spending or the total budget. We say France has '*excess power*' that derives from something beyond its votes in the CM. By contrast, Austria, Finland and Sweden obtain systematically smaller shares from the EU budget than their voting power shares imply. Thus, their '*excess power*' is negative. We regard these persistent deviations from the power distribution as the '*status quo bias*' of the EU budget. We consider potential explanations for the status quo bias.

We make a hypothesis that the EU budget allocation might be pre-determined, at least partially. The idea is that '*rules*' specified by the EU Treaty and the Financial frameworks largely pre-determine how the budget will be allocated across member states. Under this scenario, the CM can only have a limited intervention into the budget allocation. We leave it open how such rules or '*contracts*' are enforced in practice. A central question is what is the power distribution that determines the pre-designed budget allocation. For us, this is a question: what explains that the actual budget allocation deviates so systematically from the power distribution of the voting game of the CM? That is, what explains why France has persistent '*positive excess power*' and what explains why Austria, Finland and Sweden have persistent '*negative excess power*'?

One possibility is that the excess power has to do with member states' contributions to the budget. When the member states agree on the Treaty or on the Financial frameworks,

they simultaneously agree on how they share the revenue collection of the budget. For a long period of time, the member states have agreed that each state's contribution is, essentially, a fixed percentage of its GDP. Under this arrangement, rich member states end up paying a lot more to the budget per capita than poor countries. To accept such a deal, rich member states probably want to make sure that some of the money is returned them through the budget spending. They would not accept a deal, according to which all of their contributions are redistributed to poor member states. This line of reasoning suggests that the actual budget allocation may be partly related to actual contribution shares of the member states. We investigate whether this hypothesis gets empirical support.

We find that the contribution shares indeed correlate significantly with budget shares. Our statistical analyses suggest that the shares of the compulsory spending can be predicted partly by the power distribution and partly by the contribution shares. An interpretation is that member states' contributions entitle a partial '*money back*,' while the remaining part of the compulsory expenditure is allocated by the power distribution. Furthermore, we find that the shares of the non-compulsory spending are negatively correlated with the budget shares. This finding is again consistent with the idea that the non-compulsory expenditures attribute to transfers from rich member states to poor ones. This form of solidarity might be a consequence of the influence of the EP.

A remaining puzzle is still the fact that Austria, Finland and Sweden seem to do relatively poorly in all areas of budget spending; they do not receive as much as their power shares and contribution shares predict. Also, France seems to enjoy an extra premium that cannot be explained by its power or contribution share. Another persistent outlier is Spain that receives a great premium from both compulsory and non-compulsory budget spending, despite its moderate contribution share. What explains these systematic deviations?

One possibility is that the whole budget procedure is subject to fixations that are hard to change. France has gained much from CAP already since EU-9 or even earlier. The rules of the CAP policies that were written thirty years ago are still in force and thereby continue to favor France as long as CAP policies exist. When Spain entered the EU, the

structural funds were created. It seems that the allocation rules of the structural funds were written so as to favor Spain in particular. If the rules are fixed, one may assume that significant changes to the budget allocation entail a change to the budget structure. This may happen through changing the shares of the two major parts of the budget or by creating new budget funds. But is there sufficient political support for such changes? To answer to this question we must examine who benefits and who loses when such changes are made?

As a first cut on this, we assess whether the CM might succeed in initiating changes in the current budget structure. That is, is it possible to find sufficient majority to support a change? To assess this question, we classify member states into "winners" and "losers." Here our benchmark is again the power distribution. Hence, we classify a member state as a winner (a loser) if its budget share is larger (smaller) than its power share. We do this classification separately for CAP and structural funds. We consider the distribution of winners and losers across different EU periods. We find that there has been a shortage of coalitions to support a change in the budget structure over the years. This has gradually created a '*dead lock*' of the EU budget. Hence, we conjecture that the EU budget battle involves '*one-shot games*' that have persistent impacts on the budget allocations. In one way or the other, the member states are able to establish '*rules*' or '*contracts*' that are difficult to change by CM. As an example of such a rule, we point to the '*four percent rule*' that was recently established to limit a member state's budget receipts to be at most four percent of its GDP. Interestingly, we find that the actual budget shares of the new Eastern European member states are almost as large as they can under the four percent rule. This observation suggests that the four percent rule may prevent these member states from obtain as much from the budget as their power shares predict. We finish our analysis by showing that the Lisbon Treaty is unlikely to make a difference to the '*status quo bias*' of the EU Budget.

The plan of the rest of the paper is as follows. In Section 2, we describe the EU budgetary procedures and how these have evolved over time. Section 3 reviews the two main views and explains their foundations. Section 4 discusses their performance in the previous literature. Section 5 reports our empirical analysis, while Section 6 concludes.

2 The Budgetary Procedure

The point of departure of our analysis is that EU budget shares are primarily determined by the distribution of political power among member states in the Council (CM), and not as much by their needs for support to rural and low-income regions. However, since the European Parliament (EP) exerts power in the budgetary procedure as well, the determination of member states' receipts contains a element of solidarity. Since EP has, in practise, its say in the determination of non-compulsory expenditure that is closely linked to structural spending we assume that it cares about member states income levels. Compulsory expenditure accounts approximately 45 per cent of the EU budget.[2] It is based on EU legislation and, therefore, it is plausible to assume that the distribution of power in CM determines compulsory budget receipts.

Figures 1 and 2 show the budget procedures for compulsory and non-compulsory expenditure, respectively. In both cases, the European Commission (EC) proposes a preliminary draft budget (PDB) which is then adopted or amended by CM in its first reading. Thereafter, if EP accepts the draft budget as adopted or amended by CM the draft budget is adopted. If, on the other hand, EP proposes amendments to the draft the procedure continues. At this phase, the procedure concerning compulsory expenditure and the procedure concerning non-compulsory expenditure deviate from each other. In the former, EP needs a simple majority to propose amendments. Abstentions have no effect in the EP since the majority is counted on the basis of Members of the European Parliament (MEPs) that are present. In the latter procedure, however, abstentions are effectively like 'nay' votes since the amendments require support from a majority of MEPs.

In compulsory expenditure, proposed amendments can be divided into increasing modifications that try to increase the expenditure that directly results from Treaty application or acts adopted on the basis of the Treaty and into non-increasing modifications expenditure that try to reallocate between applications or acts adopted in the Treaty. In both cases, CM can adopt the proposed amendments by qualified majority voting (QMV)[3] or

[2] This is approximately equal to the percentage of agricultural spending total expenditure.
[3] Presently 255 votes of the total number of votes 345.

reject them. In the case of non-increasing modifications, CM must explicitly reject or change the proposed amendments to avoid adoption as amended by EP but in the case of increasing modifications it suffices for CM to not to decide. Thus, in this case adoption as amended by EP requires an active acceptance by CM using QMV.

In non-compulsory expenditure, EP makes the last move. After EP has proposed amendments CM can in its second reading adopt them by QMV or make modifications by QMV as well. In the former case, the expenditure is adopted as amended by EP. In the latter case, EP can adopt CM's modifications by making no decision or it can reject or change the modifications by 3/5 majority and then the expenditure is adopted as amended by EP.[4]

By comparing these two procedures it is easy to see that in compulsory expenditure EP's influence is very limited. In non-compulsory expenditure, EP is in much more powerful position since it can say the last word in the procedure. It is worth noting, however, that to obtain a majority of MEPs support to propose amendments might be much more difficult than to obtain a majority of present MEPs. Moreover, the modifications of EP are limited by the maximum rate of increase in expenditure.

We assume that the member states use their influence in the CM to allocate as much money to their home country as possible. As the description of the procedures demonstrates this works at best in compulsory expenditure. In determination of non-compulsory budget receipts we assume that they can be explained by power politics in CM and benevolent goals of EP. Since non-compulsory expenditure is closely related to cohesion, structural spending, external and internal policies and administration we assume that EP cares about the relative income levels of member states.

The Lisbon Treaty that was politically agreed in June 2007 dismantles the distinction between compulsory and non-compulsory expenditure. The new budgetary procedure makes CM and EP co-deciders regardless of the type of expenditure. In sum, it is reminiscent to the procedure in non-compulsory expenditure. It, however, changes the Council

[4]Note that 2/3 majority of MEPs can reject the overall budget, which restarts the procedure. In this paper we disregard this since in terms of power relations the restarted procedure is essentially similar game.

voting rules too and they have a crucial effect on budget allocation since the Council acceptance is required. The Council voting rules are still more conservative giving it an advantage in bargaining with the EP (see e.g. **?**)). In this paper, we evaluate the impact of the Lisbon Treaty referring to Council voting rules based on our earlier investigation concerning the determinants. A more detailed investigation of the Lisbon Treaty is left for future work.

3 The Baseline Views of the EU Budget

3.1 The Needs View

In earlier studies, the allocation of the member states' net and gross receipts from the EU budget has been evaluated using either game theoretic power politics reasoning or by needs based calculations. The latter approach is justified by the declared objectives of the EU's budget policy. For example, the CAP policies state:

"*CAP aims at achieving an adequate level of production, at a reasonable cost to consumers, while ensuring a fair standard of living for the agricultural community and safeguarding the future of rural areas. Given the diversity of circumstances in the EU, it is clear that achieving these goals will not result in the same economic benefits for all Member States*"[5]

while the policies of the structural operations say:

"*An objective of the EU is the achievement of economic and social progress across the Member States. By their nature, structural actions should result in differences in expenditure between Member States.*"[6]

The quotations indicate that the aim of CAP and structural spending is to redistribute EU's common resources to poor and rural EU regions. There are different ways to try to quantify the needs of individual member states (see below in Section 4). The major problem of the measurement is the lack of objective theoretical grounds. Needs are sub-

[5] See http://europa.eu.int/comm/budget.
[6] See http://europa.eu.int/comm/budget.

jective and as such defending them calls for bargaining when the scarce resources of the EU budget are reallocated.

3.2 The Power Politics View

In the formal power politics analysis, the budget allocation problem is treated as the *dividing-up-the-cake problem*. This is one of the most investigated problems in game and bargaining theory. The literature is very wide ranging from cooperative to non-cooperative game theory with several applications. In recent years, these methods have been applied to study different aspects CM decision-making or decision-making procedures of the EU. Here we adopt the cooperative approach and assume that game theoretic power politics approach applies only for the CM. That is a plausible assumption since CM is an inter-governmental body that represents directly member states' governments. The redistributive nature of the EU budget further supports the applicability of the power politics assumption.

A widely applied measure to evaluate actors' voting power is the *Shapley-Shubik index* (SSI) (11)). It is a special case of a broader concept the *Shapley value* (10)) in cooperative coalitional form games. SSI is restricted to so-called *simple games* that are usually used to model voting games. In simple voting games, winning and losing coalitions have different values (usually one and zero, respectively). The SSI is based on the broad idea that an actor who is able to break a winning coalition into losing, or vice versa, exerts power. These actors are critical in the sense that they may help a coalition to achieve its goals but also prevent a coalition from achieving them. In voting games, in particular, these actors are said to be in a swing position as they are capable to swing a majority into minority and vice-versa by changing their vote. Suppose that a swing position is rewarded by a price, which ends up as money in the data. Then the percentage of an actor's swing positions of all swing positions predicts his/her expected influence on voting outcome and hence his/her share of the cake in cake-division or his/her share of receipts in the allocation of budget expenditure. Despite of their abstractness there is some recent evidence that power indices are able to capture actors' influence on the outcome in voting games and

predict decision outcomes in a meaningful way, e.g. 9), 12) or 7).

More formally, let N be a set of n member states in the Council and let $S \subset N$ denote any coalition of member states having s members. A voting game in the Council can be characterized by a set function $v(S)$ taking on value 1 when a coalition S forms a qualified majority and zero otherwise. In this simple setting, the SSI value for a member state i can be written

$$SSI_i = \sum_{S \subseteq N, i \in S} \frac{(s-1)!(n-s)!}{n!}[v(S) - v(S \setminus i)], \tag{1}$$

where $i = 1, ..., n$. The first term in the sum gives the probability of country i being in a potentially pivotal position in coalition S and the latter term counts those pivotal positions where country i is able to swing a winning coalition into losing, i.e. S is winning and the removal of i from it makes it losing. Pivotal positions without this impact do not contribute to one's power. The individual actors' SSI values sum up to unity. Thus, SSI implies that the relative shares of the players' swing positions that have an impact predict their shares of the total pay-off. In our application, the total pay-off constitutes the EU's compulsory budget spending. We, thus, expect the member states' shares of compulsory expenditure to have one-to-one correspondence to SSI.[7]

4 Previous Literature

In the existing power politics studies on EU budget, we can distinguish between two model generations. The first generation approach concentrates on explaining member states net receipts (payments) from (to) EU budget. The main inspiration of these models is a simple observation that power and net budget flows seem to coincide. Power politics in explaining the net receipts can be justified by arguing that member states' main objective in budget negotiations is to '*bring the bacon back home*', i.e. to maximize their net receipts. The second generation models concentrate on explaining directly the gross receipts and stem from cooperative bargaining/voting games. This approach is based on the argument that

[7]Here it is important to see that the EU budget (the cake) can be taken as fixed when decisions on its allocation are made in the CM. For a careful explanation, see 6).

member states' contributions to the budget are highly institutionalized and can be treated as taxes.[8] Consequently, member states can influence their net positions only via annual budgetary procedures concerning the expenditures and EU decision-making in general that turn into member states' gross receipts.

4.1 First Generation Power Politics Models

The key inspiration behind different quantitative assessments of member states' budget receipts and contributions that mushroomed in the 1990s was the eastern enlargement. The aim of these first generation models was mainly to evaluate the determinants of member states' net receipts/contributions from/to EU budget. The models were essentially hybrid: political power was not the only explanatory variable but variables related to member states' needs were also added inspired by the existing budget structure. For instance, as the main expenditure heading is agriculture, the relative importance of agriculture in a member state was an obvious candidate to explain CAP receipts. In the same spirit, member states' incomes were a natural choice to one of the determinants of the receipts due to increasing importance of structural and cohesion spending.

1) made, to our knowledge, the first attempt to use the political power view to explain EU budget allocations empirically. Using annual budget receipts and contributions for 1993 and 1994, they regressed per capita receipts on a constant, per capita voting power, and a dummy variable for cohesion countries. They used the SSI as the measure of states' voting power and found that per capita power explains member states per capita gross receipts and that member states' per capita contributions to the budget can be explained by per capita GDP. Subsequently, 3)) carried out similar regressions for the periods 1992-94 and 1995-99, separately. In these studies, the normalized Banzhaf index (NBI) was also used as a measure of voting power. Based on OLS regression analyses these studies concluded that per capita net budget receipts can be explained relatively well by measures of political power whereas variables like the agriculture share of GDP and GDP per capita failed to be statistically significant or a wrong sign was obtained for per capita GDP in

[8] With an exception of the UK and Belgium member states' contributions are, in practice, one percent of GNI in each country.

some model versions.

5) studied the correlation between actual budget shares and SSI and distinguished between the two most important expenditure headings, the CAP and structural spending. His empirical analysis were conducted for years 1976-85. He regressed the ratio of the budget shares in CAP expenditures to the voting power for each country against a constant, deviation of that country's adjusted percent of population in agriculture from the EU-average and the logarithm of the voting power (SSI). He argued that this regression can explain why some countries are receiving more agricultural funds than implied by their voting power alone. He run a similar regression for the structural funds and obtained the same conclusion as on the CAP shares. In a way Kandogan's analyses indicate that the budget shares cannot be explained by power politics alone. Nevertheless, it is difficult to see from his analysis what part of the budget shares can be explained by power politics and what determines the rest of the shares. Also, a major part of the variation in the budget shares remains unexplained in these regressions.

The first generation models suffer from two major drawbacks. First, the analysis lacks sound theoretical background. This implies that the analysis simplifies to ad hoc regression models in which the chosen variables and especially their specifications are not properly discussed. Second, at the time when these studies were carried out the data needed for empirical analysis were more difficult to obtain than today. In fact, all first generation studies lack sufficient data.

4.2 Second Generation Power Politics Models

The key inspiration behind the second generation models is to model EU budget allocation as a pure bargaining game or as a hybrid of a bargaining game and solidarity. The former makes use of SSI as the measure of power. Since SSI gives a prediction for the share of the cake that a player obtains in majority bargaining game it is natural to analyse gross rather than net receipts. In these models, member states' needs are also proxied by relative measures, i.e. relative importance of agriculture and/or relative income level. Another alternative to concentrate on the institutional details regarding the budgetary

decision-making procedures in the EU (see Section 2 above) and to assume that CM cares only about national interests whereas EP cares about solidarity.

Some recent studies attempt to combine the power politics and needs views in explaining member states' relative budget receipts. A common result in hybrid models is that power politics has a dominant role in explaining receipts (see 7), 6)). In the existing studies that apply power politics or hybrid models, the distribution of voting power in CM represents the power politics view. Needs are usually taken into account by some quantitative measures that mimic the overall structure of the budget, like output in agriculture and income levels. Using 1976-2001 data on member states' annual budget receipts, 6) make the first throughout attempt to explore the relative importance of the two hypotheses. For this purpose, Kauppi and Widgrén propose simple relative measures for the needs of the member states and then combine these with the SSI to estimate weights for the two views of the EU budget allocation. In their baseline model, political power explains about 60% of the member states' budget receipts and the remaining 40% derive from member states' needs.[9] This result is obtained using a larger data set than in any previous empirical study on EU budget. The novel feature of the study is to examine whether the power politics explanation can be improved by taking possible cooperation patterns between EU countries into account. Kauppi and Widgrén find that even 95% of the budget shares can be explained by voting power measures that allow for correlated preferences and cooperative voting patterns between the member states. Interestingly, the paper identifies stable cooperation patterns between France and Germany. Altogether, Kauppi and Widgrén conclude that selfish power politics is likely to drive EU's decision making in general and the allocation of EU budget in particular, while needs play at most a minor role.

In a more recent paper, 7) argue that budget shares can be explained solely by political power if Franco-German cooperation is taken into account. The study finds a one-to-one correspondence between power and member states' gross receipts. Franco-German dummy has a positive and statistically significant coefficient whereas the constant is not

[9] The predictive power of the pure SSI improves to 70 percent if the UK rebate is taken into account.

significantly different from zero as we should expect.

4.3 Towards 3G Models

So far, the role of EP has been neglected in quantitative analyses of EU budget allocation. 8) distinguish between the allocation of compulsory and non-compulsory expenditure, the latter being the are in which EP has a true influence (see Sec. 2 above). The study assumes that EP cares about solidarity and that is proxied by member states relative income level as a explanatory variable. The relative income level is statistically significant negative sign in the allocation of non-compulsory expenditure, as expected. In compulsory expenditure, which mainly consists of CAP relative income gets a wrong positive (but not statistically significant) sign. Computing the allocation of the total expenditure and comparing that to the allocation prediction of pure power politics approach in 7) the study argues that the contribution of solidarity on the allocation of EU expenditure is 7 per cent.

Besides solidarity power politics approach for modeling budget shares can also be challenged by one more point. The critical question is whether the SSI measure gives accurate enough description of the actual power distribution of the member states. The SSI assumes that the voters' preferences (probabilities of voting yes) are correlated in the same way regardless of the group of actors. However, in reality some countries may have more similar interests together than with others in many issues. Hence, they may find it beneficial to cooperate on a wide range of issues more closely. If such cooperative groupings of EU member states are formed continuously, the standard SSI may yield an imprecise measure of true power distribution among the member states.

Thirdly, one might wonder the role of member states' contribution. Taking the 'bring the bacon back home' argument literally we should expect that contributions play a role in the determination of receipts. Here, we take this into account by explaining member states' receipts by contributions and power together. In principle the coefficients of these variables should add to unity giving the percentage shares of '*automatic*' and power based receipts, respectively.

5 Empirical Analysis

5.1 Variables and Initial Insights

We start by a quick review of the past EU spending. The budget spending is divided into three parts: (i) CAP (agricultural funds), (ii) structural funds (including cohesion funds), and (iii) other things (administration, R&D etc.). Currently, CAP takes almost half of the budget, structural funds take a third, and the rest is divided across various uses. If the budget allocations follow the principle of solidarity and equality between member states, we expect that the poorest EU countries receive the largest receipts per capita. 2) makes such calculations and finds that some of the richest EU countries tend to obtain much larger receipts per capita than many of the poorest EU countries. In particular, he shows that the CAP receipts improve the wealth of the richest farmers of the EU rather than improve the poorest agricultural areas to catch up with the rest of the EU. These observations suggest that the EU budget spending cannot be explained by the needs view. The natural alternative view is the power politics view that says the budget allocations reflects member states' voting power in CM.

We turn to examining how the budget allocations are related to our benchmark measure of voting power, the SSI. Above we argued that there is a crucial difference between so called compulsory and non-compulsory budget spending, as CM is the sole decision maker on the former, while also the EP has its say on the latter. We argued that through the potential influence of the EP there is chance that non-compulsory expenditure is driven by solidarity and equality between member states. To see whether there is a difference, we analyze the shares of the compulsory and non-compulsory budget spending together with the total budget shares. Since there exist no direct data on member states' shares of compulsory and non-compulsory receipts we need to proxy them by CAP and structural spending (see Section 2).

The original budget data contain annual observations for 1976-2006. This time span covers five periods that differ by the composition of the member states. The periods are (1) 1976-1980, (2) 1981-1985, (3) 1986-1994, (4) 1995-2003, and (5) 2004-2006 corresponding to EU-9, EU-10, EU-12, EU-15 and EU-25. In what follows, we consider average budget

shares over these periods. We have a distinct voting power distribution (SSI) for each period.

Table 1 presents the shares of the EU budget, separately for the total, compulsory and non-compulsory expenditure, and the power distribution (SSI), all for 1995-2003, the period of EU-15. Clearly, none of the budget allocations matches one-to-one with the power distribution. As a summary measure of the difference between the budget shares and the SSI, we compute the "chi-square statistic"

$$\chi^2 = \sum_j \left(\frac{s_j}{SSI_j} - 1 \right)^2,$$

where s_j and SSI_j, respectively, is the budget share and the SSI value of country j. Table 2 reports the results for the total budget shares, the CAP and the structural funds shares over the five periods: EU-9, EU-10, EU-12, EU-15 and EU-25. Clearly, the mismatch between the budget allocation and the power distribution is the largest for the structural funds and the smallest for the total budget. The same conclusion holds over all periods.

Another general observation is concerned with systematic patterns in the budget shares of specific countries. Across the different compositions of the EU, we find that the total budget shares of France are clearly larger than the corresponding "power shares." Among the other senior EU member states, the UK's budget share is smaller than its "power share" in most periods, while the budget shares and the power shares of the remaining senior states do not exhibit so systematic relationships. When we compare the budget shares across younger member states, we find that Spain has constantly received a larger share from the budget than its power share, while Austria, Finland and Sweden obtain less than the benchmark power measure predicts.

5.2 Points and Questions

The above observations raise a series of points and questions. First, we note that the power distribution has really the poorest match with the structural funds shares. This suggests that issues other than our measure of power play a large role in the determination of the allocation of the structural funds. Is it possible that solidarity drives this allocation rather

than political power? Our theoretical arguments above are in line with this hypothesis. The EP has real influence on the allocation of structural funds, and if it cares about solidarity, then its will should translate into needs-based allocation of the structural funds. We return to this question below.

Second, the shares of the CAP match better with the SSI than the structural funds shares do. Does this mean that the power distribution drives the CAP shares? A challenge to this interpretation is that the total budget shares still match better with the SSI than the CAP shares. An alternative hypothesis is then that the total budget is in fact determined by the power distribution. In this case, it is just a technical matter how the total budget shares are obtained through the different parts of the budget. If, for some (technical) reason, a member state receives more from CAP than its SSI share implies, then this is compensated by a smaller share from the structural funds. Look at the budget shares of Table 2. The CAP share (23%) of France is double to its power share (12%), while the share of structural funds (8%) is much smaller. This is consistent with the above idea of "compensation." Still, France obtains about 40% more from the total budget than its "power share" predicts. Is it just a coincidence that France obtains so much more in excess to its power share? The data speaks against this assertion. We find that France receives systematically larger shares from the budget than its power share implies. We will return to this issue below.

To sum up, the above considerations suggest that both the pure power politics view and the needs view have difficulty in explaining the past budget allocations. The power distribution fits better with the total budget shares and the CAP shares than with the structural funds. On the other hand, we observe that some countries receive more and some countries receive less than their power shares. This observations suggest that the budget shares cannot be accounted for by the benchmark power distribution. While the budget shares are not consistent with the benchmark power distribution, they do not agree with the needs view either. Many member states receive more per capita than one would assume if the funds are to support the poorest regions of the EU. We are left with the hypothesis that selfish power politics is the driving force but the benchmark measure of power does not capture the power distribution right.

How do we capture the power of the member states right? An obvious idea is that member states gain power from other sources in addition to their votes in CM. One possibility is that the budget spending rules are initially fixed in a manner that it favors some countries over others. The budget priorities (the financial frameworks) are decided by the European Council, EP and the Commission. This inter-institutional agreement (IIA) fixes the budget frame for a period of seven years and these priorities are likely to prevent the CM from fully controlling how specific parts of the budget are allocated over the period. 4) refer to "contractual rules." The IIA agrees on a contract between member states and the supranational bodies of the Union that specifies how certain parts of the budget are allocated or ear-marked across the policy domains. One possibility is that the budget allocation is completely predetermined by the financial framework so that the hands of the CM are fully tied, they could not alter the pre-defined budget allocation. But, as 4) argue, all contracts are incomplete and are subject to revision. Thus, the "post-contractual decisions" of the CM induce changes to the originally agree budget allocation. In view of these ideas, the actual budget allocation is partly determined by the contractual rules agreed in the IIAs and partly by the power distribution.

The above hypotheses suggest various factors that may explain why the actual budget shares of specific member states deviate from the benchmark power shares. For example, the member states may agree to contribute more to the EU budget, if they are promised to receive some of the money back in the spending side. To measure this effect we will examine whether the distribution of contributions have any association with the budget shares. We now turn to some more formal statistical considerations.

5.3 OLS Regressions

We consider regressions of the form

$$s_{it} = \alpha + \beta SSI_{it} + \gamma CONTRB_{it} + \delta INC_{it} + \varepsilon_{it}, \tag{2}$$

where s_{it} denotes the budget share, SSI_{it} is the political power, $CONTRB_{it}$ is the share of contributions, and INC_{it} is per capita income relative to EU-average income per capita,

all for member state i in period t. The ε_{it} is an error term.

Table 3 reports estimation results for the equation (2) in three cases; column (1) is for the shares of the total budget, columns (2) and (3), respectively, are for the shares of compulsory and non-compulsory budget spending. Under the hypothesis that political power (SSI) alone determines the budget shares we expect that the coefficients in (2) satisfy the restrictions $\beta = 1, \alpha = \gamma = \delta = 0$. We compute the corresponding Wald test statistic using the White's heteroscedasticity-robust covariance matrix estimator. Under the assumption that the data are obtained by random sampling, the test statistic is asymptotically χ^2-distributed (with four degrees of freedom) under the null hypothesis. Of course, the assumption of random sampling does not hold in the present setting and thus the test statistics should be interpreted with caution. Nevertheless, the p-values for the Wald tests are very close to zero for all three regressions and therefore suggest that the budget shares are not driven by the power distribution alone.

Take a closer look at estimation results of columns (1) and (2) in Table 3. Clearly, the SSI and the contribution share are powerful explanatory variables in both regressions. It is quite interesting that their coefficient estimates are both between 0 and 1 and that their sum is almost 1. By contrast, the coefficient estimate for income is rather small and its t-ratio is well below two. A robust Wald test for the restriction $\beta + \gamma = 1, \alpha = \delta = 0$ has a large p-value suggesting that the budget shares are well predicted by a weighted average of power and contribution. The results of the final column in Table 3 differ from those in the first two columns. The coefficient estimate of the power variable is clearly larger than one, while the coefficient estimate for the contribution share is negative. Clearly, it is difficult to give meaningful interpretations for these coefficient estimates. If anything, the negative coefficient estimate of the contribution share suggests that rich member states tend to receive smaller shares from the structural funds than poor member states. The fact that the coefficient estimate of the income variable is also negative and has a t-ratio of about 1.6 suggest that the needs view has some predictive content for the structural budget shares.

In sum, the OLS regression results suggest that power politics and contribution shares predict CAP shares, while solidarity might play a role as a determinant of structural

spending shares. At the aggregate level, power politics seems to be the dominant predictor of budget shares. It takes about 80% , while the remaining part may be attributed to member states' contributions.

As a final point, we look at the accuracy of the predictions of our regressions in more detail. Table 4 summarizes results on the total budget shares and CAP shares for France, Spain, Austria, Finland and Sweden over their membership periods. France and Spain are countries that have constantly received much larger shares from the total budget than is predicted by their power shares and contribution shares. The premium of France is the most persistent. The premium of Spain has been very pronounced since EU-15. By contrast, Austria, Finland and Sweden have obtained clearly smaller shares from the budget than their power and contribution shares predict. For example, during the ongoing regime of EU-25, Sweden has obtained a share of 1.5%, while its power measure alone or its power measure and contribution share together predict a share of 3%. There is a negative premium of 50%. The persistence of these deviations from the predictions is a puzzle to us. What explain this status quo bias?

5.4 Analysis of the Status Quo Bias

We turn to exploring the idea that the status quo bias may derive from fixations in the budget structure. The underlying assumption is that rules set by the EU treaty and especially the Financial frameworks largely determine the budget allocations. Thus, France and Spain continue to receive their premiums as long as the budget structure is tied to existing policies of CAP and structural funds. Similarly, Austria, Finland and Sweden continue to suffer from their negative premiums as long as these policies govern the budget spending. What is the reason why these biases are so persistent?

A key player in the game of budget structure is again CM. Is it possible to find sufficient majority to support a change in the budget structure? To assess this question, we classify member states into "winners" and "losers" based on their power distribution (SSI) values and realized budget shares, separately for CAP and structural funds. We do this classification in terms of the number of votes. Our results are presented in Table 5.

The number of votes in group "$\{-,-\}$" are for member states that receive less from CAP and structural funds than their power shares predict. These votes would favor to decrease both the CAP and the structural funds spending. By contrast, the votes in group "$\{+,+\}$" are for those members states that benefit more from CAP and structural funds than their power shares predict. Thus, votes in group "$\{+,+\}$" would favor more spending in CAP and structural funds. The two groups in between "loose" in the allocation of CAP funds and "benefit" in allocation of structural funds (group "$\{-,+\}$"), or vice versa (group "$\{+,-\}$"). Thus these votes have mixed preferences over the CAP and structural funds.

The results of Table 5 yield interesting insights into the dynamics of the structure of the EU budget and the persistent patterns found above. First, member states in group "$\{-,-\}$" do not have a blocking minority in the periods of EU-9, -10 and -12. This situation is favorable for an increase in the size of the budget. Consistent with this, the EU budget expanded very rapidly during those periods. The situation changed during the period of EU-15, because the UK moves gradually from group "$\{+,-\}$" into group "$\{-,-\}$". In consequence, the group "$\{-,-\}$" becomes a blocking minority in EU-15. The same holds for "$\{-,+\}$". Therefore, it became harder for the CM to find support for an increase in the budget size. Consistent with this, we find that the size and the structure of the EU budget have remained very stable since late 1990s. The situation gets even more stacked in EU-25, as the votes in group "$\{-,-\}$" increase further in relative terms. These observations suggest that there is little hope that CM could initiate a change in the current structure of the EU budget, at least under the current voting rules of the CM.

The Lisbon Treaty modifies the voting rules of the CM quite considerably. This means that the implied power distribution will be different. It is of interest to ask whether the change could make a difference to the structure of the EU budget. It seems there is no more room for a change. The group "$\{+,+\}$" has more than 35 % of votes in EU-25 and EU-27, which is sufficient for blocking, and the group "$\{-,-\}$" consists of more than 16 member states in EU-25 and EU-27, which warrants their ability to block. A more detailed analysis of the Lisbon Treaty's impact on EU budget is, however, left for future research.

In conclusion, the above considerations suggest that the structure of the EU budget

is likely to be persistent. This means that if the existing rules of CAP and structural funds remain as they are, then France and Spain continue to have enjoy extra premiums, while Austria, Finland and Sweden will suffer from negative premiums. What are the mechanisms that prevent CM from making a change in the rules? As a candidate mechanism, we point to the so called '*four percent rule*' that was established prior to EU-25. According to this written rule, a member state's budget receipts are not allowed to be larger than four percent of its GDP. Does this rule affect the EU budget allocation, that is, does the restriction bind? Interestingly, we find that the actual budget shares of the new Eastern European member states are almost as large as they can under the four percent rule. This observation suggests that the four percent rule prevents these member states from obtaining as much from the budget as their power shares suggest.

6 Conclusion

This paper supports the idea that the EU budget battle involves one-shot games that have persistent impacts on the budget allocations. In one way or the other, the member states are able to establish rules or contracts that restrict the budget allocation in advance. In the current status quo, France and Spain are the clearest winners of these restrictions, while Austria, Finland and Sweden, not to mention the new member states, suffer largest losses.

Despite of potential a priori restrictions on the budget, the power politics view is able to predict the member states' shares of CAP receipts and the total budget fairly well. Our results suggest that roughly 20 % of the member states' receipts derives from their contribution shares, while the remaining part is attributed to the distribution of political power. In structural spending, power politics does not give a clear prediction and we obtain evidence that member states' needs may matter in the allocation of these funds, perhaps due to the influence of the European Parliament.

Our analysis of the stability of the budget structure suggests that political power matters a great deal in EU decision-making. Indeed, power politics analysis indicates that the current 'deadlock' of the EU budget will remain stable. The new Lisbon rules wont

make a difference to the status quo bias. However, the improved position of European Parliament may have an impact on structural spending. But, this requires that the Treaty be ratified. Clearly, the EU budget battle is a sequence of interacting games. A thorough modeling of the dynamics of the 'big game' remains an interesting topic for future researh.

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Table 1: Budget Allocation of EU-15

	Total	CAP	Struct.	SSI
France	.170	.232	.079	.117
Germany	.144	.146	.137	.117
Italy	.121	.118	.128	.117
UK	.088	.097	.065	.117
Belgium	.026	.027	.012	.055
Netherlands	.029	.036	.011	.055
Denmark	.022	.031	.004	.035
Ireland	.040	.043	.040	.035
Luxembourgh	.002	.001	.001	.021
Greece	.074	.066	.097	.055
Portugal	.053	.018	.114	.055
Spain	.180	.132	.282	.096
Austria	.019	.022	.011	.045
Finland	.015	.015	.010	.035
Sweden	.017	.017	.009	.045

Notes: Total, CAP, Struct., SSI refer to ...

Table 2: Measuring the difference between budget allocations and the power distribution

	Total	CAP	Struct.
EU-9	1.09	1.30	3.28
EU-10	1.90	2.36	8.57
EU-12	1.76	2.81	4.74
EU-15	7.34	11.66	18.82
EU-25	3.79	4.06	10.59

Note: The numbers are computed by he formula $\sum_j (s_j/SSI_j - 1)^2$, where s_j and SII_j, respectively, is the budget share and the SSI value of country j.

Table 3: OLS Estimation Results

	Total	CAP	Struct.
Regressor	(1)	(2)	(3)
Political Power (SSI)	.87	.59	1.77
	(.11)	(.17)	(.28)
Contribution Share ($CONTRB$)	.18	.40	-.41
	(.07)	(.11)	(.19)
Income ($INCOME$)	$-.002$	.001	-.024
	(.004)	(.006)	(.015)
$Constant$	$-.002$	$-.0006$	$-.001$
	(.007)	(.010)	(.01)
R^2	.87	.80	.64

Note: Robust standard errors are given in parentheses. The sample consists of 71 observations corresponding to the countries in EU-9 (1976-80), EU-10 (1981-85), EU-12 (1986-94), EU-15 (1995-2003), and EU-25 (2004-2006).

Table 4: Budget Share Predictions for Selected Member States

			Total		CAP	
		SSI	Reg. Fit	Share	Reg. Fit	Share
France	EU-9	17.9	18.5	20.5	18.5	21.8
	EU-10	17.4	18.1	20.2	18.2	23.2
	EU-12	13.4	14.9	18.3	16.0	22.2
	EU-15	11.7	13.0	16.5	14.0	23.2
	EU-25	9.3	10.9	13.9	12.2	20.8
Spain	EU-12	11.1	10.6	12.2	9.6	8.3
	EU-15	9.6	9.2	17.0	8.6	13.2
	EU-25	8.6	8.9	15.3	8.8	13.7
Austria	EU-15	4.5	4.2	1.9	3.7	2.2
	EU-25	3.0	2.9	1.8	2.7	2.6
Finland	EU-15	3.5	3.1	1.5	2.7	1.5
	EU-25	2.1	2.0	1.4	1.9	1.8
Sweden	EU-15	4.5	4.2	1.6	3.9	1.7
	EU-25	3.0	3.0	1.6	2.9	1.9

Notes: "SSI" is the Shapley-Shubik power index. "Reg. Fit" refers to predictions based on an OLS regression of the budget share on SSI and the contribution share (see Table 3). "Share" is the actual budget share over the indicated period.

Table 5: Numbers of votes that gain and/or lose from CAP and structural spending

	$\{\text{sgn}(s^{CAP} - SSI), \text{sgn}(s^{STR} - SSI)\}$						
	$\{-,-\}$	$\{-,+\}$	$\{+,-\}$	$\{+,+\}$	Total	QMV	BM
EU-9	7	28	23	0	58	41	18
EU-10	7	33	10	13	63	45	19
EU-12	10	25	23	18	76	54	23
EU-15	36	10	5	36	87	62	26
EU-25	169	43	12	97	321	232	90

Notes: The column "{−,−}" indicates the number of Council votes for member states with shares of CAP and Structural funds less than their power (SSI) shares, the column "{−,+}" indicates the number of votes for member states with shares of CAP larger than and Structural funds less than their power (SSI) shares, and so on. "Total" is the total number of Council votes, "QMV" is the quota number of votes, "BM" is the number of votes sufficient for a blocking minority.

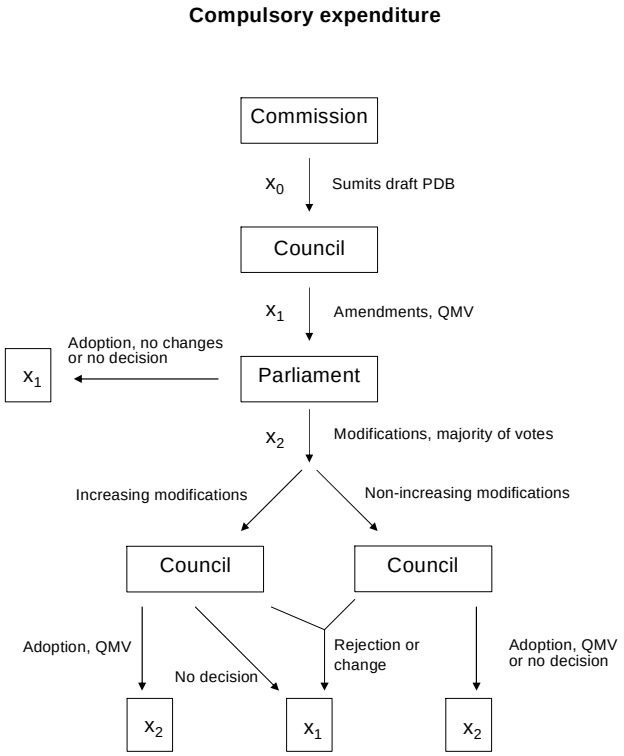

Figure 1: The Budget Procedure of the EU, compulsory expenditure

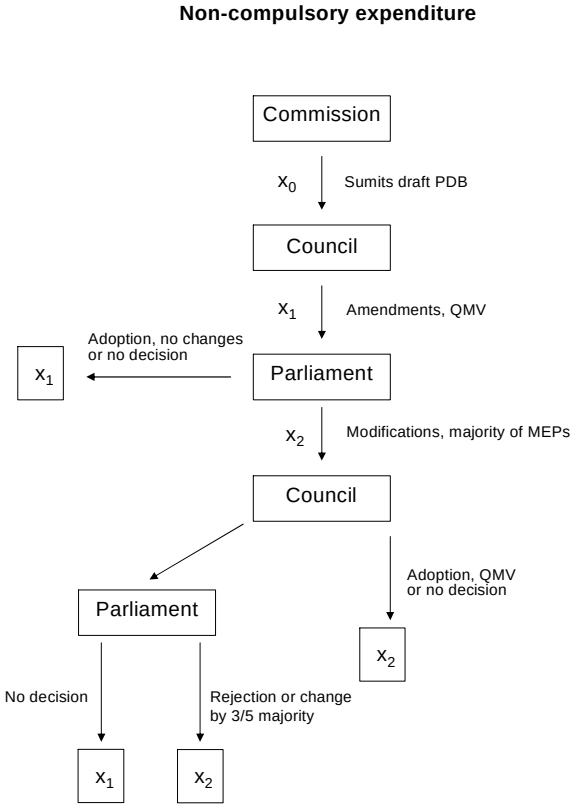

Figure 2: The Budget Procedure of the EU, non-compulsory expenditure