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Revisiting the political economy of fiscal adjustments

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The political economy of fiscal adjustments is revisited within the framework of Alesina et al. (1998). A panel that spans from 1970 to 2016 for three datasets (European Union, Eurozone and OECD-19) is constructed. Both descriptive statistics and regression analysis is employed. We assess how successful are policies for budget consolidation. Panel logit and heteroskedasticity probit evaluate the probability of government's survival after having engaged in tight (loose) fiscal policies. Economic variables and political characteristics of the cabinets are taken into account in the specifications. We reveal that the fiscal balance is an insignificant predictor for the changes of the prime minister or the ideology of the cabinet. Inflation and unemployment rate are significant and positively related to changes in government while spending adjustment composition dummies are negative and significant predictors for such changes. Revenue based adjustments have no effect on re-election prospects. Our results are robust to sensitivity checks, including various sub-sample analysis and non-linear specifications.

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1. Introduction

Is there any relationship between the composition of the fiscal adjustment, its persistence and its macroeconomic consequences? Is it the nature of the implemented fiscal policy or the structure of the cabinet that affects the probability of cabinet's survival? There is a long debate among economists on these questions (see Alesina et al., 1998; Tavares, 2004). The term *political economy of fiscal adjustments* is used to describe the relationship between economic and socio-political phenomena. This paper examines how fiscal policies and (successful) fiscal adjustments affect both the real side of the economy and the re-election prospects of politicians within the framework of Alesina et al. (1998). Under this framework, a fiscal adjustment occurs when the primary balance as a percent of GDP increases by 1.5% while its successfulness or not depends on the durability of the adjustment in the following three years after it was first implemented[1].

Almost three decades have passed since the appearance of the first papers dealing with the political economy of fiscal adjustments. After the Great Depression, many advanced countries encountered immense deficits and mounting debts (see Alesina and Ardagna, 1998; Alesina and Perotti, 1995). Following the fiscal profligacy of the 1970s, many countries, both developed and developing,[2] acknowledged the unsustainable path of their deficits. The suggested remedy was fiscal contrac-

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tions, either via spending cuts or revenue increases. Such fiscal contraction have provided a wealth of new evidence on the effect of fiscal policy. Among these early papers, economists were trying to identify the factors that favor the persistence of adjustments. Giavazzi and Pagano (1990) showed that there is room for expansionary fiscal policy, contrary to the Keynesian predictions, when examined the consolidations that took place in Denmark and Ireland. They uncovered cases of major fiscal contractions associated with an expansion of output and consumption. The key to success was the size of the deficit cut and the role of credibility. By credibility they meant how permanent the initial adjustment was believed to be in order to induce expansionary effects.

There is little agreement on the fiscal policy that a country should follow. The idiosyncratic characteristics and institutions[3] of each country, and the different ideologies among incumbents i.e. some governments favor spending cuts while some others favor revenue increases as they try to comply with their ideological orientation, contribute to the latter. Thus the "one size fits all" policy is not feasible since each government presents theoretical arguments in favor of their practices.

On the other hand, there could be some regularities that are common to all countries. It can be argued that the dynamics of the economy make fiscal imbalances unavoidable but to what extent are those deficits the product of reckless political manipulations? Is ideology related to the frequency in which politicians generate fiscal imbalances or in other words, do fiscal imbalances change the ideological orientation of a government? It should be clear that this is not a paper of the effect of ideology on re-election prospects.

The textbook Keynesian argument is that consolidations are always contractionary. However, is there a general pattern or there are exceptions from this seemingly stylized fact? Specifically, under which circumstances can an adjustment be expansionary? It is often believed that policies aiming to reduce the deficit are associated with politically charged issues. Thus, politicians are afraid that fiscal adjustments will cause a recession in the short run. Since a recession is a major electoral liability, politicians hesitate to pursue fiscal consolidations. In this paper, we attempt to answer whether this hesitation is valid or not.

Our objective is to examine the aforementioned questions. We revisit the seminal paper of Alesina et al. (1998). We build an extensive database using both economic and politically related variables. More countries have been included and the time period is longer compared to Alesina et al. (1998).[4] Hence, the dataset is larger in both the time and cross-sectional dimensions. By using different data sources, sub-sample analysis and various specifications, the validity of the results is further examined. In addition, variations of the definitions of the successful adjustment from the ones used by Alesina et al. (1998) are used to examine the robustness of the results. The econometric methodology has also been improved using a probit model that takes into account the heteroskedasticity in the sample as well as the panel structure of the dataset. Furthermore, an adjustment composition dummy is introduced to capture the revenue side of the adjustments. The fiscal consolidations many Eurozone countries have followed recently, make this line of research more important.

The main results of the paper can be summarized as follows: First, successful adjustments are based on spending cuts while unsuccessful ones on revenue increases. Second, the macroeconomic environment does not deteriorate after successful adjustments while the opposite is true for unsuccessful adjustments. Third, voters do not punish politicians for engaging in tight fiscal policies whereas they punish them for increases in inflation and unemployment. Fourth, adjustments that rely primarily on spending cuts are rewarded by the voters while voters do not reward politicians for revenue based adjustments.

The rest of the paper proceeds as follows. Section 2 briefly reviews the literature of political economy and fiscal adjustments. Section 3 describes the constructed database and the adopted econometric methodology. Section 4 presents and discusses the results. Finally, Section 5 summarizes and concludes.[5]

2. Literature review

This paper is related to the empirical literature of the political economy of fiscal deficits and adjustments. Recognizing that deficits and concomitant adjustments may accrue for various reasons, this section combines the theoretical as well as the empirical arguments provided in the literature explaining the rise of fiscal deficits and adjustments.

Heterogeneity and conflicts of interest provide explanations for raising deficits and set the underpinnings of the theories that follow.[6] Different models were proposed for explaining the interaction between deficits and political interests. Nordhaus (1975) and Hibbs (1977) developed models that examine the trade-off that exists between unemployment and inflation from a different perspective each. Nordhaus (1975) states that heterogeneous preferences between voters and politicians create an incentive for the latter to manipulate both the fiscal balance and the voters for their benefit. The theory of opportunistic policymakers suggests that irrespective of their ideology, politicians will run deficits in order to get themselves re-elected. In line with the electoral manipulation of fiscal policy, i.e. Political Budget Cycles, is the work of Brender (2003) where using data for mayor election in Israel finds that voters penalize increases in deficits, however, the spending of the government depends on the composition of the expenditures. Hence, development projects are rewarded by the voters. Shi and Svensson (2006) examine the political budget cycle using a large panel of countries. They find that the manipulation of the deficit in a universal phe-

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[3] See Von Hagen (2005), Hausmann et al (1998).

[4] Some of the variables in the database are calculated by the authors. In addition, in some cases the variables are not exactly the same with those used in Alesina et al. (1998) due to data availability.

[5] The Appendix includes tables, figures and explanations of the variables.

[6] For an extensive survey of the literature see Dubois (2016), Eslava (2011) and Drazen (2000).

nomenon, however, the magnitude of the fiscal manipulation is greater for developing countries compared to developed ones as well as when comparing predetermined elections. Arvate et al. (2009) using state-level election data from Brazil find that voters do not reward deficits and that surpluses actually increase the re-election probabilities. They suggest that the share of "sophisticated" voters (in terms of education) as measured by years of schooling at the state level, reduces the re-election prospects of the incumbents who manipulated the deficit. The determinants of budget deficits and adjustments are well established in the literature (see Alesina et al., 1998; Alesina and Ardagna, 2010; Perotti, 1999; Roubini and Sachs, 1989a; 1989b). In the empirical literature, a distinction is made with respect to "new" versus "established" democracies, see Brender and Drazen (2005). The authors find that the experience of fiscal manipulations resulting in fiscal deficits is driven by the new democracies. Once these countries are not included in the sample, the political deficit cycle disappears suggesting that the lack of information or the lack of experience in these new democracies might favor fiscal manipulations. Voter's lack of information in new democracies is in line with the paper of Arvate et al. (2009) where the years of schooling assume to increase the share of informed voters. More recently, Alesina et al., 2019 focusing on personal characteristics when examining municipal election in Italy, showed that the age of politicians is a significant predictor for engaging in political budget cycles as it is more likely for younger mayors to increase expenditures in pre-election years. Further evidence regarding the political business cycle at the municipal level is provided by Chortareas et al. (2016). The authors find that opportunistic behaviour is present in Greek municipalities while extensive expenditures on the election year increase the re-election prospects. Similar results can be found in Corvalan et al. (2018).[7]

The notion of "fiscal illusion" (individuals' misperception of public revenue burden and allocation of expenditures) has been proposed to justify that voter could systematically be fooled (West and Winer, 1980 and Logan, 1986). However, Rogoff (1990) and Rogoff and Sibert (1988) showed that even perfectly rational voters would be led by opportunistic deficits because they are not fully informed about the competence of politicians regarding the composition or the level of the fiscal stance respectively. They argue that due to information asymmetries, incumbents have the incentive to "signal" that they are doing well and hence electoral cycles emerge, a process known as "signalling approach of the political business cycle". Shi and Svensson (2006) though, showed that even with fully informed voters, opportunistic deficits would still arise. Drazen and Eslava (2010) present a model in which incumbents manipulate the composition of the government's spending and not the overall level of deficit in order to influence voters. They argue that even rational forward-looking voters support such incumbents since the composition of the expenditures reveals the preferences of the incumbents. Using data from Colombian municipalities election they support their predictions as prior to the elections they observe an increase in spending targeted towards infrastructure. Voter's inability to observe public investment close to the elections, Rogoff (1990), is consistent with the paper of Katsimi and Sarantides (2015). Using a sample of 20 OECD countries they find that public spending through investment positively affects re-election prospects but only for the non-election years. Aaskoven (2018) examines the "signalling approach" in the context of new versus old municipalities. Based on the theory, one would expect that evidence of political budget cycles would have found in new municipalities compared to older ones since incumbent's reputation and competence is low in such municipalities and favor opportunistic manipulations. Results suggest that political budget cycles are actually smaller in new municipalities.

Contrary to Nordhaus (1975), Hibbs (1977) in his partisan cycle hypothesis argues that ideology is of primary importance. Under this framework, heterogeneous partisan preferences lead some of the politicians to run deficits. Specifically, left-wing governments are expected to run deficits since they favor larger government and greater redistribution while right-wing governments are expected to run surpluses. Models of strategic use of the deficit were developed by Alesina and Tabellini (1990) and Alt and Lassen (2006). Contrary to Hibbs (1977) and the aforementioned models, where the heterogeneous preferences manifest themselves in the composition of public spending, Persson and Svensson (1989) based their analysis on the heterogeneous preferences regarding the size of the government (spending level). They predict that only conservative incumbents will run deficits and strategically use the debt under the assumption that each party will try to tie the hands of the successors. Based on this model, only liberal incumbents are expected to run surpluses. The literature has also examined whether deficits and debts have been strategically used. Using a large panel dataset, Franzese (2000) finds that both the year before and after the election are positively and significantly related with deficits. Furthermore, when the risk of being replaced is low, left governments run surpluses while right governments run deficits contrary to the partisan cycle hypothesis. Using a sample of sixteen OECD countries, Lambertini (2003) finds that there is not enough evidence to support the association between budget deficit and the probability of being replaced or being re-elected. Sutter (2003) employs an experimental approach to examine the relationship between strategic use of deficit and re-election prospects in light of polarization. He presents evidence regarding the strategic use of deficit as he finds a positive association between deficit and the degree of polarization and a negative association between deficit and the probability of being re-elected. Brender and Drazen (2009) use a large panel dataset for three decades and focus on how leaders' replacement affects the composition of expenditures. They do not find evidence of strategic deficits nor of spending composition in the short run while in the long run they are significant for developed established democracies. The lack of evidence is attributed to different political and economic environment of the countries under investigation. Potrafke (2017) provides a survey of empirical papers regarding partisan politics. The survey of more than one hundred studies suggests that ideology affected economic policy until the 1990s while since the 1990s the associations have been less important. Specifically, across developed countries, left-wing governments had larger size in the government resulting in higher expenditures. In another study Potrafke (2018) using data

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[7] See Martin-Rodriguez and Ogawa (2017) for studies on municipal level.

from the United States examines the influence of ideology on economic policy for various geographical levels. While ideology is important at the state level, government's ideology has not effect at the local level regarding the economic policy.

A third strand of literature suggests that deficits arise because of the heterogeneous preferences across groups of voters (Weingast et al., 1981; Velasco, 2000). It has been argued that distributional conflicts are responsible for delayed or unrealized fiscal adjustments, even though, it is generally admitted that they are necessary (see Velasco, 1999). Alesina and Drazen (1991) present a model in which stabilizations are delayed due to a war of attrition between different socioeconomic groups. They argue that politicians may agree that a fiscal change is needed but they disagree over the allocation of the burden. Hence, they postpone the fiscal adjustment until one side becomes politically dominant.

Other studies examine the role of budget institutions and other constraints that might influence fiscal outcomes (see Hallerberg and Von Hagen, 1999; Clark and Hallerberg, 2000; Hallerberg et al., 2009). Bertola and Drazen (1993) appraise the role of expectations in shaping current fiscal policies. They argued that a given fiscal policy would be expansionary or contractionary depending on the framework (Keynesian or non-Keynesian) which in turn affects public beliefs. Poterba and Von Hagen (1999) provide an overview of the role of budget institutions in the formation of budget deficits including a series of case studies. The work of Dabla-Norris et al. (2010) is focused on the interplay between institutions and fiscal performance in low income countries and highlights the importance of the rules leading to transparent budgets while Tagkalakis (2009) examines the association between labour market institutions and fiscal adjustments finding that regulatory policies can determine both the initiation and the success of an adjustment. A growing literature concerns the nexus between budget transparency and fiscal discipline. Alt and Lassen (2006) constructed a fiscal transparency index for 19-OECD economies and examined its relation with the levels of deficit and debt. They find that higher levels of transparency are associated with lower levels of fiscal deficit. Bastida and Benito (2007) show that the transparency of the central government budget is positively associated with economic development. According to Shi and Svensson (2006) the level of transparency of the budget can contribute to the rise of opportunistic deficits i.e. low levels of transparency may lead to higher levels of deficit. Finally, Lambertini and Tavares (2005) and Jalles et al. (2016) investigate how fiscal consolidations are affected by exchange rate policies and regimes respectively. The former paper shows that there is a significant positive association between exchange rate depreciation before the adjustment and the success of the adjustment while the latter paper examines how the exchange rate regime interacts with the political context and shows that flexible exchange rate regimes are preferred since fixed regimes are associated with less fiscal discipline.

3. Data & methodology

3.1. Data

The main database was created using information on both economic and political characteristics from each country. Our sample period spans from 1970 to 2016 on annual frequency.[8] The data set covers the nineteen most advanced OECD economies[9] as well as all the European Union countries (EU-28). In addition, we are interested in examining the performance of the countries in Eurozone. Eurozone countries constitute a sub-sample of EU-28 countries. As a result, some countries belong to all three datasets.[10] Focusing on the Eurozone countries allows us to examine whether countries that have adopted a common currency display a different pattern compared to the rest of the samples.[11] Political data were retrieved from the webpage of Döring and Manow (2016) (ParlGov).[12] These data are in accordance with those collected by Alesina et al. (1998) since both datasets are based on ideology indexes created by Castles and Mair (1984) and Budge et al. (1993). However, Döring and Manow also incorporate the ideology index by Benoit and Laver (2006) in their data. Thus, some minor discrepancies may arise in the political orientation of some of the parties. Economic data were obtained from the International Financial Statistics of IMF. Regarding the fiscal data, we have also used data taken from the OECD, Economic Outlook (2017).[13]

3.1.1. Data description

The main variable of interest is the change in primary balance (*CHBAL*)[14]. Since the purpose of the paper is to study the effects of discretionary fiscal policy on the probability of governments' survival, interest payments are excluded because interest rates are not under the direct control of governments. We measure the fiscal balance as % of GDP. We have used the uncorrected measure for balance. Because our variables are on annual frequency, there is no single way to calculate the corrected for the

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[8] However, this is an unbalanced panel. Some countries are only included after 1995 due to data availability.

[9] These are the countries used in Alesina et al. (1998).

[10] All countries are Australia, Austria, Belgium, Bulgaria, Canada, Croatia, Cyprus, Czech, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Latvia, Lithuania, Luxemburg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, the United Kingdom and the United States.

[11] See Gali and Perotti (2003).

[12] http://www.parlgov.org/.

[13] Alesina et al. (1998) used data from Economic Outlook, 1997.

[14] The notation that we use is in line with Alesina et al. (1998).

cycle series.[15] An argument in favor of using the unadjusted measure is that voters may not be able to distinguish between discretionary policies and cyclical effects of the budget. The other economic variables used are self-explanatory[16].

Regarding the political related data, we are interested in several characteristics of the cabinets. We distinguish between a single party (*SING*) and coalition cabinets (*COAL*); whether it is supported by a majority in parliament (*MAJ*) or minority (*MIN*); the number of years in power (*DURAT*). In order to consider the electoral consequences of fiscal policy, we need to know when there is a change in government. A government termination (*TERM*), is defined as the instance in which a government ends. We do not distinguish between a termination that occurred by means of elections or cabinet's reshuffle. It is nevertheless obvious that a government termination may or may not lead to a change in government.[17] In addition, there are two overlapping types of change in government that are considered: a change of Prime Minister (*PMCH*) and changes in the ideological orientation of the cabinet (*IDEOCH*). Even though changes of prime minister are more frequent than changes in ideology, the latter are not a subset of changes of prime minister. It is possible for example, the same prime minister to lead two successive coalition cabinets where their composition is sufficiently different resulting in a different ideological cluster. The combination of *PMCH* and *IDEOCH* generates *ALLCH*[18]. The positive values of *ALLCH* is by definition greater than *PMCH* or *IDEOCH* and smaller than *TERM* variable.

To isolate large adjustments that rely either on spending cuts or on revenue increases, we need to define two more variables. Spending based adjustments (*PEXP*) defined as those that must satisfy two conditions: (i) an adjustment should take place, and (ii) the cut in total public expenditures is larger than the median cut in expenditures for the sample of adjustments years. These two conditions must simultaneously be satisfied. Accordingly, the corresponding dummy for adjustments that rely mostly on the revenue side via revenue increases (*PREV*) must satisfy the following two conditions: (i) a fiscal adjustment should be in place and (ii) the increase of total public revenues must be greater than the median increase in revenues for the sample of adjustment years.

3.1.2. Definitions

Next we define what constitutes a large episode of fiscal consolidation, i.e. a fiscal adjustment. We define a year of tight fiscal policy as a year in which the ratio of primary balance to GDP increases by at least 1.5 percentage points.[19] An adjustment can either be characterized as successful or unsuccessful. Successful adjustments are associated with the persistence. Hence, we define success in relation to the persistence of the balance increase. Thus, a successful adjustment must satisfy one of the following two conditions: either, (i) in the three years after the tight year, the ratio of the primary balance to GDP is on average at least 2 percentage points above its level in the tight year; or (ii) three years after the year of adjustment, the debt-to-GDP ratio is at least 5 percentage points below its level in the adjustment year. If neither of these conditions hold, the adjustment is unsuccessful. Therefore, only three years after the year of adjustment, we can characterize an adjustment either as a successful or an unsuccessful one.[20] Even though the definitions described above are extensively used in the literature, we employ minor variations of these definitions to examine the robustness of the results.[21][22]

In the previous sub-section, we defined a variable that measures changes in the ideology of the cabinet (*IDEOCH*). Changes in ideology are more difficult to be identified compared to changes in the prime minister (*PMCH*). We have adopted a measure commonly used by political scientists[23]. In our case, each party is classified on a left to right political spectrum according to its ideology. Ideology is measured by political scientists and it takes values ranging from one to ten.[24] Concerning cabinets consisting of two or more parties, cabinet's ideology is a weighted average of the different parties that hold ministerial posts.[25] If the composition of the cabinet is sufficiently changed, then we register an ideological change.[26]

Another important data issue is the time of changes in government. We had to synchronize changes in government within the calendar year and the fiscal year. The problem that arises is the following: should a government termination that takes place in March of year *t*, to be regarded responsible for the fiscal variables of year *t* or *t-1*?[27] We have adopted the following simple convention: the electoral period is moved half a year relative to the fiscal data. For example, terminations occurring from July 1 up to December 31 of year *t* are considered to fall in calendar year *t*; while each termination that occurs between January 1 of year *t* and June 30 of the same year is considered to fall in calendar year *t-1*. Hence, the fiscal policy of year *t* is regarded as a

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[15] However, the results do not change qualitatively when the adjusted measure is used. See Appendix II.

[16] Details of data description are provided in Appendix I, Section 6.

[17] For example, consider that after an election, exactly the same cabinet is in power as before. This is registered only as a termination, without affecting the prime minister or the ideology of the cabinet.

[18] This is a dummy variable that has the value of one either when *PMCH* is equal to one or *IDEOCH* is equal to one.

[19] For example, if we have a balance of minus 2% in year *t*, we need a balance of at least minus 0.5 in the *t+1* year to be regarded as an adjustment.

[20] When successful or unsuccessful adjustments are taken into account in the following section, the time period stops at 2013.

[21] Apart from the definitions discussed above we also consider successful adjustments in the following cases: i) only the balance improvement holds (Balance) ii) only the reduction in debt-to-GDP ratio holds (Debt) iii) both conditions hold simultaneously (Strict). Four definitions in total.

[22] Giesenow et al. (2020) employ a Data Generating Process in order to identify fiscal breaks i.e. adjustments and expansions, using cyclically adjusted balance data.

[23] This is also in line with Alesina et al. (1998).

[24] A value of one indicates parties to the far-left of political spectrum and ten to far-right.

[25] Weights are the Members in Parliament for each party.

[26] For a more detailed exposition of our procedure, see description under IDEOCH, Appendix I.

[27] This choice clearly has implications for the correspondence between fiscal policies and the government changes that are seen as a response to those policies.

determinant of government collapses from July 1 of year t up to June 30 of year $t + 1$. Thus in our example, the termination that took place on March of year t, coincides with the fiscal year $t-1$. Whenever we had to deal with more than one cabinet terminations in a given year we followed Alesina et al. (1998).[28]

3.2. Econometric methodology

Given that the dependent variable is binary, OLS is not an appropriate technique. We have employed panel Logit and heteroskedasticity Probit models. Heteroskedasticity Probit is employed in order to take into account the heteroskedasticity (H/S) that is of concern. Limited dependent variable models are estimated by maximum likelihood but H/S renders maximum likelihood estimator inconsistent.[29] The method we are using incorporates the scale parameter σ in the likelihood function. Hence the variance in no longer fixed at one but can vary as a function of other variables. The latter can either be among the explanatory variables or others that can explain the heterogeneity among the countries. Thus, inflation and gross public debt were used in our regressions to capture the H/S.[30]

The dependent variables are *ALLCH* and *IDEOCH*. These are both dummy variables taking the value of one every time a change occurs. Our baseline model correlates fiscal policy with the frequency of change in government. Formally, we estimate[31]:

$$Pr(ALLCHorIDEOCH = 1) = \alpha_1 + \alpha_2 CHBAL_{it} + \alpha_3 \Delta GDP_{it} + \alpha_4 \Delta UNR_{it} + \alpha_5 INFL_{it} + \alpha_6 DURAT_{it} + \alpha_7 COAL_{it} + \alpha_8 MIN_{it}$$
$$+ \alpha_9 MAJ_{it} + error_{it} \tag{1}$$

Apart from the fiscal variable (*CHBAL*), we introduce three macroeconomic indicators as independent variables, GDP growth (ΔGDP), the growth rate of the unemployment rate (ΔUNR) and the inflation rate (*INFL*) in line with the literature on the determinants of voting behavior.[32] We also include in our model cabinet's characteristics that are likely to affect the likelihood of political survival. Such characteristics include whether we have a coalition cabinet (*COAL*) or whether the cabinet has a majority (*MAJ*) or minority (*MIN*) support in the parliament.

We make use of the Marginal Effects at the Mean (MEM) of all regressors in all of our regressions. Marginal effects were calculated using the Delta-method (in Stata 14). Because of the panel structure of our data, we have to choose between fixed or random effects. That is whether or not the country specific error is uncorrelated with the regressors. If the condition holds and the error is indeed uncorrelated then random effects estimator is more efficient than fixed effects. On the contrary, if the error is correlated, fixed effects estimator is consistent and hence preferable. For this reason the Hausman test for fixed versus random effects was used. The test yields a p-value < 0.05 indicating that fixed effects should be employed. The estimated coefficients are qualitatively similar between fixed and random effects. In the following sections we present results stemming from the fixed effects estimation.

4. Empirical results

4.1. Preliminary analysis

The results presented in this section are based on the same definition of successful adjustments as in Alesina et al. (1998) while they were carried out using data from the IMF.[33] However, the results from the other three definitions of successful adjustments discussed earlier (in footnote 21), as well as the estimations based on OECD data are presented in Appendix II. Table 1 present the means of the change in balance (*CHBAL*) and the two main components that are likely to affect the balance: change in public expenditures (*CHEXP*) and change in public revenues (*CHREV*) for successful and unsuccessful adjustments in the three different datasets. In each case, we have the entire sample (1970–2013), a first sub-sample from 1970 up to 1995 and a second sub-sample starting at 1996 up to 2013.[34,35] In Table 1, the years 2014–2016 are excluded, since the success or not of an adjustment cannot be determined unless three years have passed.

We observe that in successful adjustments the balance improvement is greater than in unsuccessful adjustments, e.g. in Eurozone countries for the period after the adoption of euro the value of 6.84 is>2.48. A more informative result is that spending cuts are more intense in successful adjustments than in unsuccessful, while revenue increases display the exact

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[28] When two or more terminations take place in the same year, the cabinet that survived the longest is considered responsible for that specific year.

[29] Greene (2003).

[30] The reason for this selection is because the variance of those two variables is higher compared to the rest of the variables.

[31] For explanations of all variables, see Appendix I.

[32] See Powell and Whitten (1993) and Lewis-Beck and Stegmaier (2000).

[33] The definition is the one that we gave in the 3.1.2 Section.

[34] There are two reasons for this division. First, the sample used in Alesina et al. (1998) stops in 1995, and we aim to examine the stability of the results when the time dimension is expanded (T). Second, the date 1995 coincides with fiscal policy constraints established by the Maastricht Treaty and the Stability and Growth Pact. Thus, restricting the analysis to both sub-sample enables comparison between them.

[35] When examining Eurozone countries, the division we make is before and after the adoption of the common currency. This was achieved by country dummies that take the value of one after the adoption of euro and there are specific for each country. For example, for most of the countries starts after 1998 but for Greece after 2001, for Malta after 2007 etc.

Table 1

Composition of Successful and Unsuccessful Adjustments.

| Percentage points of GDP | | | | |
Sample (EU-28)	Number of observations	CHBAL	CHEXP	CHREV
Successful adjustments	63	3.12	−2.15	0.73
Successful adjustments(1970–1995)	26	2.96	−1.44	1.13
Successful adjustments(1996–2013)	37	3.23	−2.59	0.46
Unsuccessful adjustments	112	2.69	−1.37	1.08
Unsuccessful adjustments(1970–1995)	48	2.60	−0.38	1.84
Unsuccessful adjustments(1996–2013)	64	2.76	−2.08	0.51
Sample (Eurozone)				
Successful adjustments	28	3.55	−2.98	0.57
Successful adjustments(pre-euro)	23	2.84	−2.31	0.59
Successful adjustments(euro era)	5	6.84	−6.06	0.44
Unsuccessful adjustments	83	2.66	−1.30	1.09
Unsuccessful adjustments(pre-euro)	59	2.73	−1.21	1.18
Unsuccessful adjustments(euro era)	24	2.48	−1.52	0.84
Sample (OECD-19)				
Successful adjustments	62	2.80	−1.75	0.95
Successful adjustments(1970–1995)	33	2.41	−0.99	1.2
Successful adjustments(1996–2013)	29	3.24	−2.59	0.66
Unsuccessful adjustments	81	2.55	−0.69	1.59
Unsuccessful adjustments(1970–1995)	47	2.47	0.14	2.14
Unsuccessful adjustments(1996–2013)	34	2.67	−1.82	0.82

Notes: CHBAL: Change in Balance; CHEXP: Change in Public Expenditures; CHREV: Change in Public Revenues.

opposite pattern. This is an indication that composition matters regarding the success or not of the adjustment. Hence, not only successful fiscal adjustments achieve greater balance improvement, but this improvement is based on spending cuts. The aforementioned results apply to both the entire sample and in the two sub-samples. It is also evident that the results are qualitatively the same irrespective of the dataset. Another resulting observation is that OECD-19 countries undertake almost equal number of successful and unsuccessful adjustments (62 and 81 respectively) while in both EU-28 and Eurozone countries unsuccessful adjustments are by far more than successful ones.

Table 2 presents the composition of spending cuts between successful and unsuccessful adjustments. We included as many variables as possible (they constitute the expenditures). Due to data availability, we could not use exactly the same variables as those used in Alesina et al. (1998). One of our findings is that, irrespective of the dataset, successful adjustments are characterized by greater government wage (*CHCGW*) cuts while the unsuccessful ones by greater cuts in public investment. This result is consistent with the predictions of Rogoff (1990) where incumbents do not prefer public investments because they are not easily observable and hence they have an incentive towards consumption expenditures in a way to bias pre-election fiscal policy.[36] Moreover, social security (*CHSOC*) cuts are more intense in successful adjustments. An interesting observation is that changes in transfers and subsidies are positive in successful adjustments for EU-28 and Eurozone countries whereas they are negative in OECD-19 countries. Even if voters are unfavourably disposed towards high spending governments their aversion is not independent of the composition of spending.[37]

One of our initial questions concerned the macroeconomic consequences of fiscal stabilization. The conventional wisdom is that fiscal consolidations are always contractionary. Table 3 cast doubt on the mentioned assertions. The tabe presents averages of macroeconomic variables before, during and after both successful and unsuccessful adjustments.[38] First, by looking at the unconditional GDP growth and the rate of growth relative to the G7 countries, we observe that before the adjustments these rates are lower in successful adjustments compared to unsuccessful ones. For the period after the adjustments, the same rates display higher values in successful adjustments than in unsuccessful ones.[39] In addition, unemployment rate (both unconditional and relative to the G7 countries) is higher before successful adjustments compared to the unsuccessful ones whereas it becomes lower at a higher pace after successful than after unsuccessful adjustments. The discussed results suggest that the underpinnings of a successful adjustments are neither the rapid growth before the adjustments nor the low unemployment rate. Instead, after successful consolidations, we observe that the economy is expanding and the unemployment has been significantly decreased. Moreover, the growth of public investment in successful adjustments is much larger than in unsuccessful adjustments for the period after the adjustment. On the contrary, the pattern of consumption is less striking as successful and unsuccessful adjustments achieve a lower growth rate of private consumption after adjustment year compared to the year before. Finally, it is evident that there are crucial differences regarding trade balance. The latter is always negative for

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[36] See Von Hagen et al. (2001), Alesina et al. (1998).

[37] See Brender (2003), Drazen and Eslava (2010).

[38] Period before a year t of adjustment comprises years *t-2* and *t-1* while period after comprises years *t+1* and *t+2*.

[39] See Alesina et al. (2015).

Table 2

Composition of Expenditure Cuts in Successful and Unsuccessful Adjustments.

Percentage points of GDP									
Sample (EU-28)	Number ofobservations	CHEXP	CHDEF*	CHSAF*	CHHEA*	CHSOC*	CHCGW	CHTRF & CHSUB	CHINV
Successful adjustments	63	−2.15	−0.14	−0.03	−0.08	−0.62	−0.37	0.93	−0.15
Unsuccessful adjustments	112	−1.37	−0.07	−0.08	−0.10	−0.21	−0.25	0.54	−0.21
Sample (Eurozone)									
Successful adjustments	28	−2.98	−0.10	−0.09	−0.08	−0.58	−0.37	1.88	−0.26
Unsuccessful adjustments	83	−1.30	−0.07	−0.05	−0.10	−0.28	−0.25	0.93	−0.21
Sample (OECD-19)									
Successful adjustments	62	−1.75	−0.10	−0.03	−0.11	−0.60	−0.30	−0.98	−0.18
Unsuccessful adjustments	81	−0.69	−0.09	−0.05	−0.08	−0.19	−0.20	1.10	−0.22

Notes: CHEXP: Change in Public Expenditures; CHDEF: Change in Defense Expenditures; CHSAF: Change in Safety Expenditures; CHHEA: Change in Health Expenditures; CHSOC: Change Social Expenditures; CHCGQ: Change in Government Wages; CHTRF & CHSUB: Change in Transfers and Subsidies; CHINV: Change in Public Investment.
*. Data for these variables start after 1985 in most cases.

Table 3

Macroeconomic Indicators Before, During and After Adjustments.

Percentage points						
Sample (EU-28)	Successful adjustments			Unsuccessful adjustments		
	Before	During	After	Before	During	After
ΔGDP	1.88	3.63	3.28	2.37	3.28	2.29
ΔGDPg7	−0.52	1.22	0.87	−0.04	0.88	−0.11
UNR	9.92	9.68	9.14	8.18	8.26	8.11
UNRg7	3.22	2.98	2.44	1.48	1.56	1.41
ΔINV	−0.01	0.026	0.043	0.01	0.012	−0.003
ΔCONS	6.79	6.09	6.06	5.63	5.98	5.33
TB	0.41	1.39	1.04	−1.30	−0.93	−0.69
Sample (Eurozone)						
ΔGDP	1.35	3.44	3.21	2.66	3.44	2.25
ΔGDPg7	−1.05	1.03	0.80	0.25	1.03	−0.16
UNR	11.1	11.0	10.2	8.26	8.37	8.15
UNRg7	4.44	4.31	3.52	1.56	1.67	1.45
ΔINV	−0.026	0.024	0.031	0.01	0.008	−0.008
ΔCONS	4.26	4.30	4.78	5.90	6.25	5.43
TB	0.73	1.89	1.17	−1.36	−0.95	−0.54
Sample (OECD-19)						
ΔGDP	2.38	3.44	3.14	2.29	2.79	2.19
ΔGDPg7	−0.03	1.03	0.73	−0.11	0.38	−0.21
UNR	8.38	8.01	7.28	7.19	7.35	7.32
UNRg7	1.68	1.31	0.58	0.49	0.65	0.62
ΔINV	0.00	0.026	0.033	0.006	0.009	−0.00
ΔCONS	4.15	3.67	4.32	5.76	6.15	5.66
TB	2.39	3.38	3.24	−1.02	−0.65	−0.42

Notes: For sources of all data and explanations of all variables, see Appendix I.

unsuccessful adjustments and positive for successful ones indicating that adjustments that succeed cultivate a fruitful environment for exports.

The overall picture is that the macroeconomic environment does not deteriorate after successful adjustments and the economy performs better compared to the period after unsuccessful adjustments. For a visual illustration of the discussed results, Fig. 1 presents the plots of the variables in the upper panel of Table 3, i.e. for the EU-28 sample. Successful adjustments denoted by the blue line often start from an unfavoured position in the period before the adjustment and the pattern is reversed for the period after the adjustments where blue lines indicates a better macroeconomic environment compared to red ones (unsuccessful adjustments). The conclusion is that fiscal consolidations are not always recessionary. These results are quite robust to the different definitions of success and the different set of countries under investigation.
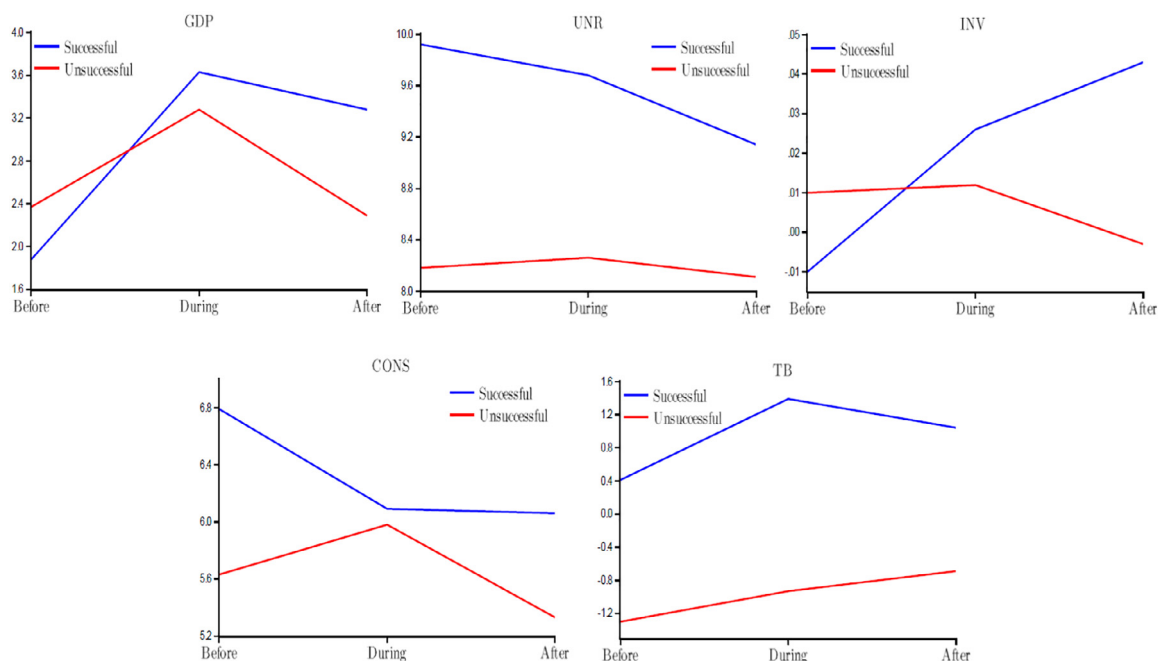
Fig. 1. Macroeconomic Indicators Before, During and After Adjustments (EU-28).

Some interesting regularities emerge regarding the relationship between the initial level of debt and the probability of experiencing a fiscal adjustment.[40] The average level of debt on the adjustment year and the average change in debt in the three years before an adjustment is presented in Table 4. Both the entire sample and the sub-samples of successful and unsuccessful adjustments are displayed. We also divide the sample into two subsamples: before and after 1995.[41] The emerging pattern is that successful adjustments tend to be undertaken when both public debt and the cumulated change of debt are high. This suggests that as the fiscal environment deteriorates, the more likely is that an adjustment will be successful. These findings apply to all three groups of countries, for example, in Eurozone countries the level of debt in the three years before an successful adjustment was 69.19 percentage points of GDP while for unsuccessful adjustments it was 51.61 percentage points of GDP. These results remain robust to the different definitions of successful adjustments. Existing literature also supports such claims, Von Hagen et al. (2002); Gupta et al. (2004). It is also noticeable that in the 1996–2013 sub-sample the levels of debt are rather higher than in the first sub-sample and especially if we restrict our analysis to Eurozone countries we see that after the adoption of the euro, debt reaches unprecedented levels.

4.2. Type of cabinet and fiscal adjustments

We then investigate which types of cabinet are more likely following tight or loose fiscal policies. We now turn to examining the relationship between various party structures and the aforementioned fiscal outcomes. We are interested in deficit reduction policies. The next table is constructed in accordance with Alesina et al. (1998).[42] Table 5 summarizes the results. The first column of the table identifies the frequency of government characteristics. The entry 0.30 in the upper panel, for example, shows the frequency of single party cabinets in European Union's countries for the period 1970–2013. The first entry in the second column of the table reports the relative frequency with which the cabinets of this type (single party cabinets) pursue loose policies. Thus single party cabinets in European Union follow loose policies 18% of their time in power while they devote 20% of their time conducting tight policies.[43] In their remaining time in office they engage in neither tight nor loose fiscal policies but instead they manage to achieve relative stable changes in fiscal balance (*CHBAL*) over years.[44] The other entries may be interpreted in a similar way. In general, the structure of the cabinet does not play an important role regarding the frequency of

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[40] For a recent discussion on the relation between debt and politics see Alesina and Passalacqua (2017) while for models concerning the relationship between crises and reforms see Drazen and Grilli (1993) and Drazen and Easterly (2001).

[41] See footnotes 34 and 35.

[42] A powerful party is defined as the one with the most members in parliament. This distinction is made because the prime minister does not always belong to the party with the most members in parliament, hence the three sets are distinct. However, there is relatively high correlation among the sets.

[43] A loose year is one in which the ratio of primary balance to GDP falls by at least 1.5 percentage points ($CHBAL \leq -1.5$) whereas a tight year is one in which the same ratio increases by at least 1.5 percentage points (that is, an adjustment year, as defined in section 3.1.2).

[44] Changes in balance that are < 1.5 percentage points in absolute values.
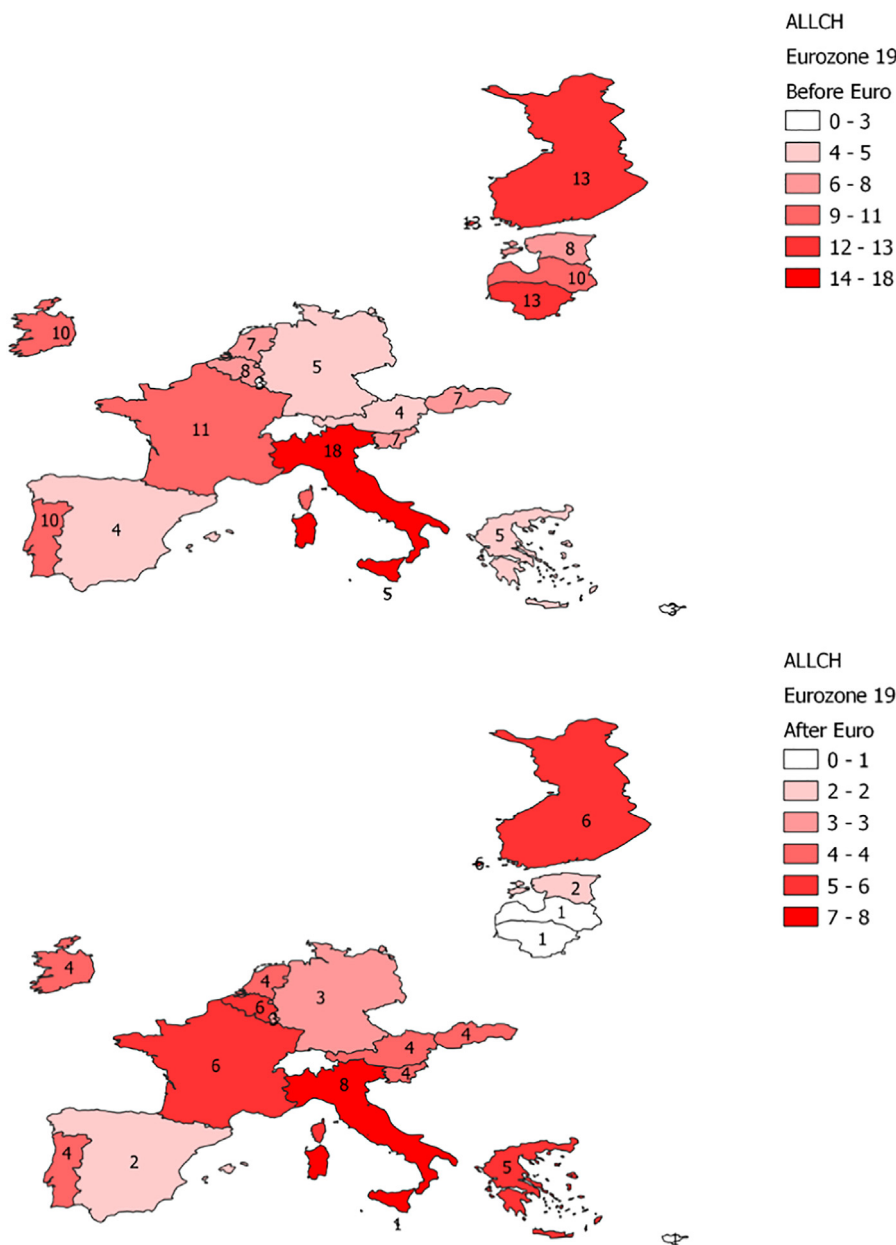
Fig. 2. Frequency of ALLCH for Eurozone countries before and after the adoption of the common currency.

loose and tight fiscal policies. The values of loose and tight years are almost equal between *SING* and *COAL* cabinets. In addition, neither the ideological orientation has much influence on the kind of fiscal policy. What is clear from the table is that coalition cabinets are more frequent than single party cabinets, especially in EU-28 dataset (0.30 < 0.70) and even more in the sub-sample of Eurozone countries (0.27 < 0.73). Even in OECD-19 countries a coalition cabinet is more frequent than a single party govern-ment (0.45 < 0.55). This is a worth discussing result because in Alesina et al. (1998), who examined only the OECD-19 countries, the corresponding values for *SING* and *COAL* were 0.53 and 0.47 respectively. There is a tendency towards coalition cabinets in the most recent years. Whether this is a manifestation that parties acknowledge that via cooperation fiscal targets can more easily be achieved is an open issue. The table also indicates that left-wing cabinets are infrequent in all three datasets. The last two columns of the table show the probability of success, namely the ratio of successful adjustments to the total number of tight policies. These columns break down the values of the third column. For example, the entry 0.43 suggests that from the 0.20 tight

Table 4
Average Debt at Start of Successful and Unsuccessful Adjustments.

Percentage points of GDP Sample (EU-28)	DEBT	CHDEBT
All observations	54.21	2.78
All observations(1970–1995)	49.31	2.93
All observations(1996–2013)	57.74	2.68
Successful adjustments	62.92	2.86
Successful adjustments(1970–1995)	64.50	3.63
Successful adjustments(1996–2013)	61.77	2.36
Unsuccessful adjustments	49.31	2.73
Unsuccessful adjustments(1970–1995)	40.73	2.53
Unsuccessful adjustments(1996–2013)	55.47	2.86
Sample (Eurozone)		
All observations	56.08	3.47
All observations(pre-euro)	48.31	2.80
All observations(euro era)	78.85	5.35
Successful adjustments	69.19	5.27
Successful adjustments(pre-euro)	62.90	3.62
Successful adjustments(euro era)	99.43	12.86
Unsuccessful adjustments	51.61	2.86
Unsuccessful adjustments(pre-euro)	42.58	2.48
Unsuccessful adjustments(euro era)	74.56	3.78
Sample (OECD-19)		
All observations	60.65	3.62
All observations(1970–1995)	50.05	3.29
All observations(1996–2013)	74.95	4.03
Successful adjustments	64.04	4.63
Successful adjustments(1970–1995)	58.98	4.80
Successful adjustments(1996–2013)	70.16	4.45
Unsuccessful adjustments	58.07	2.84
Unsuccessful adjustments(1970–1995)	43.81	2.21
Unsuccessful adjustments(1996–2013)	79.04	3.66

Notes: For sources of all data and explanations of all variables, see Appendix I.

policies, 43% are successful while the remaining 57% are unsuccessful. Moreover, single party cabinets are more likely to achieve successful consolidation in EU-28 and OECD-19 countries whereas Eurozone countries struggle to achieve successful consolidations irrespective of the structure of the cabinet.[45]

Table 6 presents the relative frequency of the variables that we defined in order to consider the electoral consequences of fiscal policies. The variables are: *TERM*, *ALLCH, PMCH* and *IDEOCH*. The positive values (means) of these dummies are presented for the entire samples and for the samples before and after 1995 or before and after the adoption of euro. By definition, the values of *TERM* are always greater than those of the other variables. Accordingly, the values of *ALLCH* are higher or at least equal to *PMCH* or *IDEOCH*. Although in the entire sample (1970–2016) the variables have almost identical values among datasets, some discrepancies emerge when we split the samples, especially when we concentrate in the recent past (1996–2016). First, in the period 1996–2016 fewer terminations and changes take place in OECD-19 countries, e.g. 0.48 > 0.38, 0.32 > 0.23 etc. Furthermore, this is also the case for Eurozone countries after the implementation of the common currency, e.g. 0.46 > 0.40, 0.32 > 0.26 etc (see Figure 2). These findings suggest that in more advanced economies fewer changes take place probably due to a more stable political environment.

Out of 619 terminations, 456 took place in the EU-28 dataset, 317 in Eurozone countries and 367 in the OECD-19 countries.[46] The country with the most terminations (33) in absolute values is Italy. However, these terminations occurred during 48 years, thus Latvia is the country with the most terminations in relative values, 18 in 22 years (*TERM* = 0.82). On the other hand, the countries with the least terminations are Luxemburg, United States and Germany with 8, 12 and 13 respectively. Once more, Italy is the country with the highest number of changes of prime ministers (25) while Poland is first in relative values, 15 prime minister's changes during 28 years.

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[45] See Tsebelis and Chang (2004) for a discussion with respect to veto players and composition of the budget.
[46] The sum of terminations from each dataset does not add up to 619 because the countries are overlapping.

Table 5
Frequency of Loose and Tight Fiscal Policies, by Cabinet Type.

Frequency					
Sample (EU-28)	Frequency of cabinet type in all observations	Relative frequency of fiscal extremes		Relative frequency of success in tight years[c]	
Cabinet type		Loose years	Tight years	Successful	Unsuccessful
SING	0.30	0.18	0.20	0.43	0.57
COAL	0.70	0.18	0.19	0.36	0.64
RIGHT	0.39	0.18	0.19	0.39	0.61
CENTER	0.38	0.17	0.19	0.31	0.69
LEFT	0.23	0.17	0.18	0.46	0.54
Frequency					
Sample (Eurozone)	Frequency of cabinet type in all observations	Relative frequency of fiscal extremes		Relative frequency of success in tight years[c]	
Cabinet type		Loose years	Tight years	Successful	Unsuccessful
SING	0.27	0.16	0.20	0.22	0.78
COAL	0.73	0.17	0.17	0.28	0.72
RIGHT	0.37	0.15	0.18	0.29	0.71
CENTER	0.44	0.17	0.18	0.26	0.74
LEFT	0.19	0.15	0.15	0.19	0.81
Frequency					
Sample (OECD-19)	Frequency of cabinet type in all observations	Relative frequency of fiscal extremes		Relative frequency of success in tight years[c]	
Cabinet type		Loose years	Tight years	Successful	Unsuccessful
SING	0.45	0.18	0.18	0.50	0.50
COAL	0.55	0.18	0.17	0.40	0.60
RIGHT	0.43	0.18	0.16	0.46	0.54
CENTER	0.33	0.16	0.19	0.40	0.60
LEFT	0.24	0.19	0.18	0.50	0.50

Notes: For sources of all data and explanations of all variables, see Appendix I.

Table 6
Frequency of Government Terminations and Cabinet Changes.

Frequency	TERM	ALLCH	PMCH	IDEOCH
Full sample				
European Union	0.45	0.31	0.27	0.17
Eurozone	0.44	0.30	0.26	0.16
OECD-19	0.43	0.28	0.25	0.15
1970–1995				
European Union	0.48	0.33	0.29	0.17
OECD-19	0.48	0.32	0.28	0.17
1996–2016				
European Union	0.43	0.29	0.25	0.17
OECD-19	0.38	0.23	0.21	0.14
Eurozone				
Pre-euro era	0.46	0.32	0.28	0.15
Euro era	0.40	0.26	0.22	0.16

Notes: For sources of all data and explanations of all variables, see Appendix I. For each dataset, table gives the mean of a given dummy variable across all years in the sample.

Table 7
Logit Regression Predicting Cabinet Changes, Entire Sample.

Independent variable	Dependent variable: ALLCH								
	European Union(28)			Eurozone(19)			OECD(19)		
	Pooled	F.E.	HET	Pooled	F.E.	HET	Pooled	F.E.	HET
CHBAL	−0.029	−0.028	−0.020	−0.004	−0.004	−0.008	−0.003	−0.003	−0.011
	(−0.79)	(−0.64)	(−0.74)	(−0.10)	(−0.07)	(−0.27)	(−0.08)	(−0.07)	(−0.31)
	−0.006	−0.006	−0.006	−0.001	−0.001	−0.002	−0.001	−0.001	−0.002
ΔGDP	−0.006	−0.005	0.002	0.040	0.039	0.034	0.023	0.022	0.041
	(−0.16)	(−0.16)	(0.08)	(1.04)	(1.23)	(1.17)	(0.42)	(0.44)	(0.90)
	−0.001	−0.001	0.001	0.008	0.008	0.009	0.004	0.004	0.009
ΔUNR	0.032	0.031	0.030	0.148*	0.143*	0.097*	0.274**	0.267***	0.234**
	(0.48)	(0.39)	(0.70)	(1.85)	(1.78)	(1.74)	(2.49)	(2.61)	(2.25)
	0.006	0.006	0.010	0.030	0.028	0.026	0.051	0.046	0.049
INFL	0.040***	0.039**	0.027*	0.043**	0.042	0.041*	0.057***	0.056**	0.070**
	(2.83)	(2.12)	(1.80)	(2.33)	(1.61)	(1.75)	(3.05)	(2.30)	(2.28)
	0.008	0.008	0.009	0.008	0.008	0.011	0.011	0.010	0.015
DURAT	0.110***	0.106***	0.067***	0.101***	0.098***	0.071***	0.155***	0.151***	0.132***
	(3.50)	(5.01)	(2.94)	(2.85)	(4.31)	(2.62)	(4.46)	(5.06)	(3.32)
	0.022	0.021	0.022	0.020	0.019	0.019	0.029	0.026	0.027
COAL	0.173	0.166	0.120	0.182	0.175	0.067	0.069	0.067	0.041
	(0.61)	(0.62)	(0.67)	(0.47)	(0.42)	(0.24)	(0.25)	(0.21)	(0.18)
	0.034	0.034	0.038	0.036	0.035	0.018	0.013	0.012	0.008
MIN	0.822***	0.793***	0.509***	0.778***	0.753**	0.538**	0.949***	0.926***	0.782***
	(3.37)	(2.86)	(3.07)	(2.80)	(2.38)	(2.57)	(3.34)	(3.20)	(2.79)
	0.177	0.147	0.173	0.170	0.132	0.152	0.191	0.147	0.173
MAJ	0.048	0.045	0.029	0.074	0.071	0.021	0.289	0.282	0.113
	(0.17)	(0.15)	(0.17)	(0.24)	(0.19)	(0.09)	(0.96)	(0.76)	(0.39)
	0.009	0.010	0.009	0.014	0.014	0.005	0.050	0.053	0.022
Summary statistic									
Log likelihood	−501.1	−450.9	−498.3	−359.1	−324.6	−358.4	−431.8	−395.4	−430.2
N	891	891	887	647	647	647	812	812	812

Notes: All regressions include a constant. Country specific dummies are included in pooled regressions. Robust or bootstrapped standard error were used in each regression. Each set of entries includes the coefficient, the t-statistic (in parentheses), and the marginal effect of one unit change in the regressor (evaluated at the means of all regressors).
Pooled refers to pooled OLS regression; F.E. refers to Fixed Effects within estimation; HET refers to heteroskedasticity Probit estimation.

4.3. Fiscal adjustments and the probability of change in government

Next we turn to examining the effect of a change in fiscal stance on the probability of a change in government . The view that voters penalize fiscal consolidations and may reward politicians for their competence, materialized through high levels of spending, is almost traditional and has been embraced in the literature. However, recent empirical findings suggest that the share of votes is diminishing and consequently the outcome of elections does not favor incumbents who have adopted loose fiscal policies.[47] Instead, the opposite seems true. Our main objective is to determine the effect of a change in fiscal variable (CHBAL) on the probability of a cabinet's survival. In order to be able to examine that, various characteristics of the cabinet and economic variables were taken into account. The baseline model has already been discussed in 3.2 section. The tables that follow present estimations of logit and probit models.[48] We present two measures of changes in government: the broadest measure, ALLCH, and the more restricted one, IDEOCH. In tables 7 through to 11 we estimate our baseline specification using three different models: (i) Pooled Logit, (ii) Fixed Effects Logit and (iii) Heteroskedasticity Probit.[49] Each table is divided into three panels, one for each dataset. Table 7 presents results for the entire sample (1970–2016). The coefficients of fiscal variable (CHBAL) are always statistically insignificant irrespective of the dataset used. Apart from that, the coefficients always display a negative sign. This indicates that as governments improve their balance, the probability of being replaced is decreased. Based on CHBAL, we conclude that there is no evidence of a positive relationship between fiscal profligacy and longer survival in office. Furthermore, the relationship seems to be negative i.e. there is a (weak) negative association between changes in balance and changes in government. This result applies in all of our three datasets.

The coefficients of both inflation and unemployment display the expected positive sign and there are statistically significant in most cases. For a 1% increase in inflation, the probability of a change either of prime minister or in the ideological orientation of the cabinet increases by 1% on average while for a 1% increase in unemployment the probability of a change

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[47] See Alesina et al. (2011).

[48] In this section, however, results are based on IMF data while those estimated using OECD data are cited in Appendix II.

[49] However, in HET columns we used gross debt to capture the variance. Results using inflation to capture the variance and those having IDEOCH as dependent variable can be found in Appendix II.
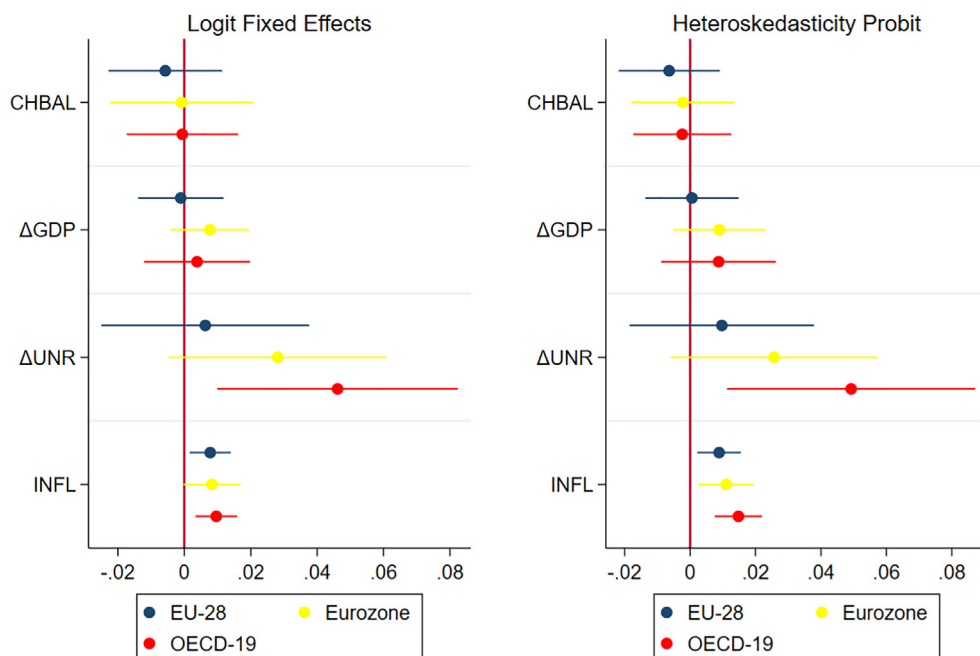
Marginal Effects (95% CI)

Fig. 3. Marginal Effects and the Probability of Change in Government.

Table 8
Logit Regression Predicting Cabinet Changes, Sample of Tight Years.

Independent variable	Dependent variable: ALLCH								
	European Union(28)			Eurozone(19)			OECD(19)		
	Pooled	F.E.	HET	Pooled	F.E.	HET	Pooled	F.E.	HET
CHBAL	−0.010	−0.010	0.005	0.001	0.000	−0.009	−0.009	−0.009	−0.037
	(−0.14)	(−0.09)	(0.10)	(0.01)	(0.00)	(−0.14)	(−0.10)	(−0.08)	(−0.44)
	−0.002	−0.002	0.002	0.000	0.000	−0.003	−0.002	−0.001	−0.008
ΔGDP	0.047	0.044	0.027	0.053	0.049	0.037	0.106	0.101	0.089
	(0.97)	(0.98)	(0.82)	(0.99)	(1.01)	(1.02)	(1.53)	(1.41)	(1.61)
	0.009	0.008	0.010	0.010	0.008	0.010	0.017	0.013	0.020
ΔUNR	0.149	0.137	0.096*	0.185*	0.171	0.119*	0.560***	0.532***	0.409**
	(1.58)	(1.17)	(1.89)	(1.70)	(1.34)	(1.73)	(2.82)	(4.07)	(2.38)
	0.028	0.026	0.035	0.035	0.027	0.034	0.092	0.070	0.090
INFL	0.013	0.013	0.005	0.050	0.048	0.039	0.037	0.036	0.041
	(0.67)	(0.44)	(0.22)	(1.63)	(1.39)	(1.03)	(1.28)	(1.04)	(1.30)
	0.003	0.002	0.002	0.010	0.008	0.011	0.006	0.005	0.009
DURAT	0.112**	0.105***	0.062**	0.080	0.075*	0.052*	0.171***	0.162***	0.125***
	(2.50)	(2.70)	(1.99)	(1.61)	(1.89)	(1.66)	(3.42)	(3.72)	(2.86)
	0.021	0.019	0.023	0.015	0.012	0.015	0.028	0.021	0.028
COAL	0.562	0.523	0.348	0.899	0.848	0.622*	0.523	0.495	0.367
	(1.30)	(1.42)	(1.60)	(1.56)	(0.96)	(1.66)	(1.22)	(1.04)	(1.18)
	0.100	0.105	0.120	0.150	0.160	0.0159	0.084	0.067	0.079
MIN	0.527	0.492	0.299	0.320	0.300	0.217	1.347***	1.278***	1.076**
	(1.47)	(1.25)	(1.31)	(0.78)	(0.61)	(0.83)	(3.44)	(3.14)	(2.33)
	0.106	0.087	0.115	0.064	0.045	0.065	0.246	0.150	0.256
MAJ	0.014	0.012	0.045	−0.049	−0.049	−0.040	0.733*	0.699**	0.541
	(0.04)	(0.03)	(0.21)	(−0.11)	(−0.12)	(−0.12)	(1.73)	(2.18)	(1.61)
	0.003	0.002	0.016	−0.009	−0.008	−0.011	0.113	0.099	0.112
Summary statistic									
Log likelihood	−240.0	−200.8	−239.0	−172.3	−145.6	−171.8	−206.3	−177.0	−205.5
N	452	452	451	333	333	333	435	435	435

Notes: All regressions include a constant. Country specific dummies are included in pooled regressions. Robust or bootstrapped standard error were used in each regression. Each set of entries includes the coefficient, the t-statistic (in parentheses), and the marginal effect of one unit change in the regressor (evaluated at the means of all regressors).
Pooled refers to pooled OLS regression; F.E. refers to Fixed Effects within estimation; HET refers to heteroskedasticity Probit estimation.

Table 9

Logit Regression Predicting Cabinet Changes, Sample of Loose Years.

Independent variable	Dependent variable: ALLCH								
	European Union(28)			Eurozone(19)			OECD(19)		
	Pooled	F.E.	HET	Pooled	F.E.	HET	Pooled	F.E.	HET
CHBAL	0.033	0.031	0.024	0.118	0.109	0.177	0.100	0.095	0.093
	(0.33)	(0.41)	(0.37)	(0.77)	(1.11)	(1.39)	(0.70)	(1.10)	(0.70)
	0.007	0.006	0.006	0.025	0.027	0.025	0.020	0.021	0.012
ΔGDP	−0.081*	−0.075*	−0.057	−0.027	−0.025	−0.014	−0.075	−0.071	0.007
	(−1.71)	(−1.76)	(−1.48)	(−0.38)	(−0.38)	(−0.20)	(−0.92)	(−0.98)	(0.07)
	−0.017	−0.015	−0.014	−0.006	−0.006	−0.002	−0.015	−0.016	0.001
ΔUNR	−0.104	−0.097	−0.094	0.045	0.039	0.031	0.106	0.100	0.173
	(−1.04)	(−0.97)	(−1.05)	(0.31)	(0.27)	(0.20)	(0.75)	(0.72)	(0.79)
	−0.022	−0.020	−0.024	0.009	0.010	0.004	0.021	0.022	0.023
INFL	0.074***	0.069***	0.072**	0.046	0.043	0.104**	0.071***	0.067**	0.141**
	(3.49)	(2.75)	(2.21)	(1.54)	(1.20)	(2.15)	(2.60)	(2.07)	(2.06)
	0.016	0.014	0.018	0.010	0.011	0.015	0.014	0.015	0.018
DURAT	0.117**	0.108***	0.096**	0.112**	0.105**	0.144**	0.150***	0.141***	0.216**
	(2.32)	(2.89)	(2.09)	(1.96)	(2.35)	(2.02)	(2.78)	(3.09)	(2.15)
	0.025	0.022	0.024	0.024	0.026	0.020	0.030	0.032	0.028
COAL	−0.175	−0.160	−0.190	−0.819	−0.749	−1.578*	−0.340	−0.322	−0.502
	(−0.40)	(−0.31)	(−0.55)	(−1.35)	(−1.02)	(−1.66)	(−0.84)	(−0.70)	(−1.02)
	−0.037	−0.033	−0.048	−0.182	−0.179	−0.239	−0.069	−0.072	−0.067
MIN	1.353***	1.245***	0.977***	1.324***	1.220***	1.348**	0.786*	0.746	0.314
	(3.45)	(3.03)	(3.03)	(3.06)	(2.66)	(2.49)	(1.70)	(1.31)	(0.45)
	0.301	0.232	0.256	0.301	0.281	0.201	0.170	0.156	0.043
MAJ	0.226	0.205	0.157	0.329	0.301	0.631	−0.195	−0.181	−0.929
	(0.51)	(0.47)	(0.45)	(0.64)	(0.66)	(1.03)	(−0.39)	(−0.17)	(−1.00)
	0.041	0.047	0.036	0.064	0.075	0.088	−0.034	−0.043	−0.111
Summary statistic									
Log likelihood	−223.9	−185.2	−221.3	−156.1	−129.7	−152.8	−200.2	−170.8	−197.2
N	408	408	405	285	285	285	366	366	366

Notes: All regressions include a constant. Country specific dummies are included in pooled regressions. Robust or bootstrapped standard error were used in each regression. Each set of entries includes the coefficient, the t-statistic (in parentheses), and the marginal effect of one unit change in the regressor (evaluated at the means of all regressors).

Pooled refers to pooled OLS regression; F.E. refers to Fixed Effects within estimation; HET refers to heteroskedasticity Probit estimation.

varies from 3% in Eurozone to 5% in OECD-19 countries. Fig. 3 shows the estimated marginal effects for the four economic variables of our three different datasets. Interestingly, we see that there are almost no differences in the confidence intervals between fixed effects and heteroskedasticity probit estimation. Inflation is significant predictor for all samples while unemployment mostly for OECD countries. Voters punish politicians for inflation and for higher unemployment rate.[50]

With respect to the political control variables, our results are in accordance with conventional wisdom. Specifically, the longer a cabinet is in power the higher the probability it faces to be replaced. The coefficient of *DURAT* is always positive and statistically significant. Furthermore, the interpretation of *MAJ* and *MIN* dummy variables is interesting. Both dummies display a positive sign but only *MIN* is significant at 1% significance level. It is apparent than minority governments are more likely to fall in any period. Yet, coalition governments do not seem to fall more easily than single party cabinets, a result opposed to Alesina et al. (1998). Such difference might be explained by the result we found on table 5 where we saw that the frequency of coalition governments has increased in recent years. It is worth mentioning that the probability of change for a minority government, based on marginal effects, varies from 13% to 18%.

In Tables 8 and 9, we restrict our analysis to tight and loose years respectively. When the change of balance (*CHBAL*) assumes a positive sign we consider it as tight policy while each time it assumes a negative sign is considered as loose policy.[51] Although fiscal variables' coefficients are statistically insignificant in both tables, they are mostly negative in Table 8 and positive in Table 9. As a result, tight policies are associated with a lower probability of change in government while loose policies with a higher probability of a change. There is no evidence that looser fiscal policies contribute to political survival.

Inflation coefficient and the dummy for minority governments are only statistically significant in the sample of loose years, displaying the expected signs while they are insignificant in the sample of tight years, indicating that

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[50] See Brender and Drazen (2008).

[51] Thus for a tight policy we just need a positive change in balance, *CHBAL* > 0 and not *CHBAL* ≥ 1.5 as in adjustments definition. Accordingly, loose policy: *CHBAL* < 0 and not *CHBAL* ≤ −1.5.

Table 10

Adding Adjustment Composition Dummies to Regressions Predicting Cabinet Changes.

Independent variable	Dependent variable: ALLCH								
	European Union(28)			Eurozone(19)			OECD(19)		
	Pooled	F.E.	HET	Pooled	F.E.	HET	Pooled	F.E.	HET
CHBAL	0.018	0.018	0.007	0.070	0.068	0.059	0.021	0.021	0.011
	(0.39)	(0.29)	(0.25)	(1.19)	(0.81)	(1.26)	(0.41)	(0.33)	(0.25)
	0.003	0.004	0.002	0.014	0.014	0.013	0.004	0.004	0.002
ΔGDP	−0.008	−0.007	0.001	0.039	0.038	0.044	0.018	0.018	0.037
	(−0.22)	(−0.22)	(0.05)	(1.00)	(1.11)	(1.33)	(0.34)	(0.35)	(0.81)
	−0.001	−0.002	0.000	0.008	0.008	0.010	0.003	0.003	0.008
ΔUNR	0.029	0.028	0.026	0.155*	0.150**	0.120*	0.270**	0.263**	0.230**
	(0.41)	(0.34)	(0.58)	(1.92)	(2.00)	(1.86)	(2.45)	(2.55)	(2.25)
	0.006	0.006	0.008	0.031	0.031	0.026	0.051	0.047	0.049
INFL	0.038**	0.036*	0.028*	0.041**	0.040	0.053**	0.057***	0.055**	0.069**
	(2.56)	(1.93)	(1.92)	(2.13)	(1.47)	(2.30)	(2.99)	(2.34)	(2.36)
	0.008	0.007	0.009	0.008	0.008	0.012	0.011	0.010	0.014
DURAT	0.107***	0.103***	0.068***	0.099***	0.096***	0.077***	0.152***	0.148***	0.128***
	(3.37)	(4.94)	(2.99)	(2.75)	(4.07)	(2.58)	(4.34)	(4.82)	(3.38)
	0.022	0.022	0.021	0.020	0.020	0.017	0.028	0.026	0.027
COAL	0.189	0.183	0.130	0.231	0.222	0.050	0.091	0.088	0.065
	(0.68)	(0.67)	(0.72)	(0.60)	(0.49)	(0.16)	(0.33)	(0.28)	(0.29)
	0.037	0.039	0.039	0.045	0.047	0.011	0.017	0.016	0.013
MIN	0.853***	0.823***	0.542***	0.881***	0.852***	0.673***	0.971***	0.947***	0.799***
	(3.50)	(3.08)	(3.18)	(3.11)	(2.93)	(2.72)	(3.42)	(3.43)	(2.90)
	0.182	0.160	0.175	0.192	0.155	0.159	0.195	0.154	0.178
PEXP	−0.882**	−0.855*	−0.549**	−1.42***	−1.381*	−1.397***	−0.524	−0.514	−0.500
	(−2.37)	(−1.88)	(−2.00)	(−2.92)	(−1.67)	(−2.67)	(−1.38)	(−1.27)	(−1.45)
	−0.178	−0.179	−0.170	−0.283	−0.284	−0.301	−0.010	−0.091	−0.105
Summary statistic									
Log likelihood	−493.7	−443.8	−491.1	−350.3	−316.1	−348.1	−427.6	−391.2	−425.8
N	884	884	880	642	642	642	807	807	807

Notes: All regressions include a constant. Country specific dummies are included in pooled regressions. Robust or bootstrapped standard error were used in each regression. Each set of entries includes the coefficient, the t-statistic (in parentheses), and the marginal effect of one unit change in the regressor (evaluated at the means of all regressors).

Pooled refers to pooled OLS regression; F.E. refers to Fixed Effects within estimation; HET refers to heteroskedasticity Probit estimation.

when governments conduct balance improving policies, voters are condescending and more likely to condone inflation.

The presented evidence so far were based on the *CHBAL* variable. This variable was insignificant in all of our models. We now isolate large episodes of fiscal adjustments that rely mostly on spending cuts or revenue increases along with *CHBAL* variable. The reason is to examine how these specific adjustments affect the probability of a change in government. Hence, in the two following tables we deviate from our basic specification presented in previous tables and we include spending based adjustments (*PEXP*) dummies in Table 10, and revenue based adjustments (*PREV*) dummies in Table 11. By focusing on the last row of Table 10, we see that in all but OECD-19 countries the coefficients of *PEXP* are both negative and statistically significant. These results indicate that, when governments engage in fiscal adjustments and the latter are based on cuts in expenditures, they face a lower probability of being replaced. The marginal effects show that cabinets have about an 18% to 30% lower probability of failing in EU-28 and Eurozone countries respectively. Once again, inflation and unemployment are both statistically significant and negative. The political control variables have the expected signs, namely minority governments are more likely to fall at any time and the longer a cabinet is in power the more likely it is to be replaced, yet only the latter (*DURAT*) is significant.

The last row of Table 11 shows the results of *PREV*. The coefficients are statistically insignificant as opposed to *PEXP*. The coefficients are positive reflecting the relationship between revenue based adjustments and a higher probability of change either in prime minister or in the ideological orientation of the cabinet. This relationship does not hold for OECD-19 countries where the coefficients display negative signs. In total, we observe the different effect of the two main components that are likely to affect the balance. On the one hand, we have adjustments through which incumbents are rewarded. Those adjustments are based on spending cuts and usually are characterized as successful. On the other hand, revenue based adjustments do not favor incumbents in terms that those adjustments are not related with prolonged survival in office. If anything, the positive coefficients for E.U, and Eurozone sample imply that revenue based adjustments are related with more often changes in government possibly because they are based on tax-hikes which are determinants for unsuccessful adjustments and hence voters punish governments for those tax hikes.

Table 11
Adding Adjustment Composition Dummies to Regressions Predicting Cabinet Changes.

Independent variable	Dependent variable: ALLCH								
	European Union(28)			Eurozone(19)			OECD(19)		
	Pooled	F.E.	HET	Pooled	F.E.	HET	Pooled	F.E.	HET
CHBAL	−0.049	−0.048	−0.038	−0.017	−0.017	−0.020	−0.001	−0.001	−0.009
	(−1.17)	(−0.94)	(−1.18)	(−0.37)	(−0.29)	(−0.58)	(−0.01)	(−0.01)	(−0.22)
	−0.010	−0.009	−0.011	−0.003	−0.003	−0.005	−0,000	−0.000	−0.002
∆GDP	−0.006	−0.006	0.003	0.039	0.038	0.033	0.024	0.023	0.043
	(−0.18)	(−0.18)	(0.13)	(1.00)	(1.24)	(1.14)	(0.44)	(0.45)	(0.93)
	−0.001	−0.001	0.001	0.008	0.007	0.008	0.004	0.004	0.009
∆UNR	0.021	0.021	0.022	0.144*	0.138*	0.093*	0.274**	0.267***	0.235**
	(0.31)	(0.25)	(0.48)	(1.78)	(1.76)	(1.65)	(2.50)	(2.65)	(2.24)
	0.004	0.004	0.007	0.029	0.027	0.024	0.052	0.046	0.049
INFL	0.042***	0.041**	0.032**	0.043**	0.042	0.043*	0.057***	0.056**	0.071**
	(2.87)	(2.24)	(2.07)	(2.28)	(1.56)	(1.85)	(3.05)	(2.26)	(2.25)
	0.008	0.008	0.010	0.009	0.008	0.011	0.011	0.010	0.015
DURAT	0.119***	0.115***	0.079***	0.109***	0.106***	0.080***	0.155***	0.151***	0.132***
	(3.76)	(5.17)	(3.15)	(3.08)	(4.44)	(2.79)	(4.47)	(5.02)	(3.32)
	0.024	0.023	0.023	0.022	0.020	0.021	0.029	0.026	0.028
COAL	0.164	0.158	0.106	0.184	0.177	0.065	0.072	0.070	0.043
	(0.58)	(0.58)	(0.56)	(0.48)	(0.42)	(0.22)	(0.26)	(0.22)	(0.19)
	0.033	0.031	0.031	0.036	0.035	0.017	0.013	0.012	0.009
MIN	0.829***	0.800***	0.539***	0.803***	0.776**	0.567***	0.947***	0.924***	0.780***
	(3.38)	(2.87)	(3.12)	(2.86)	(2.45)	(2.62)	(3.33)	(3.20)	(2.78)
	0.178	0.144	0.170	0.175	0.132	0.157	0.191	0.146	0.173
PREV	0.250	0.243	0.175	0.276	0.270	0.248	−0.075	−0.073	−0.062
	(0.81)	(0.90)	(0.84)	(0.75)	(0.88)	(0.86)	(−0.22)	(−0.32)	(−0.21)
	0.050	0.048	0.053	0.055	0.052	0.064	−0.014	−0.013	−0.013
Summary statistic									
Log likelihood	−492.6	−442.8	−489.5	−355.8	−321.5	−354.9	−431.4	−395.0	−429.8
N	881	881	877	643	643	643	810	810	810

Notes: All regressions include a constant. Country specific dummies are included in pooled regressions. Robust or bootstrapped standard error were used in each regression. Each set of entries includes the coefficient, the t-statistic (in parentheses), and the marginal effect of one unit change in the regressor (evaluated at the means of all regressors).
Pooled refers to pooled OLS regression; F.E. refers to Fixed Effects within estimation; HET refers to heteroskedasticity Probit estimation.

5. Conclusions

This paper revisits the political economy of fiscal adjustments more than twenty years after the publication by Alesina et al. (1998). We question conventional wisdom and examine whether fiscal adjustments are perceived as harmful for the economy. Acknowledging that deficits can arise for various reasons, we focus exclusively on whether politician engage in manipulation of the fiscal stance for political gain, i.e. to get themselves re-elected. Thus we examined whether politicians engage in specific fiscal policies in order to prolong their survival in office by looking how the change in deficit is associated with changes either in prime ministers or in the ideological orientation of the cabinet.

We began our analysis by looking at whether fiscal adjustments effect the economy. The effect an adjustment has on the economy is determined by the adjustment itself. Successful adjustments do not seem to cause recessions. The reason is that adjustments are characterized by a composition effect. We found that adjustments that succeed are mostly based on spending cuts. The latter are compromised by government wage and social security cuts. On the contrary, cuts in investment projects induce unsuccessful adjustments. This kind of adjustments dampen economic growth. Furthermore, times of high levels of debt and fiscal deterioration in general favor successful adjustments, adding on the literature of fiscal stress. The frequency of loose and tight policies is almost evenly distributed along ideological spectrum. Finally, we draw on both political and economic data to show the extent to which survival in office is associated with fiscal policy. Re-election prospects are not affected by conducted fiscal policy as our fiscal variable found to be statistically insignificant. Even though the estimated coefficients for the fiscal variable are not statistically significant in Tables 8 and 9, their signs imply that voters are likely to reward politicians at the ballot box for surpluses (few changes in government) and punish them for loose fiscal policies (more changes in government). Moreover, using adjustment composition dummies, we found that the probability of a change is decreased when cabinets follow adjustments that are based on spending cuts while the same probability is increased when adjustments are based on revenue increases. We infer that voters acknowledge the necessity of successful adjustments and will not punish governments for implementing them.

Policy makers and government officials can benefit from this line of research. This analysis contributes to the literature on whether fiscal manipulations are associated with more frequent changes in government. Given the various groups of countries, sub-samples and specifications analyzed, we conclude that there is no evidence that fiscal manipulation is associated with less frequent changes in government. The only occasion in which fewer government changes are observed is when

there is an increase in balance based on spending cuts. Further research can be focused on sentiment analysis. Party campaigns and political discourses convey information depending on the business and fiscal cycle of the economy. Voters form expectations regarding the future of the economy based on such information. It would be interesting to examine the effect that such information has in re-election prospects and cabinets' popularity given that time inconsistency concerns are absent.

Declaration of Competing Interest

Appendix A. Supplementary material

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jimonfin.2020.102312.

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