A POLITICAL LOOK INTO BUDGET DEFICITS.THE ROLE OF MINORITY GOVERNMENTS AND OPPOSITIONS

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A POLITICAL LOOK INTO BUDGET DEFICITS

The Role of Minority Governments and Oppositions

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Abstract

In this paper we argue that the opposition is a key actor to be taken into account to explain deficit outcomes. If governments are in legislative minority, they will have to bargain with the opposition, including when having to pass the annual budget law. We concentrate on one specific aspect of the latter, namely the financing method, and argue that the interests of the opposition on deficits shall be reflected in the annual deficit results. We develop a theoretical framework in which the opposition faces a trade-off. It has a short term interest in deficits because they can weaken governments, but a long term aversion to them because, as likely future government holders, they will possibly have to deal with the burden of increased debt. We prove empirically that opposition parties will affect deficit outcomes depending on their probability to rule in the next term and on the ability they have to weaken a current government with a deficit. We also find that after the mid-nineties results change, pointing at a higher contextual deficit-aversion constraining domestic politics reflected, for instance, in the Maastricht criteria.

Keywords: Budget approval, Minority Governments, Oppositions, Deficits.

JEL classification: D72, H11, H62.

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1. INTRODUCTION

It has been widely argued that budget deficits are a phenomenon that cannot be fully explained by economic variables (Volkerink and de Haan 2001). The academic debate has well accounted a trend of systematic deficits in western economies since 1973. Economic reasons, however, cannot provide complete and satisfactory explanations to this performance. If public spending must be mainly countercyclical, deficits should be temporary resources (Barro 1979, Alesina et al. 1992). But then the key question in this field is why governments have used them systematically until the mid-1990s, following, besides, an apparently incoherent pattern that led many countries to finally reach unsustainable levels of debt (Grilli et al. 1991).

Finding common patterns in budget deficits beyond purely economic perspectives is indeed a fertile ground for political science. However, since several seminal works were published twenty years ago (Roubini and Sachs 1989, Grilli et al. 1991, Edwards and Tabellini 1991, Roubini 1991), the contributions made thereafter have drawn no definitive conclusions. This paper tries to take a step forward in this area, assessing the role of an actor that has seldom been taken into account hitherto: the opposition.

We provide evidence showing that the type of opposition matters to explain deficit outcomes when governments are in parliamentary minority. Depending on their likelihood of being part of a future government, the weakness of the minority government and the contextual deficit aversion, oppositions will support different deficit outcomes.

The remainder of the paper is organised as follows. In section two we claim that the influence of the opposition on minority governments' performance has not been addressed in sufficient detail yet and explain how it can be improved. Our theoretical framework and hypotheses are presented in the third section. Section four deals with the data and other methodological considerations, while section five shows and discusses our empirical results. Finally, the last section gives clues for further research and concludes.

2. MINORITY GOVERNMENTS, OPPOSITIONS, AND FISCAL PERFORMANCE: A COCKTAIL TO BE FURTHER EXPLORED

According to Strøm (1985, 1990), conventional wisdom has viewed minority governments as more inclined toward political malaise, irrationality, and poor performance. This view may be understandable if we turn eyes back to historical events that could give rise to negative perceptions on minority governments. The interwar period, with the Weimar or the Fourth French Republic, is a clear example. However, it is obvious that these events do not represent today's realities (Strøm 1990: 90).

Other non-historical studies have also focused on minority cabinets' performance. As D'Alimonte (1978) stresses, these assessments have been based on two traditional criteria: stability and legislative effectiveness. Minority governments have seldom received a good consideration for any of both. Some have empirically shown that these governments are typically less durable (Lijphart 1984, Warwick 1979), since they may rapidly give way either to minimum winning coalitions via expansion, or to early parliamentary dissolution (Dodd 1976). This tendency is also captured by Taylor and Herman (1971), although they observe much less dramatic differences. But still, research concerning these governments' performance in office "is generally restricted to impressionistic evaluations with a largely negative flavour" and "[p]artly this is because there are few adequate measures of government performance" (Strøm 1990: 17).

One of these performance measures may be fiscal deficits. The extent to which the formal composition of government or, more generally, the fragmentation of power influences the likelihood and magnitude of budget deficits has inspired a good deal of research during the last two decades (e.g. Roubini and Sachs 1988, 1989; Alesina et al. 1992; de Haan and Sturm 1994). The motivation underlying these studies has been to address the issue of disagreement between parties within government, but overlooking the possible necessity of agreement with actors beyond the government. This approach owes much to the contribution of Roubini and Sachs (1989). They elaborated a political dispersion index of 15 OECD countries, covering form the mid-sixties to the mid-eighties. Using this index, they determine an average gap of 1% of GDP deficit between single party majority governments and parliamentary minority ones (see also Alesina et al. 1992 and de Haan and Sturm 1994). However, the use of this index as a single variable in these studies assumes a specific ranking in deficit promoting, being coalitions more prone than single party governments, and minorities more prone than coalitions. Consequently, some have acknowledged these findings to be rather inconsistent and not robust to slight changes in the model (de Haan and Sturm 1997).

Edin and Ohlsson (1991) move a step forward by fragmenting the index and using each category as a single dummy in their regressions. This procedure lets them show that only parliamentary minorities are more likely to fall into budget deficits. Their results would imply either that belonging to a majority government encourages the responsibility of politicians or that minority governments are more fragile and weak to adjust a budget. However nothing of this is mentioned in their work and thus such intriguing results lack proper explanation.

Yet simultaneously some other authors have cast doubts on previous findings and denied either that more unified governments are less prone to deficits (Alt and Lowry 1994) or that divided governments do systematically fall into deficits (de Haan and Sturm 1997). Complementing the traditional view of coalitions as big spenders (e.g. Jones et al. 1997), Perotti and Kontopoulos (2002) show that these types of governments might need to satisfy the respective (more numerous) constituencies, but not always trough deficits and irresponsible fiscal behaviour.

All in all, this deficit-focused literature shows inconclusive evidence about the influence of types of governments on deficit outcomes. This probably has to do with the fact that the type of government may not be a variable that *per se* produces some outcomes, but that it depends on its interaction with others. This is why we introduce here the opposition as a crucial determinant of deficit outcomes.

Regarding minority governments, and strikingly enough, the role of opposition has received scarce attention.[1] It is true that when a "government has a solid majority and that majority has the cohesion usually necessary to sustain a parliamentary government, the representatives of the opposition party may have little impact on policy making", but when "political governing control conditions (…) encourage the incumbent

[1] See, for instance, Ganghof and Bräuninger's (2006) analysis of the level of accommodation of opposition parties as compared to government parties in Australia, Denmark, Finland, and Germany.

government to negotiate with them", opposition parties have enhanced bargaining power to influence the final nature of policies (Bingham Powell 2000: 97-98, 215). It is straightforward that minority governments reflect one of these situations. If it is clear that parties within coalition cabinets will have to give consent when adopting a policy as a government, it should also be clear that (some) parties in opposition will have to give consent in order to allow a minority government to adopt a policy. Therefore, one should expect in principle that both executive and legislative coalitions (borrowing the terms of Laver and Schofield (1990)) were given similar importance in the literature. Nonetheless, we still have rather little research to guide us in determining the extent to which the opposition is effectively represented in policy making (Bingham Powell 2000: 93).

Most likely, the annual exam of having the budget passed in Parliament may be a suitable situation to enrich our knowledge about the role of opposition in the making of policies. Provided that a minority cabinet is in office, it is reasonable to expect that opposition's preferences on deficits –in interaction with the government's ones– will shape fiscal outcomes. This remains an intriguing issue in the political science agenda ahead, which we will try to tackle in the following pages.

3. ARGUMENT AND HYPOTHESES

3.1 General argument: a trade-off faced by opposition

Minority governments *must* bargain with the opposition to pass legislation (Bingham Powell 2000: 103). Hence, if opposition parties are necessary to have a new budget, it is hard to imagine that the outcome will be neutral to their preferences. If opposition's actions are rational and their main goal is taking over the government in the most favourable conditions, their decisions about deficits will be instruments towards this aim. Let us thus leave ideology aside (i.e. hold it constant)[2] and consider that parties in opposition only care about their office prospects. Then the question is: when will oppositions be interested in a deficit and when not?

[2] Notwithstanding this theoretical license, we control for the possible effect of ideology in our empirical analyses. This is because we want to isolate the effect of our substantial variables in the statistical contrast.

Opposition parties face a trade-off. On the one hand, deficits could produce short term benefits to them. A budgetary deficit may weaken government parties in the current period by fostering electoral sanctions. Being elections retrospective accountability mechanisms (Fiorina 1981, Ferejohn 1986),[3] voters will punish the non-balanced management of resources of parties in government.[4] On the other hand, the shadow of the future must be taken into account too. Deficits may have long term negative consequences for opposition parties. Every deficit outcome today accumulates to debt that needs to be paid in the future, updated by the interest rate. Therefore, if an opposition party considers it will govern in the next period with some positive probability, current deficits produce a long term burden that they will prefer to avoid.[5]

Our whole argument revolves around identifying the conditions under which the balance is tipped in favour of the short / long term part of the intertemporal trade-off facing opposition parties. First, consider the role of the *opposition's fragmentation*. In a short term calculus, as the number of parties in the opposition benches of Parliament increases, the electoral reward of voters' sanction against the government for a deficit has to be shared between more actors. However, in the long term, the more fragmented the opposition, the less its parties' likelihood to face the need to deal (alone) with the tomorrow's debt produced by today's deficit, alleviating deficits' long term costs for its parties. Hence, opposition fragmentation itself does not give us a clear hint about its parties' final stand regarding deficits. It positively weighs both parts of the trade-off in such a way that the direction of the preference is not clear, making the short-term benefits less attractive but at the same time the long term costs less severe. Thus the effect of fragmentation within opposition runs in two opposite directions. However, we can expect that these costs and benefits do not depend simply on the composition of the opposition. The type of government can also make deficits more or less profitable from the opposition's perspective.

[3] Recall that parties in office and in opposition are considered to be ideologically equal.

[4] We can assume that electoral sanctions to government parties will be voters' electoral reward for opposition parties It is true that voters may also blame the opposition for falling into a deficit since its consent is indispensable when a minority cabinet rules. Nonetheless, we assume all through the paper that it is the government who receives the electoral sanction, at least more than opposition parties.

[5] On the government's side, decisions regarding the use of deficits and debt have been also seen as inter-temporal strategic devices by authors like Alesina and Tabellini (1990) or Persson and Svensson (1989). Both predict that an anticipation of a possible defeat in the next election can cause governments to use debt strategically so as to influence the policy of its successor. However, the former authors do not conceive partisan differences playing any role, whereas the latter predict that only right-wing governments will accumulate more debt while left-wing governments will do exactly the opposite. For an empirical test of these two hypotheses, see Pettersson-Lidbom (2001).

Let us then consider the *fragmentation within government*. From the perspective of opposition parties, what matters is whether a government falls, giving them the prospect of an election they can win. According to Strøm (1990: 129) when a government is fragmented it makes it more likely to fall under traumatic circumstances. Hence, the more fragmented a minority government, the more difficult it will find it to survive at any given time and the harder to cope with budgetary deficits. Since parties in opposition are interested in deficits in the short term because they weaken the government, the fact that the latter is more fragmented will make deficits even more attractive. As a result, a higher fragmentation within government tends to tip the balance in favour of the first part of the trade-off and makes opposition parties more prone to accept deficits.

As a consequence, and considering all the things said to this point, (i) less parties in opposition will make each of them more interested in the short term benefits deficits if the government is already a fragile one because of its composition, but (ii) less opposition parties will make each of them weigh more the long term costs as likely future government holders if the government is strong enough (i.e. it is not fragmented).

Finally, we have to consider also the *deficit aversion context* where the negotiation takes place. Deficits are certainly non-neutral for parties in government either. There are electoral consequences derived from their production and they can anticipate that. Voters do not always judge deficits with the same yardstick. They may vary in their consideration of deficits as economically unreasonable decisions and exert accountability mechanisms through voting. Beyond economic necessities, time-idiosyncratic conditions may justify voters (and policy-makers) as more or less deficit-averse. For instance, we could think of a policy paradigm that either smoothes or worsens the negative electoral consequences for parties in government changes along time, or legal provisions that limit the fiscal autonomy of a government. So regardless of the opposition's preferences about accepting/rejecting a budgetary proposal with deficit, the government will be more reluctant to offer one in the first place when contextual deficit-aversion is high.

3.2 Formalization of the argument and hypotheses

Given that the nature of the interactions in our argument are complex, and before presenting the hypotheses that will be tested in the empirical part, a more stylized way of presenting the argument is in order.

Imagine we have a minority government that wants to pass its budget proposal in Parliament. The consent of (at least some) parties in opposition will be necessary to approve the mentioned law. If not, the status quo will prevail. Take the government formation process as given or exogenous, being parties randomly assigned in government or in opposition. Assume that no ideology is involved in the bargain, being all parties the same in these terms.[6] Finally, let the utility functions of parties in government (G) and in opposition (O) take the following form, respectively:

$$U_G = (E - e_O) - [D[\theta E] + T[(1-\theta)E]] + F[X_G]$$
$$U_O = e_O + p[q[D[\theta E] + T[(1-\theta)E]]] - \delta[q[D[\theta E]]] + F[X_O]$$

Where E is the total expense decided in the Council of Ministers, having two components: the expenditure targeted to the opposition parties' constituency and that targeted to the ruling parties' constituency (e_O and $E–e_O$, respectively); D and T are indicator variables, which have a value of 1 when a deficit-financing or tax-financing occurs respectively and 0 otherwise (they are mutually exclusive); δ is the temporal discount, while θ parameter (ranging from 0 to 1) represents the deficit-aversion level in the society which makes voters penalize a given deficit with different intensities; p corresponds to the fragmentation within government, representing its weakness or instability within it, whereas q reflects the concentration of the opposition that gauges the party's likelihood of ruling the next government and its probability of winning the votes of an electoral sanction to the government. Finally, the status quo payoff X_i reflects players' utility derived in case the negotiation breaks up (F is an indicator dummy variable being 1 when it does fail and 0 when the budget draft is finally

[6] These are certainly strong assumptions (though not uncommon in the literature: e.g. Ferejohn 1986 or Fearon 1999), yet we believe they are extremely helpful in order to address our main concern: how *any* opposition will shape the likelihood a budget deficit occurrence, *everything else equal*. Notwithstanding this theoretical assumption, however, we control for the possible effect of ideology in our empirical analyses. This is because we want to isolate the effect of our variables of interest in the statistical contrast.

approved). X_i has to be understood as a summary of the current *E*s and the bargaining exit costs. It is the reservation or walkaway value against which parties bargain.

Notice that the utility functions contain the elements stressed while sketching the general argument. The government parties derive utility from spending targeted to their constituencies but disutility from having to finance it (either through deficit or taxes). The latter is weighted by the contextual level of aversion against deficits or taxes, which is understood as a trade-off: once a given level of total expenditure E has been decided, the choice of how to pay it *needs to be faced* via deficit, or via taxes, which are financing methods by definition. There is thus no way to avoid deficit and taxes at the same time, and voters will have preferences over them.

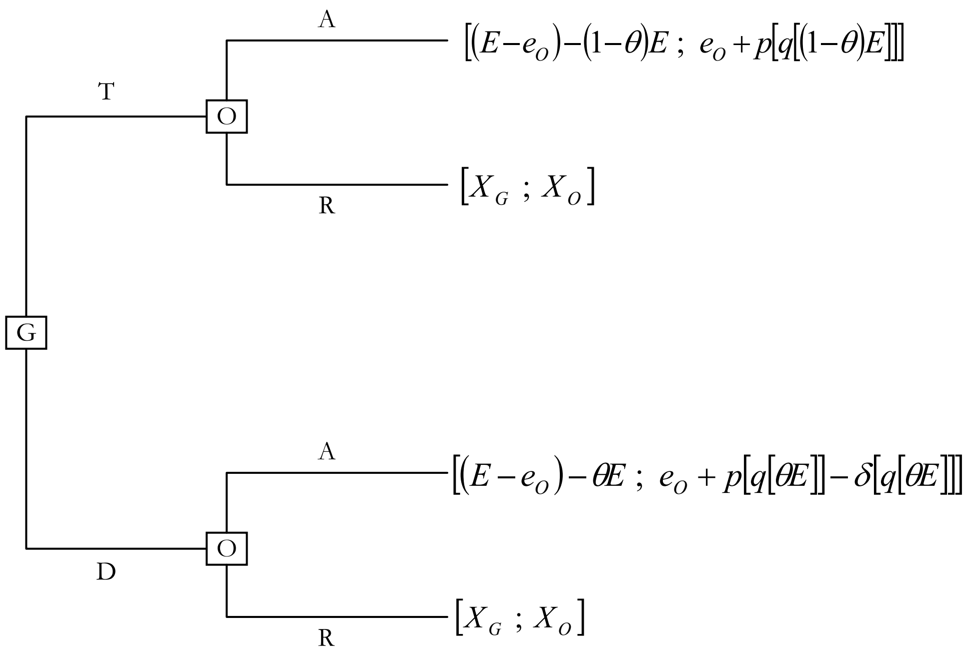
The intertemporal trade-off faced by opposition parties is also reflected in their utility functions. Opposition parties like the need of the government to finance its total spending because it weakens it in the current period. They will like more or less deficit or taxes depending on the level of contextual aversion to each of them. For the abovementioned reasons, this part of the utility function is weighted both by how few parties are there in opposition (q) and by the fragmentation within government (p) indicating its ex ante weakness. The future burden of a deficit enters negatively (and temporally discounted) in the second part of the utility function of opposition parties, which depends on the total level of deficit, the degree of deficit aversion, and the likelihood of having to deal alone with the debt in the next period (i.e. the concentration of the opposition q).

To simplify things as much as possible and go straight to point we want to make, let us consider a two-stage game. The Council of Ministers decides on a budget proposal that contains certain spending amounts. We take the output of this first pre-game as given. The budget project is brought up to the floor by parties in government (G) with a specific proposal on how to finance it, which is this paper's main concern.[7] Parties in office can propose either a financing via taxes (T) or deficit (D). In the second stage, the

[7] As a reviewer stressed, not most of the budget approval game is about the financing method. However, we still think that it is an additional issue that shapes the payoffs of bargaining parties once all the other things (notably targeted spending) are held constant.

opposition answers whether they accept this proposal (A) –including both the financing plan (taxes or deficit) and constituency-targeted expenditures– or reject it (R).[8]

Figure 1 – Extensive form game for the financing of a given budget or spending proposal under a minority government



The outcomes (or equilibria) of this bargaining process depend on the level of fragmentation within the government (p), the level of concentration of the opposition (q) and the policy paradigm (θ). Obviously, equilibria are also endogenous to the constituency-spending values, yet they are not the focus of this research.[9] We define the equilibria holding spending constant, under different scenarios of p and q, and taking into account the role of θ. In Appendix 1 we formally present the eight equilibria of the game we are interested in for this paper.[10] They have been solved by backwards induction. As the reader will see, there is a crucial cut-off between two groups of equilibria: those reached when $p < \delta$ and those for $p > \delta$. Given that p is the level of fragmentation within government, and assuming that the discount factor δ is not extremely low or high, we identify the former group with the case of low fragmented

[8] Note that we do not take into account variability in the rules of legislation passage (see Döring and Hallerberg (2004) for a work taking them into account). On the contrary, we assume them to be constant in order to capture the essence of what we are interested in. How passage rules would affect the whole story remains a question ahead.
[9] Nonetheless, our theoretical framework allows doing comparative static analyses with respect to spending values (something that is beyond the scope of this paper).
[10] As explained below, those given in intermediate levels of opposition's concentration (q) are not displayed since they are not part of this research propositions. They are available from the authors upon request, though.

minority governments and the latter with highly fragmented minority governments. In our empirics, they are embodied in single party minority and multiparty minority governments, respectively. The former are presumed to be stronger when facing a deficit, whereas the assumption on the latter regards them as more vulnerable to deficits since they have to deal with internal disputes.

As argued both intuitively and formally, we claim that one specific feature of parties in opposition –namely its number or fragmentation– affects the probability of accepting a deficit in two opposite directions depending on whether the strength of the government makes it capable to survive deficits with much problem or not. Given that this paper's object of study is the role of the opposition, it appears that the wisest choice is to concentrate on the most extreme (or in other words, the non-intermediate) scenarios of opposition's concentration.[11] In addition, the emergence of an eventual deficit will also depend on the contextual deficit-aversion faced by policy-makers, which will make them more or less prone to propose deficits and not taxes as a way to finance their spending. Our argument then can be translated into the three following hypotheses:

Hypothesis 1: When contextual deficit-aversion is low and there is a low fragmented minority government in office, higher concentration of the opposition decreases the likelihood of deficits.

Hypothesis 2: When contextual deficit-aversion is low and there is a highly fragmented minority government in office, higher concentration of the opposition increases the likelihood of deficits.

Hypothesis 3: As the contextual deficit-aversion increases, the effect of the concentration of the opposition vanishes, regardless of the fragmentation of the government in office.

[11] This is to say that, despite the multiple equilibria that can be proved to exist, the scenarios at both extremes of the opposition concentration's continuum turn to be the best to derive empirical hypotheses from. This is what we do in the next step.

4. DATA AND METHODOLOGY

The data used in this paper are gathered in the Comparative Political Data Set (Armingeon et al. 2005). We concentrate our research on the period for which we have data on deficits (1970–2004), which includes the key years in which public deficits spread all through western economies. Our full sample covers twenty-three OECD countries regardless of their political and electoral system.[12] Minority governments are slightly more than 20% of our sample.

To shape out correctly the effects of the political variables in which we are interested, we included several economic-focused controls in the analyses. Some of them are commonly recognized as automatic stabilizers that need to be accounted for in the analysis of governments' fiscal records (Roubini and Sachs 1989): (1) the *previous year deficit*, in order to isolate unitarily the main autoregressive component of the model, (2) the *increment of the rate of unemployment*, since it expresses the possible economic and social vicissitudes of a country that may extraordinarily impel budget deficits in a concrete year, (3) *long term interest rates*, as the price that governments have to pay for a deficit, and (4) the *growth rate of GDP* in every year, as a natural smoother of deficits.

We also control for political variables. First, we include a dummy variable for the *election year*.[13] There is an extensive theoretical literature on political budget cycles (e.g. Alesina et al. 1997 or Alesina and Roubini 2008), while empirically there is inconclusive evidence on them. Including this variable, we avoid any potential bias of governments increasing deficit-financed expenditures just before the election. Apart from budget cycles, by including the election years we also control the possibility that minority governments were more likely in election years.[14] Secondly, we also include the *number of government changes* in a certain year. With this variable, we intend to measure the degree of instability of the government, controlling if an unstable atmosphere in which the members of the cabinet feel insecure with their post leads to

[12] Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, and United States. We have not removed the countries with majoritarian electoral systems to allow the dependent variable range along all its possible values, though we also present the analyses proportional system countries only.

[13] We consider as election year the ones with parliamentary elections. Only in the United States we have coded it as the year of the presidential election.

[14] Nevertheless, we do not expect this because the correlation between minority governments and election years is almost zero.

more deficits. Thirdly, we control for the *political colour of government*. Many studies analyze whether leftist governments either fall more frequently in deficits or undertake less fiscal adjustments. Hence, we include the percentage of total cabinet posts occupied by social-democratic and other left parties, weighted by days in the year.

Apart from the control variables, we include the key ones in this paper to explain the way oppositions influence deficits. To asses the role of the opposition on budget deficits, we have to account first for the influence of the *type of government* on deficits. In our opinion this question has been unsatisfactorily answered in the literature, because of the wide variety of approaches and results. Our measure divides governments into five categories: (1) single party government (2) minimal winning coalition (3) surplus coalition (4) single party minority government (5) multiparty minority government.[15] These data on the type of government provided by the Comparative Political Data Set are of great advantage. Much of the literature so far was restricted to less and more general categories when modelling governments' behaviour regarding deficits (Roubini and Sachs 1989, Milesi-Ferretti et al. 2001, Persson et al. 2003).

As a measure of the *opposition's concentration* we have created an index out of the number of effective parties in the legislature (*Effective Parties*).[16] This index is as follows:

$$\textit{Opposition's Concentration}_i = \textit{Max (Effective Parties)} - \textit{Effective Parties}_i$$

The advantage of this transformation is that our index is now a linear and increasing measure of opposition's concentration.[17] We believe this is a good means to capture the concentration of the opposition, because the lower the effective number of parties, the more likely each one is part of the government in the next year. By the same token, the

[15] Due to the reduced number of cases, the caretaker governments are not included in the analysis to increase efficiency in the estimations,.

[16] Although it is true that the number of parties in the legislature as a whole does not only consider opposition but also government, this is the best measure we could find to build the index with. There are other variables that directly measure the fragmentation within opposition alone, but they are in other databases where no economic information is included. Merging databases is not possible also since the latter codes variables at the value of each year's January 1st, while the one we use considers the lengthiest period of time in each year (which we believe is better for our purposes). Moreover, in the Appendix 2, we show that, substantively, the effective number of parties in legislature is a very good proxy for the effective number of parties in opposition.

[17] Given the sample size, we see no problem in considering the data point with the highest number of effective parties (Belgium between 1999 and 2002 with 9.0712 effective parties in Parliament) to be the value zero in our opposition's concentration index.

lower the number of effective parties in Parliament, the more probable it is that an opposition party rules alone in the following year.[18]

The statistical methodology is the commonly used time-series cross-sectional regressions with panel-corrected standard errors (Beck and Katz 1992), controlling for first order autocorrelation.[19] We use two specifications of the dependent variable: (1) the deficit measured as a share of GDP. This specification of the dependent variable as a *level* is the most common one in the research on deficits. And (2) the increment in the deficit from a year to another. This specification is more in line with the research of the political causes of macroeconomic policies (Franzese 2002). This allows avoiding spurious relationships due to the potential presence of unit roots.

Each codification of the dependent variable requires a different specification of the statistical model. Models 1, when the dependent variable is the level of deficits, the independent variables are included also in each year's level value. Models 2 take the annual deficit variation as the dependent variable. In this model, for those independent variables where it made a substantive sense, we have specified them in a twofold way: their annual increments and their lagged value. This approach allows differentiating between the long term effects, which are captured by the parameters of lagged variables, and the short term effects, depicted by the increment in the independent variable from the previous year. The results show that, although we must have in mind the specification of the dependent variable when making interpretations, both types of models yield similar results. This makes us more confident on them.

The descriptive statistics of these two specifications of the dependent variable and the key independent variables are shown in table 1.

[18] We also have run some analyses that prove this is the case, which are included in Appendix 2 as well.
[19] We have run the analyses with ordinary prais-winsten regressions and random effects, yielding very similar results. Available from authors upon request.

Table 1: Descriptive Statistics of the Main Variables

Variable	Observations in category	Mean	Standard deviation	Min value	Max value
Dependent variables					
Deficit Level	-	-0.028	3.118	-12.990	11.756
Anual Increment in Deficit	-	0.015	1.766	-9.059	9.131
Opposition structure					
Opposition concentration	-	5.521	1.424	0	7.379
Government type					
Single party majority government	207	0.280	0.449	0	1
Minimal winning coalition	238	0.322	0.468	0	1
Surplus coalition	145	0.196	0.397	0	1
Single party minority government	95	0.129	0.335	0	1
Multiparty minority government	54	0.073	0.260	0	1

5. RESULTS

Just to repeat it, recall that we are interested in seeing how opposition parties' perceived probability of having to deal with the deficit's future burden alone (without sharing responsibility) affects their present decision of giving consent to pass budgets, given other factors such as weakness of the current government and other contextual variables. The results yielded by the statistical tests of this argument are displayed in tables 2, 3, and 4, and figures 2 to 7. The different models are presented along the lines of the specific dependent variable used (Deficit *levels* on the left hand side –models 1– and Deficit *annual increments* on the right –models 2–).

Table 2 – Regression Analyses of Deficit Production in Europe: All Years

	DV: Deficit (Level)			DV: Deficit (Δ: Annual Increment)		
	Model 1a	Model 1b	Model 1c	Model 2a	Model 2b	Model 2c
Annual Deficit (lag)	0.782***	0.762***	0.758***	-0.210***	-0.230***	-0.234***
	(0.040)	(0.042)	(0.042)	(0.040)	(0.043)	(0.043)
Gross Government Debt as a % of GDP (lag)	-0.005**	-0.002	-0.002	-0.004	-0.001	-0.001
	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Growth of Real GDP	-0.155***	-0.157***	-0.174***	-0.155***	-0.157***	-0.175***
	(0.046)	(0.044)	(0.043)	(0.045)	(0.043)	(0.042)
Long term Interest Rates	0.007	0.014	0.012			
	(0.042)	(0.043)	(0.041)			
Long term Interest Rates (Δ)				-0.004	0.005	-0.017
				(0.088)	(0.087)	(0.083)
Long term Interest Rates (lag)				0.012	0.020	0.021
				(0.044)	(0.045)	(0.044)
Unemployment Rate (Δ)	0.573***	0.594***	0.576***	0.550***	0.571***	0.544***
	(0.099)	(0.097)	(0.097)	(0.105)	(0.103)	(0.102)
Unemployment Rate (lag)				-0.020	-0.020	-0.023
				(0.020)	(0.020)	(0.020)
Election year	0.147	0.151	0.118	0.147	0.150	0.114
	(0.160)	(0.151)	(0.148)	(0.164)	(0.153)	(0.152)
Left Parties % of Cabinet Posts	-0.002	-0.002	-0.002			
	(0.002)	(0.002)	(0.002)			
Left Parties % of Cabinet Posts (Δ)				-0.006	-0.006	-0.006
				(0.005)	(0.005)	(0.005)
Left Parties % of Cabinet Posts (lag)				-0.002	-0.001	-0.001
				(0.002)	(0.002)	(0.002)
Number of Changes in Government	0.131	0.136	0.156	0.133	0.138	0.164
	(0.138)	(0.134)	(0.134)	(0.142)	(0.137)	(0.141)
Minimal Winning Coalition	-0.381**	-0.067	-0.128	-0.356**	-0.052	-0.123
	(0.161)	(0.217)	(0.204)	(0.165)	(0.224)	(0.209)
Surplus Coalition	-0.366***	0.029	-0.069	-0.356***	0.029	-0.084
	(0.139)	(0.224)	(0.214)	(0.133)	(0.224)	0.214
Minority Government (Single Party)	-0.588**	-0.400	-0.494	-0.572*	-0.390	-0.278
	(0.291)	(0.291)	(1.388)	(0.292)	(0.293)	1.464
*Minority Government (Single Party) * Opposition's Concentration*			-0.020			0.045
			(0.431)			(0.453)
Minority Government (MultiParty)	-0.503	-0.190	2.653**	-0.521*	-0.218	2.776**
	(0.311)	(0.310)	(1.153)	(0.316)	(0.317)	(1.203)
*Minority Government (MultiParty) * Opposition's Concentration*			0.683**			0.724**
			(0.273)			(0.284)
Opposition's Concentration		0.182**	0.149**		0.178**	0.139**
		(0.072)	(0.063)		(0.075)	(0.063)
Constant	0.894**	1.084***	1.072***	0.905**	1.086***	1.043**
	(0.438)	(0.397)	(0.408)	(0.439)	(0.393)	(0.408)
Observations	565	565	565	562	562	562
R-squared	0.75	0.75	0.75	0.31	0.32	0.33

Notes: Estimations result from TSCS regressions with panel-corrected standard errors (in parentheses).

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 2 provides the results for all years and all countries. Control variables aside, which perform in general as expected in the literature (see Bohn 1998), the most interesting coefficients are provided by the variables regarding types of government. Taking into account that the reference category is *Single party Majority Government*, models 1a and 2a show that both coalitionist and minoritarian governments are less likely to fall into deficits. The magnitude of the coefficients and the statistical significances of the effects of variables *Minority Government (Single Party)* and *Minority Government (MultiParty)* suggest that the minoritarian status makes a government less prone to run deficits; even less than majoritarian coalitions. This is especially true for single party minority governments.

Strikingly enough, these first findings go in the exact opposite direction of many previous studies supporting weak government theses. As suggested by Rogoff (1990), it might be that only competent incumbents fall into deficit to send a signal to their electorates. From our point of view, another more likely interpretation is that single party majority governments may encounter fewer constraints than other types of offices in the making fiscal policies. On the contrary, both minority and multiparty governments may have to face more checks in doing so. Hence, it seems unlikely that the latter governments cannot avoid falling into a deficit. It may well be the case that, by contrast, these governments are less able to run deficits in case they need it. As this interpretation suggests, we tend to see deficits as strategic tools that governments could want to resort to.[20]

Parliamentary opposition is the constraint we are most interested in and the one that belongs to the core of this paper. This is why the following lines focus on the case of minority governments (both single party and coalition ones) interacting with a more or less concentrated opposition. As said, the first models underscore that minority governments and coalitions are less deficitary. Something quite interesting happens when we introduce *Opposition's Concentration* as a control in the econometric models.[21] When this variable is included, the ones regarding types of government lose

[20] In normative terms, we tend to support here Strøm's (1985, 1990) challenge of the conventional view when he stresses that minority governments can be said to leave a surprisingly favourable impression when their record is analyzed. "At the very least, it is not clear that the[ir] bottom line is negative, either for parties considering participation in such cabinets or for the political system as a whole" (Strøm 1990: 131).

[21] Recall that when talking about opposition concentration we refer to an index based on the inverse of the effective parties in Parliament.

their impact on the dependent variables and do not reach conventional levels of statistical significance. Models 1b and 2b imply that the larger opposition's concentration, the more likely the government runs a deficit. The fact that *Opposition's Concentration* takes away the significant effect of the type of governments suggests that, more than the type of government, what matters is parliamentary fragmentation in terms of effective number of parties. This is a very intriguing and possibly counterintuitive result, although it implies initial evidence on our argument about the importance of how opposition behaves when explaining budget deficits.

Getting to the test of our hypotheses, hypotheses 1 and 2 predicted that the effect of the variable *Opposition's Concentration* should not be the same across all types of governments. We suggested that the effect of opposition's concentration is mediated by the nature of the government in place. This makes a lot of sense if we think that the incentives of oppositions to behave in a certain way (more or less cooperative/belligerent with respect to budget deficit outcomes) may depend on the characteristics of the other (bargaining) side. In fact, this is the key argument of this paper.

The first hypothesis suggested that when a minority government is weaker the opposition should be especially interested in "allowing" the government fall into deficit despite its intertemporal calculus, assuming the possible future payment of debt. On the other hand, hypothesis 2 predicted that when the minority government is a stronger, the opposition may weigh the long term damages of passing a deficit budget bill more than the short term benefits of doing so.

This is precisely what the interactions *Minority Government (MultiParty) * Opposition's Concentration* and *Minority Government (Single Party) * Opposition's Concentration* are intended to capture in our statistical tests. The empirical contrast shows that the hypotheses can be said to perform quite well when we consider the interaction between opposition's concentration and multiparty minority governments. Models 1c and 2c show that increases in the opposition's concentration generates more deficits when the government is a multiparty minority one. Or read the other way around, although we observed in models a and b that generally speaking the effect of this type of government on deficit outcomes was negative (tended to budget surpluses although not always with statistical significance), the direction of the relation reverses when the interaction is taken into account. The more the concentration of parties in opposition, the more a minoritarian coalition government tends to produce deficits. However, the coefficient interaction *Minority Government (Single Party) * Opposition's Concentration* does not perform as expected. Although the sign goes in the anticipated direction (negative), it does not reach conventional levels of statistical significance at all –the standard error is even higher than the magnitude of the coefficient–.

As tables might be misleading, because they only give conditional parameters and significance must be assessed for all values of independent variables, we follow Brambor et al.'s (2006) guidelines, and additionally supply the graphical results for our models. We take the deficit increment specification (models 2) in order to gain a more straightforward and accurate insight on them, although the graphs for deficit levels are very similar. According to this, we base our figures 2 and 3 on model 2c.

Figure 2 – Marginal Effects of Opposition's Concentration on Deficits under Single Party Minority Governments: All years

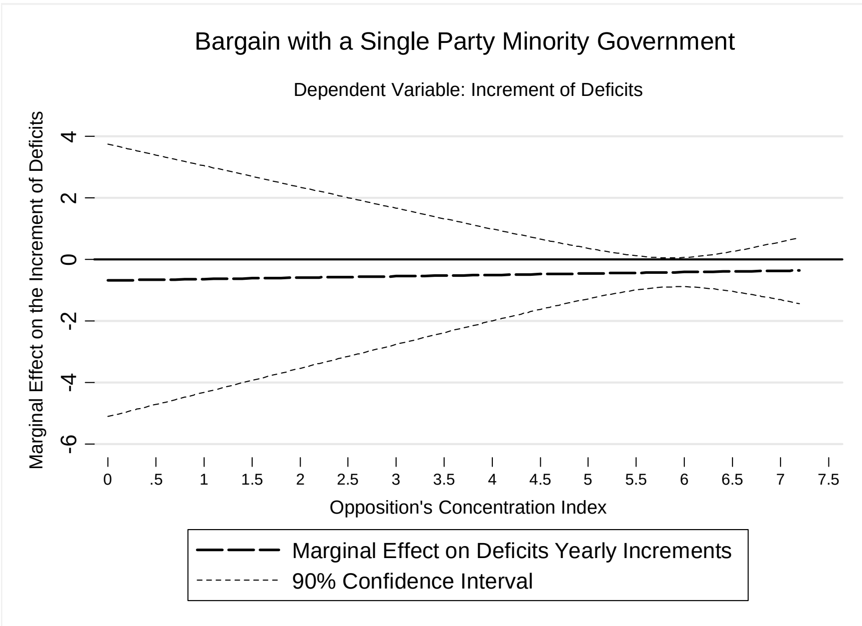
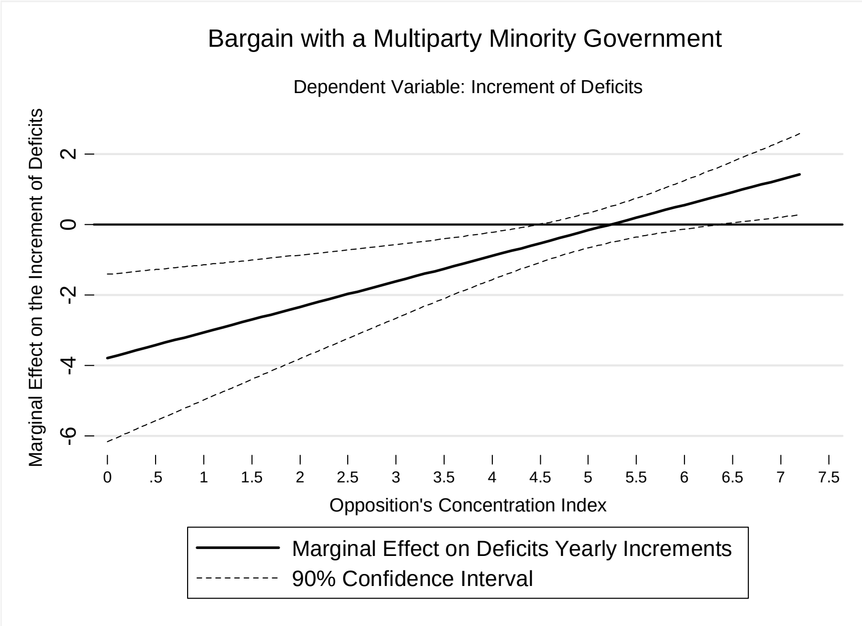


Figure 3 – Marginal Effects of Opposition's Concentration on Deficits under Multiparty Minority Governments: All years



These figures show that, while the opposition's concentration cannot be said to have any additional effect on deficit increments under single party minority governments, its influence is more than noticeable when the opposition faces a multiparty minority cabinet. A change from the minimum value of our opposition concentration index to its maximum entails about a 5% expected growth in deficit variation when the minority government is a coalition one.

Since it could be argued that minority governments are never formed in some of the countries under test, we check the robustness of our results by running the same analyses on a subsample of all the countries that, all through the period of time we analyze, can be characterized as permanent proportional electoral systems.[22] Table 3 shows the coefficients for the variables we are interested in. We observe the persistent lack of statistical significance of the interaction *Minority Government (Single Party) * Opposition's Concentration*, while the rest of the results continue displaying similar and robust trends.

[22] These countries are Austria, Belgium, Denmark, Finland, Germany, Greece, Iceland, Ireland Italy, Luxembourg, Netherlands, Norway Portugal, Spain, Sweden and Switzerland. As the minority government dynamics have also to do with the common practice of a country, we exclude the countries that were not persistently PR countries for long periods of time (e.g. New Zealand).

Table 3 – Regression Analyses of Deficit Production in PR Countries: All Years

	DV: Deficit (Level)			DV: Deficit (Δ: Annual Increment)		
	Model 1a	Model 1b	Model 1c	Model 2a	Model 2b	Model 2c
Minority Government (Single Party)	-1.094***	-0.844**	-1.115	-1.033***	-0.787**	-0.899
	(0.389)	(0.387)	(1.521)	(0.394)	(0.391)	(1.589)
*Minority Government (Single Party) * Opposition's Concentration*			-0.059			-0.005
			(0.458)			(0.474)
Minority Government (MultiParty)	-0.905**	-0.542	2.957**	-0.864**	-0.514	3.159**
	(0.402)	(0.396)	(1.265)	(0.424)	(0.416)	(1.323)
*Minority Government (MultiParty) * Opposition's Concentration*			0.820***			0.865***
			(0.278)			(0.291)
Opposition's Concentration		0.202**	0.158**		0.202**	0.151**
		(0.081)	(0.071)		(0.083)	(0.072)
Observations	367	367	367	364	364	364
R-squared	0.76	0.76	0.77	0.29	0.30	0.32

Notes: Estimations result from TSCS regressions with panel-corrected standard errors (in parentheses).
Estimates for control variables not displayed
* significant at 10%; ** significant at 5%; *** significant at 1%

Nevertheless, the reader will remember that the first two hypotheses were formulated under low deficit aversion circumstances.[23] Hence, we have to disentangle whether the mentioned interaction does not perform as expected precisely because not having taken into account the contextual circumstances. Doing so will allow us to validate hypothesis 3. According to it, the statistical significance of the interactions between the type of minority government and the concentration of opposition should disappear if deficit aversion increases (hypothesis 3). In that case, the (non-)effect of the governmental minority status on deficits should be the same irrespective of the type of opposition faced. This is because extra constraints would be faced by bargaining parties (i.e. changing utility payoffs) when either citizens or international compromises demand more fiscal responsibility.

It has been well accounted by the literature that, since around 1990, a non-deficit paradigm consolidated all around the developed world (Stiglitz 2002, DeLong and Eichengreen 2002, Simmons et al. 2006). International organizations promoted adjustment programmes and supranational integration required convergence and balanced budgets. To account for this, we have based on Achen (2002, 2005) to separate

[23] That is, with low values of θ (which measures how penalized are deficits because of supranational institutions, prevailing ideological paradigm, etc.) in the terms of the model presented in section 3.

the sample into two meaningful subsets. Hence, we run the complete models but divide the sample in two parts: the low deficit aversion and high deficit aversion ones.[24]

In order to test this, it is almost impossible to set a specific date after which the policy paradigm has changed. We are aware that changes in the external environment, the ideological context, and the economic paradigm that conditions the rational calculus of actors do not take place overnight. However, we were compelled to choose one date to split up our sample in two. A reasonable approximation of a change towards higher sanctions of budget deficits would be 1993. The selection of 1993 as the threshold is everything but arbitrary. We take it as a representative year setting changes toward higher fiscal stringency due to several reasons. First, 1993 is the beginning of the Clinton Administration, characterized by a cut down in deficits (Elmendorf et al. 2002) and the promotion of budget balances in their international fiscal policy making (DeLong and Eichengreen 2002). Second, in 1993, the IMF's Enhanced Structural Adjustment Facility (ESAF) was enlarged and extended. The IMF provided financial assistance on concessional terms through the ESAF, responding to the balance of payments difficulties confronted by low-income members. This extension showed the commitment of the IMF for this budget paradigm and, along with that, the international importance given to balanced budgets. Third, and most important, the Maastricht Treaty entered into force, making the conditions to enter the European Monetary Union (EMU) effective.[25] We are not claiming that any of these facts *per se* changed the deficit aversion faced by governments and oppositions when deciding to fall or not into a deficit. We rather think that any of these events must be regarded as consequences of a more complex process that pushed internationally for lesser deficits. Globalization has implied an imitation model that fosters the application of similar orthodox policies (Przeworski and Meseguer 2002, Simmons et al. 2006), which may be embodied in any of these three facts. This is why we consider that choosing 1993 as the representative cut-off year between a low and high deficit context was the most justifiable and less arbitrary of the possible years to be chosen.[26]

[24] The alternative was to run three component interactions. However these interactions are difficult to be interpreted and do not control for the possibility that, not only our main independent variables, but also the statistical control variables have different effects under the two contexts.
[25] The Treaty on European Union (also known as Maastricht Treaty) became effective on November 1, 1993.
[26] Nonetheless, we have run our analysis splitting the sample by other years in the early 1990s, and results are robust.

In table 4, models 1a and 2a provide the pre-1993 results, whereas models 1b and 2b display the post-1993 ones. Roughly put, the former could be said to reflect the situation of budget deficits with low deficit aversion, while the latter should be understood as a context of highly sanctioned deficits.[27]

[27] We have run these sub-samples analyses only with European or non-European countries. The results show that the parameter levels and significances do not improve the predictions of the full sample, being the constraining context for deficits not attributable specifically to the Maastricht Treaty. Hence, the results are not biased by the specific influence of the Maastricht Treaty on European countries. The shift to a highly penalized context for deficits affects all countries and is a general process, not identifiable with any particular event. These analyses are available upon request.

Table 4 – Regression Analyses of Deficit Outcomes in Europe: Pre-/Post- 1993 Subsamples

	DV: Deficit (Level)		DV: Deficit (Δ: Annual Increment)	
	≤ 1993 (Pre-Maastricht) Model 1a	> 1993 (Post-Maastricht) Model 1b	≤ 1993 (Pre-Maastricht) Model 2a	> 1993 (Post-Maastricht) Model 2b
Annual Deficit (lag)	0.810***	0.693***	-0.183***	-0.277***
	(0.012)	(0.078)	(0.015)	(0.079)
Gross Government Debt as a % of GDP (lag)	-0.01***	0.003	-0.008**	0.003
	(0.003)	(0.005)	(0.004)	(0.005)
Growth of Real GDP	-0.119***	-0.295***	-0.128***	-0.291***
	(0.033)	(0.080)	(0.031)	(0.080)
Long term Interest Rates	-0.004	-0.086		
	(0.025)	(0.087)		
Long term Interest Rates (Δ)			0.013	-0.204
			(0.045)	(0.152)
Long term Interest Rates (lag)			0.004	-0.075
			(0.023)	(0.088)
Unemployment Rate (Δ)	0.668***	0.103	0.667***	0.003
	(0.080)	(0.180)	(0.083)	(0.197)
Unemployment Rate (lag)			-0.028	-0.032
			(0.028)	(0.022)
Election year	0.027	0.264	0.057	0.204
	(0.174)	(0.198)	(0.173)	(0.201)
Left Parties % of Cabinet Posts	-0.004**	0.000		
	(0.002)	(0.003)		
Left Parties % of Cabinet Posts (Δ)			0.000	-0.01*
			(0.004)	(0.005)
Left Parties % of Cabinet Posts (lag)			-0.005***	0.002
			(0.002)	(0.003)
Number of Changes in Government	0.194*	0.048	0.161	0.115
	(0.114)	(0.204)	(0.114)	(0.214)
Minimal Winning Coalition	-0.155	0.357	-0.129	0.299
	(0.196)	(0.351)	(0.186)	(0.367)
Surplus Coalition	-0.499**	0.363	-0.503**	0.248
	(0.231)	(0.416)	(0.227)	(0.446)
Minority Government (Single Party)	-2.686***	1.963	-2.832***	2.290
	(0.519)	(2.038)	(0.455)	(2.109)
*Minority Government (Single Party) * Opposition's Concentration*	-0.747***	0.729	-0.783***	0.823
	(0.158)	(0.641)	(0.139)	(0.636)
Minority Government (MultiParty)	3.395***	2.856*	3.326***	2.753
	(0.503)	(1.663)	(0.536)	(1.705)
*Minority Government (MultiParty) * Opposition's Concentration*	0.882***	0.643*	0.851***	0.653*
	(0.108)	(0.377)	(0.122)	(0.375)
Opposition's Concentration	0.032	0.290***	0.033	0.252**
	(0.095)	(0.109)	(0.097)	(0.113)
Constant	1.210**	1.570**	1.302***	1.506**
	(0.473)	(0.729)	(0.431)	(0.709)
Observations	319	246	318	244
R-squared	0.78	0.75	0.38	0.39

Notes: Estimations result from TSCS regressions with panel-corrected standard errors (in parentheses).

Something interesting happens here. When we analyze the results for the period 1970-1993 the interactions of the opposition's concentration with both multiparty and single party minority governments perform as expected in our theory. The more the opposition is concentrated, the more it makes a coalition minority government likely to run a budget deficit. Conversely, the more concentrated are parties in opposition (i.e. the less its effective number), the less likely it is that a single party minority government produces a deficit. This is totally consistent with our theoretical framework. The effecot of opposition's concentration on the likelihood of a budget deficit is not homogenous, but changes its direction depending on the specific type of minority government they face. In order to ease readability we summarize the evidence for the increments in deficits in the next two graphs:

Figure 4 – Marginal Effects of Opposition's Concentration on Deficits under Single Party Minority Governments: ≤ 1993

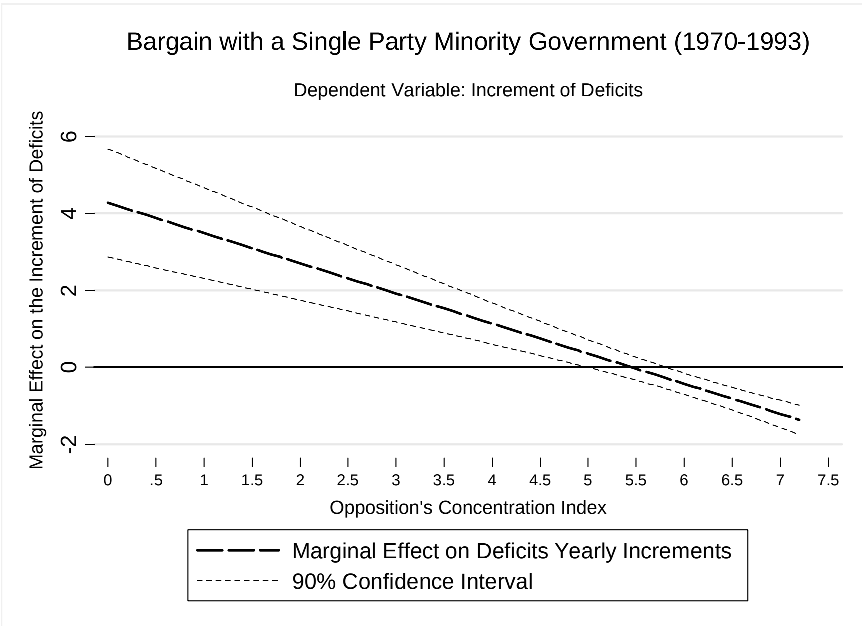
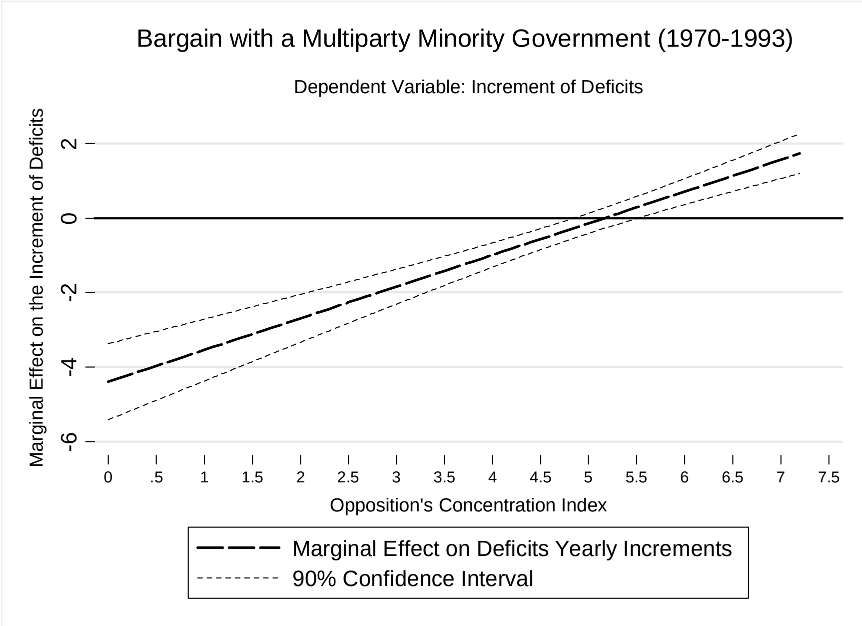


Figure 5 – Marginal Effects of Opposition's Concentration on Deficits under Multiparty Minority Governments: ≤ 1993



The result of the interaction with multiparty minority governments may not surprise us since it was already seen in table 2 and figure 3. Nevertheless, the effect seen in figure 5 is somewhat stronger than when all years where analyzed, and the confidence intervals narrower. The latter is quite interesting taking into account the number of observations is now smaller. But regarding single party minorities, splitting the sample yields the most remarkable finding. Before 1993, the concentration of the opposition appears to have a statistically significant effect in the expected direction on the dependent variable *also* under single party minority governments (figure 4). This is what did not arise when the complete period was taken into account (figure 2). This starts to suggest that time-specific variables do indeed shape the way the structure of government and opposition interact. Hypotheses 1 and 2 are thus validated.

Models 1b and 2b in Table 4 analyze the years 1994-2004, which we consider that represent a more deficit-averse period. According to hypothesis 3, when the contextual penalization to deficits increases the effect of the interactions should disappear. This is what models 1b and 2b partially demonstrate. The significance of the interaction *Minority Government (Single Party)* * *Opposition's Concentration* does indeed vanish. When the context is a more deficit-averse one, the structure of the opposition appears not to mediate in how likely is a single party minority government to produce budget deficits. However, the effect of the interaction *Minority Government (MultiParty)* *

Opposition's Concentration stubbornly persists after 1993. However, its magnitude decreases outstandingly, keeping just border levels of statistical significance. The direction of the effect is again the same as the period before. The more the opposition's concentration the more likely is a multiparty minority government to fall into a deficit. Graphically, the differences between minority governments leaded by a single party and by a coalition are provided in figures 6 and 7, respectively:

Figure 6 – Marginal Effects of Opposition's Concentration on Deficits under Single Party Minority Governments: > 1993

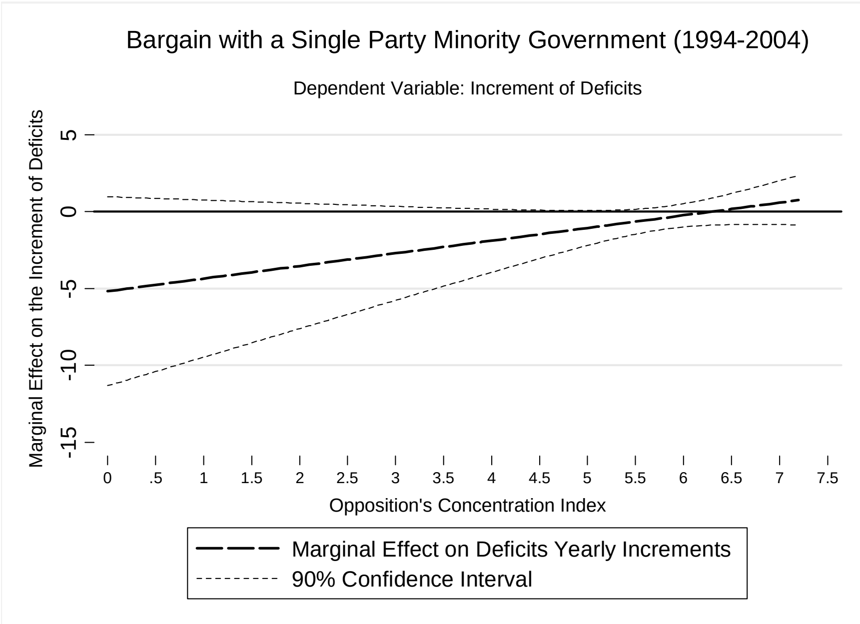
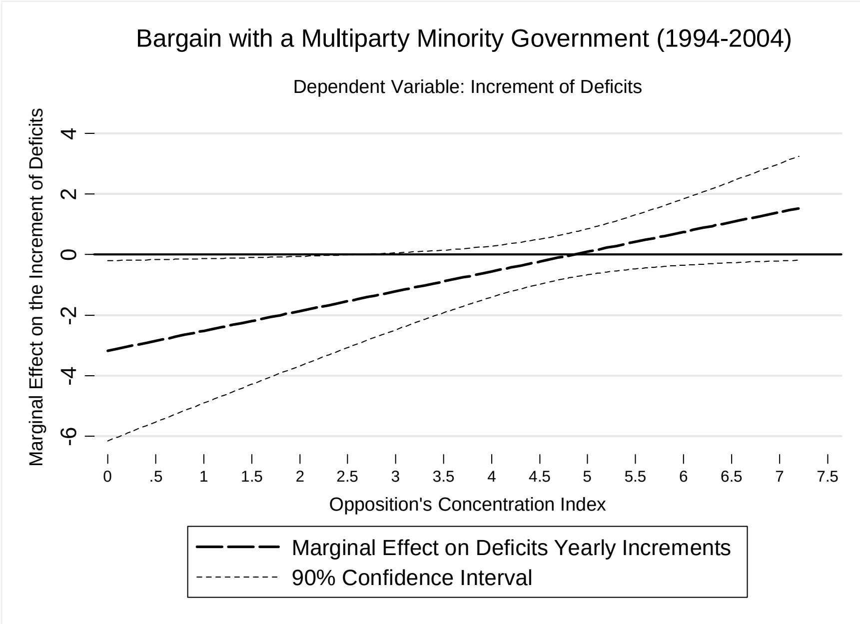


Figure 7 – Marginal Effects of Opposition's Concentration on Deficits under Multiparty Minority Governments: > 1993



In the first graph we see that indeed the effect of opposition's concentration does no longer take the form of the pre-1993 situation. In fact, the sign has reversed and the statistical effect is not significantly different from zero. By contrast, in figure 7 the opposition's concentration retains statistical significance –though admittedly by a very narrow margin– indicating that still when the policy paradigm is biased against deficits, more concentrated oppositions make deficits more likely than less concentrated ones if facing a multiparty minority cabinet. Thus, it seems that whereas a higher deficit aversion makes a single party minority government not even to propose a deficit in the first place, it does not have such a strong effect on a coalition minority. In the latter case, it seems that the level of deficit aversion for the interaction to disappear is more stringent.[28] Notwithstanding the things said, it is true that the mentioned effect has decreased and the statistical confidence lessened. This implies that the deficit-averse context affected all minority governments, even coalition ones.

[28] Our model reflects indeed that a higher θ is required for multiparty minority governments ($p > \delta$) than for single party minority ones ($p < \delta$). The aversion required for the interaction to disappear is $\theta_1 > 1 - \frac{X_G + e_O}{E}$ in the case of single party minority governments and $\theta_2 > \frac{1}{2}$ for multiparty ones. As long as the latter is higher than the former and if early 1990s put a θ^* somewhere in between θ_1 and θ_2, then empirical results would be consistent to our theoretical model.

6. CONCLUDING REMARKS

The argument presented in the analytical part of this paper makes a case for taking into consideration opposition's non-myopia. Whereas it is true that a non-myopic opposition will take into account the future damages of a current deficit, there is a tension with its potential short term benefits (making the present government fall, for instance).

Empirically, we showed that, when oppositions are necessary to pass the budget, they will push for deficits if it is sufficiently concentrated and if contesting a fragile government. We theorized this happens because this government can be weakened by running a deficit and simultaneously the few parties in opposition can receive the electoral sanction to the government without sharing much of these rewards. However, if the minority government is stronger (which we assimilate with single party governments), then the opposition takes more into consideration the future burden of debt. Hence, the more probable the opposition considers it will rule the next legislature, the more they will push for non-deficit outcomes if they face a stronger government. On the other hand, when external conditions like the Maastricht Treaty or the diffusion of a new economic paradigm increase deficit aversion, the scenario changes. The type of oppositions no longer conditions the deficit outcomes since parties in office will avoid proposing a deficit in the first place. Nevertheless, our results suggest that the non-deficit paradigm spread in the 1990s may have been more restrictive for single party minority government scenarios, than for multiparty ones.

As a corollary, we think this research may provide a contribution on analyzing budget deficit outcomes, not only considering the governmental actor, but oppositions and their rational calculi as well. We also feel that this kind of reasoning might be also applicable to all those contexts where more than one party has to give consent to a deficit production. Finally, this paper may have also offered clues about how Maastricht or other international factors that respond to a policy paradigm, could have changed the incentives of the domestic actors with a say on bill approval (budget deficits, being one of the cases). All in all this is why we believe it may provide promising paths for future research.

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APPENDIX 1: GAME EQUILIBRIA

Table A1: Presentation of the equilibria of the game (by Backwards Induction)

	p>δ : Highly Fragmented Minority Governments	**p<δ: Low Fragmented Minority Governments**
High opposition concentration $q > \begin{cases} \frac{X_O - e_O}{p(1-\theta)E} \\ \frac{X_O - e_O}{(p-\delta)\theta E} \end{cases}$	$\left[T; A, A : \theta > \frac{1}{2}\right]$ ⇓ No Deficit (Taxes) $\left[D; A, A : \theta < \frac{1}{2}\right]$ ⇓ Deficit	$\left[T; A, R : \theta > \frac{X_G - e_O}{E}\right]$ ⇓ No Deficit (Taxes) $\left[D; A, R : \theta < \frac{X_G - e_O}{E}\right]$ ⇓ No Deficit (Status Quo)
Low levels of opposition concentration $q < \begin{cases} \frac{X_O - e_O}{p(1-\theta)E} \\ \frac{X_O - e_O}{(p-\delta)\theta E} \end{cases}$	$[T; R, R]$ ⇓ No Deficit (Taxes) *(G Indifferent between the two)* $[D; R, R]$ ⇓ No Deficit (Status Quo)	$\left[T; R, A : \theta > 1 - \frac{X_G + e_O}{E}\right]$ ⇓ No Deficit (Status Quo) $\left[D; R, A : \theta < 1 - \frac{X_G + e_O}{E}\right]$ ⇓ Deficit

Notes: "⇓" indicates the outcome of interest for our research purposes.
There are eight further equilibria for the cases of intermediate levels of opposition concentration, when [(X_O + E -2 E_O) / (1-θ) E p] > q> [(X_O + E -2 E_O) / (θ E (p- δ))] or [(X_O + E -2 E_O) / (1-θ) E p] < q < [(X_O + E -2 E_O) / (θ E (p- δ))]. As we build our hypotheses on the extreme values and these cases have no theoretical interest, we do not show them, but they are available from the authors upon request.

APPENDIX 2: OPPOSITION'S CONCENTRATION

This appendix has two purposes. It first considers the correlation existing between different variables measuring concentration (i.e. the opposite of fragmentation) both within opposition and within Parliament more generally. Secondly, it deals with the plausibility of the assumption posed in the paper that claims that parties in more concentrated oppositions are more likely to govern alone (either in single party majority or minority governments) in the next year. This is where the theoretical value of *q* lies.

As seen above, we argued that our index was a good proxy for oppositions' concentration both for data availability and substantive reasons. The Database of Political Institutions (DPI2006 (Keefer 2007)) includes a number of measures of opposition's and parliamentarian concentration that unfortunately cannot be merged with the data we use (Comparative Political Data Set (Armigeon et al. 2007)) in the empirical analysis due to dates' incompatibility. However, in order to prove that the proxy used in the paper is an appropriate one, here we present a correlations' matrix for several variables that are transformations of others in DPI2006:[29]

i) *Concentration 1*: the probability that two legislators picked at random from among the opposition parties will be of the same party (*1–OPPFRAC as specified in DPI2006*).

ii) *Concentration 2*: the seat share of the largest party in opposition (*OPP1SEAT/(NUMGOV+NUMOPP) as specified in DPI*).

iii) *Concentration 3*: the additive inverse of the effective number of parties in opposition (*–1/HERFOPP as specified in DPI2006*).

iv) *Concentration 4*: this is an index based on the additive inverse of the effective number of parties in the whole legislature (Max(*1/HERFTOT)–1/HERFTOT as specified in DPI2006*). *Concentration 4* is in fact the variable we use in the statistical analyses under the label *Opposition's Concentration*.

Table A2.1 – Correlations' matrix of measures of opposition's and parliamentary concentration

	Concentration 1	*Concentration 2*	*Concentration 3*	*Concentration 4*
Concentration 1	1.000			
Concentration 2	0.975	1.000		
Concentration 3	0.828	0.879	1.000	
Concentration 4	**0.668**	**0.680**	**0.685**	**1.000**

[29] The analyses are run with a subsample of DPI2006 countries (just OECD ones).

As the reader may see, the correlations are strong. Obviously, *Concentration 4* offers the lowest correlations with all the other variables, but they are very important still (around .7). Again, is not the same to measure the concentration in legislature than the concentration in opposition, but the correlation between the two is high enough to make us confident about the appropriateness of the variable we have chosen.

Beyond correlations, what is even more important is to what extent opposition's concentration is really related to the probability of parties in opposition to reach office in the next year. In other words, to what extent does the meaning we ascribe to q holds in reality or not. We have run several logistic regressions in which the dependent variable is the presence (value 1) or not (value 0) of *any* opposition party in the previous year in a single party majority or minority government of the current year. On the right hand side of the table the dependent variable refers to the same phenomenon but for the *largest* opposition party of the past year. The independent variable is concentration as defined in the four ways presented above. We expect all of them to yield a positive sign and a statistically significant effect, especially for *Concentration 4*. Put differently, we are interested in confirming that concentration affects the likelihood of an opposition party to govern *alone* in the next term (and not share the burden of a previous deficit).

Table A2.2 – Opposition's and parliamentary concentration and likelihood of reaching office

	DV: *Any* opposition party reaching office alone next year				DV: Largest opposition party reaching office alone next year			
Concentration 1	2.949***				3.168***			
	(0.849)				(0.874)			
Concentration 2		4.087***				4.390***		
		(1.184)				(1.234)		
Concentration 3			0.833***				0.913***	
			(0.312)				(0.331)	
Concentration 4				**0.639*** **				**0.646*** **
				(0.243)				**(0.249)**
Constant	-5.098***	-6.302***	-1.687***	-1.330*	-5.295***	-6.590***	-1.598***	-1.352*
	(0.624)	(0.973)	(0.560)	(0.704)	(0.652)	(1.024)	(0.583)	(0.720)
Observations	696	696	696	696	696	696	696	696

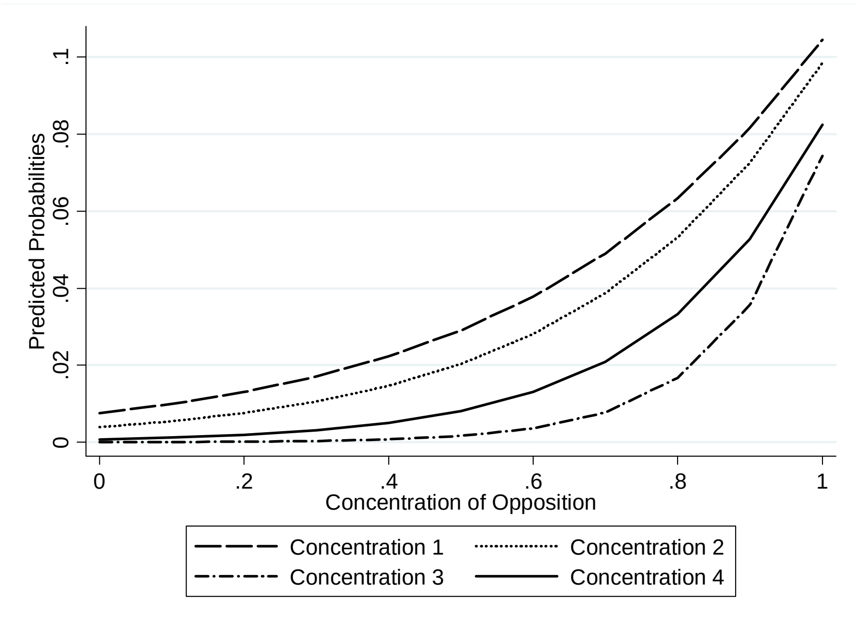
Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Regardless of the concentration measure used, the sign is always positive and statistically significant at a 99% confidence. That makes us more confident on the proxy choice again.

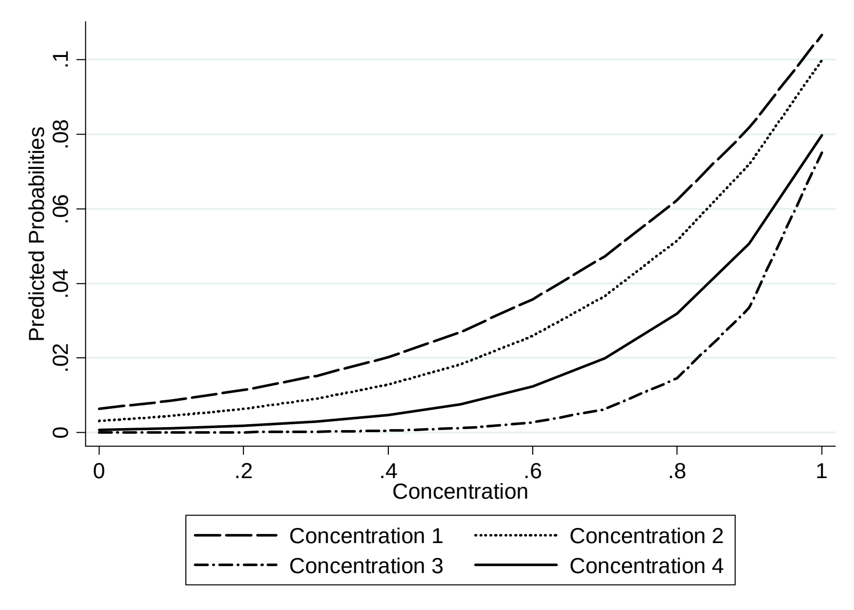
As a last prove, the following graphs show that the magnitudes of the probability changes associated with variations in the several specifications of concentration are also similar.[30] Note that in both Figures A2.1 and A2.2 *Concentration 4* (solid line) is even closer than *Concentration 3* (dash-dotted line) to the other two measures. This is interesting because it is hardly imaginable that anyone would discuss the inverse of the effective number of parties in opposition (*Concentration 3*) as a proxy for opposition's concentration whereas the role of *Concentration 4* as a proxy would apparently be a little more controversial.

Figure A2.1 – Predicted probabilities of reaching office alone in the next year by any opposition party with different measures of concentration



[30] All concentration specifications have been forced to range from a minimum of 0 and a maximum of 1 in order to make them comparable.

Figure A2.2 – Predicted probabilities of reaching office alone in the next year by the largest opposition party with different measures of concentration



All in all, we are pretty sure that the choice of the additive inverse of the effective number of parties in legislature (*Opposition's Concentration* in the main statistical analyses or *Concentration 4* here) does not bias the results displayed in the paper. First, it correlates strongly with the other "perfect" measures and it performs equally well in terms of the prediction of the likelihood of being in office alone next year.

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