Do political variables affect fiscal policy adjustment decisions? New empirical evidence

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Abstract We test eight hypotheses on political factors influencing the likelihood that a fiscal policy adjustment occurs. We employ a panel discrete choice model for 20 OECD countries for the period 1970–2003. Two different definitions of fiscal adjustments are used to capture the differences between rapid and gradual adjustments. We find that these types of fiscal adjustment are primarily driven by economic factors and are hardly affected by political variables. The likelihood that a rapid adjustment takes place is only influenced by upcoming elections, while the likelihood that a gradual adjustment takes place increases in case of broad policy reform.

1 Introduction

In the wake of the oil shocks of the 1970s, many OECD countries had large and persistent deficits that, in turn, resulted in an unprecedented peacetime rise in the public debt-to-GDP ratio. Consequently, many countries engaged in fiscal adjustment programs. There is strong evidence that the success of efforts to consolidate the government budget depends on the kind of budgetary adjustments undertaken. Fiscal adjustments marked by an emphasis on

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expenditure cuts rather than increased revenues, and that tackle politically sensitive expenditures such as transfers, subsidies, and wage expenditures, are more likely to be successful than fiscal adjustments that rely primarily on tax increases and cuts in public investment (see, for instance, Alesina and Perotti 1995b; Alesina and Ardegna 1998; Alesina et al. 1998; von Hagen et al. 2001).[1] This literature starts from the presumption that a fiscal adjustment occurs and then examines which factors affect the likelihood that an adjustment will be successful. Success is generally defined in terms of the lasting effect the adjustment program has on reducing the government debt-to-GDP ratio and/or the budget deficit-to-GDP ratio.

This paper empirically examines the economic and political determinants of the likelihood that a fiscal adjustment takes place, no matter whether it is successful or not. While this issue has hardly received attention in the literature, several political economy theories provide guidance under which circumstances fiscal adjustments may take place. We use two definitions of fiscal adjustments in order to capture the differences between rapid and gradual adjustments.

The papers that come closest to ours are von Hagen et al. (2001) and Mulas-Granados (2003). Von Hagen et al. use a probit model to determine whether various economic variables influence the fiscal adjustment decision in a sample of 20 OECD countries for the period 1960–1998. In contrast to the present paper, von Hagen et al. do not take political variables into account. Mulas-Granados examines the fiscal policy strategies of EU countries in the period 1970–2000, focusing on political and economic determinants that explain why countries follow different strategies of adjustment. He finds that, besides economic conditions, fragmentation of decision-making, government ideology, and closeness to elections affect fiscal policy adjustment strategies. A serious shortcoming of both studies is that they neglect the panel nature of the data. That is, both studies do not take into account that one country may be more inclined to adjust fiscal policy than another country.

Using data for 20 OECD countries over the period 1970–2003 and Conditional Fixed Effects Logistic regressions in which we use the method suggested by Beck et al. (1998) to deal with temporal dependence, we test to what extent various political variables affect the timing of a fiscal adjustment. Our main finding is that fiscal adjustments are primarily driven by economic factors and are hardly affected by political variables. We also find that rapid fiscal adjustments are differently affected by political variables than gradual fiscal adjustments. Whereas the likelihood that a rapid adjustment takes place is negatively influenced by upcoming elections, gradual adjustments are more likely to be undertaken in the presence of broad policy reforms.

The remainder of the paper is organized as follows. Section 2 formulates our hypotheses, which are derived from four different strands in the literature. Section 3 outlines the empirical model and the data, while Sect. 4 motivates our use of Conditional Fixed Effects Logistic regressions. Section 5 contains the main results and Sect. 6 offers a sensitivity analysis. The final section offers some concluding comments.

2 Hypotheses

In this section we formulate the hypotheses to be tested in the empirical analysis. Instead of coming up with a theoretical model that can only deal with a limited number of political determinants of fiscal adjustments, we derive our hypotheses from four different strands in the

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[1]However, Heylen and Everaert (2000) reject the hypothesis that to succeed, consolidation should rely on cutting the government wage bill.

literature, i.e., studies on (1) the determinants of the timing of policy reform; (2) successful fiscal adjustments; (3) the political budget cycle; and (4) the impact of political instability on fiscal policy outcomes.

There are many theoretical studies on the *determinants of the timing of economic policy reform or stabilization*. Although not explicitly dealing with fiscal policy, the insights of this line of research may be helpful in designing our empirical model. The main building block of theories on the timing of reforms is the existence of distributional conflicts that are often aroused by reform (Lora 2000). The seminal work on this issue is Alesina and Drazen (1991), who hypothesize that the more unequal the distribution of the costs of reform and the more polarized society is, the longer it takes that reforms will be adopted. The political conflict among heterogeneous groups over the allocation of the burden of stabilization leads to rational delays. The reform will take place only when one of the groups concedes as it realizes that the cost of waiting exceeds that of the reform. Alesina and Drazen's model suggests that, other things being equal, reforms are adopted later in countries with more political fragmentation. In the empirical part of their paper, which does not specifically focus on fiscal adjustments, Alesina and Drazen indeed find that homogeneous governments reform sooner. It seems likely that the political fragmentation of government may also matter for fiscal adjustments; governments that are not very homogeneous may find it difficult to agree on a fiscal adjustment. So our first hypothesis is:

(1) The more politically fragmented a government is, the lower is the likelihood that a fiscal policy adjustment will occur.

To test for this hypothesis, we include two indicators of political fragmentation of the government in our empirical model.

Rodrik (1994) argues that the political cost of policy reform is associated with the amount of income redistributed among different groups, while the benefit comes from the efficiency gains it produces. A specific reform that is unpalatable by itself may be politically acceptable if packaged with other reforms that have lower cost–benefit ratios. Rodrik (1994, p. 80) poses that macroeconomic stabilization is such a reform: "Unlike trade liberalization, it holds the promise of generating benefits that will be shared by all . . . . Moreover, the deeper the crisis, the larger the overall net benefits from recovery". In line with this view, a fiscal adjustment may be more likely if bundled with other policy reforms. Therefore, our second hypothesis is:

(2) The occurrence of a broad policy reform increases the likelihood that a fiscal policy adjustment will occur.

In our analysis we include an indicator of broad policy reform to test this hypothesis.

Lora (2000) points out that the literature on the timing of policy reform offers little explanation of the apparent importance of one factor that seems to be the simplest reasons for reform: a change of government. Based on case studies, Haggard and Webb (1994, p. 8) point out that new governments, which "typically enjoy a period in which the costs of adjustment can be traded against political gains", can better exploit the window of opportunity that opens during periods of crisis. Therefore, our third hypothesis is:

(3) The presence of a new government increases the likelihood that a fiscal policy adjustment will occur.

This hypothesis will be tested using a variable indicating the presence of a new government.

Similarly, it can be argued that governments having a strong political position are in a better position to implement a fiscal adjustment. Specifically, governments with more sup-

port in parliament, face less hurdles to take tough decisions concerning adjustment policies.[2] We therefore have as our fourth hypothesis:

(4) The stronger the support of a government in parliament, the higher is the likelihood that a fiscal policy adjustment will occur.

We include in our model a variable reflecting the support of government in parliament to test this hypothesis.

Likewise, the literature on the *determinants and characteristics of successful fiscal adjustments* suggests a number of potential determinants of the probability that a fiscal adjustment will occur. For instance, Mulas-Granados (2003, p. 15) finds that in the nineties "the ideology of the party in government has become the most powerful predictor of fiscal policies and strategies of adjustment." Similarly, for a panel of large fiscal adjustments in OECD countries during the last 40 years, Tavares (2004) finds evidence that left-wing and right-wing cabinets are partisan: the left tends to reduce the deficit by raising tax revenues while the right relies mostly on spending cuts. Since fiscal adjustments are likely to hurt especially the constituencies of left-wing parties, governments dominated by left-wing parties are therefore likely to be less inclined to decide on such an adjustment. So hypothesis number five is:

(5) The likelihood that a fiscal adjustment will take place is lower under left-wing governments than under right-wing governments.

To test for possible partisan effects, we include an indicator of the ideological position of the government in our empirical model.

Mulas-Granados (2003) also finds that government size (measured as the number of parties participating in a coalition and the number of cabinet members) affects adjustment strategies. Perotti and Kontopoulos (2002) were among the first to argue that the so-called size fractionalization of government—measured by the (effective) number of political parties or the number of spending ministers in government—affects fiscal policy outcomes. They find, for instance, that fragmented governments have higher budget deficits. This result has been confirmed by others (see, for instance, Volkerink and De Haan 2001). Theoretically, size fragmentation matters for fiscal policy because of a "common-pool problem" in which competing political groups (political parties or spending ministers) vie for government expenditures that are financed using broad-based tax revenues. The incentive to please constituencies as much as possible leads to upward pressure on the government budget. Therefore, size fragmentation will negatively influences the likelihood of a fiscal adjustment, so that our sixth hypothesis is:

(6) The more size-fragmented a government is, the lower is the likelihood that a fiscal policy adjustment will occur.

We include the effective number of political parties in government and the number of spending ministers in our model as proxies for size fragmentation to test this hypothesis.

The *political budget cycle* (PBC) literature also offers some guidance. A political budget cycle is a periodic fluctuation in fiscal policies, which is induced by the cyclicality of

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[2] However, Pech (2004) argues that a minority government can be effective in cutting expenditures. He refers to the example of the Danish minority government run by Schlüter that initiated a policy of budget consolidation.

elections. Some recent studies present evidence for the existence of a PBC in a large cross-section of both developed and developing countries.[3] The PBC literature suggests that fiscal adjustments are unlikely when an election is upcoming, since an adjustment requires un-popular measures. Indeed, Illera and Mulas-Granados (2001) find that upcoming elections make a fiscal adjustment short-lived. This suggests the following hypothesis:

(7) An upcoming election reduces the likelihood that a fiscal policy adjustment will occur.

To test for election effects, we include a dummy for upcoming elections in our empirical model.[4]

Finally, we turn to the literature on *political instability* (see Alesina and Perotti 1995a). Various studies in this line of research suggest that political instability affects the government budget deficit (see, for instance, De Haan and Sturm 1994). As a fiscal adjustment requires a longer-term horizon of policy makers, which is generally lacking in highly unstable regimes, we have as our hypothesis eight:

(8) Political instability reduces the likelihood that a fiscal policy adjustment will occur.

We include two dummies in our analysis, reflecting the occurrence of cabinet changes and major government crises, to test this hypothesis.

Table 1 summarizes the hypotheses to be tested in the remainder of this paper.

3 The model and data

In order to identify years in which a fiscal adjustment occurs, we have constructed dummy variables that take the value 1 if there is a fiscal adjustment in a particular year and 0 otherwise. As there is no generally agreed upon definition of fiscal adjustments, we use two definitions that capture the difference between rapid and gradual adjustments. The first definition is proposed by von Hagen et al. (2001) who define an improvement of the budget balance by 1.25% points in two consecutive years or an improvement of 1.5% points of the budget balance preceded by a positive change in the budgetary position as a period of fiscal adjustment. The second definition is due to Heylen and Everaert (2000) who propose that any period starting with an improvement of the budget balance by at least 0.25% points in the first year, a minimum duration of 2 years and a total improvement of the budget balance by at least 2% points can be considered as a period of fiscal adjustment. The definition by von Hagen et al. captures rapid adjustments whereas the Heylen–Everaert definition captures

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[3]For instance, Shi and Svensson (2002) show that significant pre-electoral increases in the government budget deficit exist for their panel of 91 developing and developed countries over the period 1975–95. Moreover, Persson and Tabellini (2002) report statistically significant tax decreases before elections in a sample of 60 democracies over the period 1960–1998. Brender and Drazen (2005) pose, however, that the results of these studies are driven by the experience of so-called "new democracies", where fiscal manipulation may be effective because of lack of experience with electoral politics in these countries. They argue that once the "new democracies" are removed from the sample, the PBC disappears. However, some other studies focusing on "old" democracies also find evidence for a PBC; see, for instance, Tujula and Wolswijk (2004) and Mink and De Haan (2006).

[4]However, there is also some evidence suggesting that a strong deterioration of the financial position of the government harms the chances of re-election faced by the incumbent (see, for instance, Brender 2003). If the incumbent is rewarded for reducing the government's budget deficit to a sustainable level, an upcoming election may stimulate the government to decide on a fiscal adjustment. Indeed, Alesina et al. (1998) have found no evidence that fiscal adjustments indicate high political cost in their examination of poll data and cabinet turnover after fiscal adjustments.

Table 1 Hypotheses to be tested

Nr.	Hypothesis	Variable(s) used to test hypothesis	Expected sign of variable(s)
(1)	The more politically fragmented a government is, the lower is the likelihood that a fiscal policy adjustment will occur.	Two indicators of political fragmentation	−
(2)	The occurrence of a broad policy reform increases the likelihood that a fiscal policy adjustment will occur.	Indicator of broad policy reform	+
(3)	The presence of a new government increases the likelihood that a fiscal policy adjustment will occur.	Dummy reflecting presence of new government	+
(4)	The stronger the support of a government in parliament, the higher is the likelihood that a fiscal policy adjustment will occur.	Variable reflecting support of government in parliament	+
(5)	The likelihood that a fiscal adjustment will take place is lower under left-wing governments than under right-wing governments.	Variable reflecting ideological position of the government	−
(6)	The more size-fragmented a government is, the lower is the likelihood that a fiscal policy adjustment will occur.	Two indicators of size fragmentation	−
(7)	An upcoming election reduces the likelihood that a fiscal policy adjustment will occur.	Indicator for upcoming election	−
(8)	Political instability reduces the likelihood that a fiscal policy adjustment will occur.	Two indicators of political instability	−

gradual adjustments. In applying both definitions, we use the cyclically adjusted budget balance.[5] Appendix 1 contains an overview of all fiscal adjustment we identify. Although the two definitions partly overlap, they are certainly not identical. In 70 years that meet the criteria for a gradual adjustment, there is no rapid adjustment. Likewise, there are 7 years with a rapid adjustment in which there is no gradual adjustment.[6] Countries in which a certain type of adjustment does not occur during the period under consideration are excluded in the empirical analysis. For instance, Japan is not included in the model for the likelihood that a rapid adjustment occurs. All observations for countries with at least one adjustment during the period under consideration are included in the analysis.

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[5]The cyclically adjusted budget balance suffers from the fact that there is no consensus on how it should be computed; figures provided by various international organizations often show large differences. De Haan et al. (2004) demonstrate that OECD figures on cyclically adjusted balances are also subject to large revisions for a rather long time after their initial publication. We therefore also employed the unadjusted budget balance figures to construct our fiscal adjustment indicators. This did not qualitatively affect our main findings; results are available on request.

[6]We also examined to which extent the different *periods* of fiscal adjustments overlap. As can be seen in Appendix 1, 15 episodes of rapid and gradual adjustments are identified in exactly the same years, 18 episodes partially overlap, while another 15 episodes are only identified by one of the two fiscal adjustment definitions.

We consider a panel discrete choice model in which the dependent variable is the occurrence of a fiscal adjustment. The economic variables included are the lagged cyclically adjusted budget deficit, the debt-to-GDP ratio, GDP growth, inflation, and unemployment. The first variables reflect the need to adjust; if there is no adverse fiscal position there is no reason to adjust. So the probability of an adjustment is expected to be higher in case of a high debt ratio and/or a high budget deficit. The other economic variables are included to take economic circumstances into account; it seems more likely that an adjustment will take place under favourable economic conditions, like low inflation and unemployment, and high GDP growth.

To test the various hypotheses as outlined in Sect. 2, we have included the following political-institutional variables to the model:

- The degree of *political fragmentation of the government* defined as:

$$\sum_j \left[\frac{NMIN_j}{NMIN} \times (COLOUR_j - PC)^2 \right],$$

where $NMIN_j$ are the number of ministers from party j, whilst $NMIN$ refers to the number of ministers in government. $COLOUR$ indicates the ideological complexion of party j and PC refers to the ideological position of the entire government (see also fifth bullet). This indicator has been suggested by Volkerink and De Haan (2001) as a proxy for fragmentation. As an alternative, we also employ the *maximum ideological distance* between the parties forming a government. These variables are used to test hypothesis 1. As both variables are proxies for political fragmentation and are highly correlated, they are not included simultaneously in the model.
- The first difference of the economic freedom index of the Fraser Institute. As argued by De Haan et al. (2006), an increase in the level of economic freedom coincides with the kind of reform proposed by the IMF and the World Bank ('the Washington consensus'). So the change in the economic freedom indicator is included as a proxy for *broad policy reform* to test hypothesis 2.[7]
- A dummy reflecting whether there is a *new government* in a particular year to test hypothesis 3. This variable is one when there is a post election change in the government, i.e., a new coalition or ruling party, and zero otherwise.
- The *strength of government* in parliament, defined as the number of seats of the coalition in parliament divided by the total number of seats, taking into account the number of months of a year that government is in power. The rationale of this variable is that the more seats that the parties forming the government have in parliament, the stronger the government will be (see, also Volkerink and De Haan 2001). This variable is used to test hypothesis 4.
- The *ideological position of the government* on a scale from 1 (left) to 10 (right), defined as

$$\sum_j \frac{NMIN_j \times COLOUR_j}{NMIN},$$

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[7]As one of the referees pointed out, there could be an endogeneity problem with this variable, since taxes and spending are included in the Economic Freedom index. However, they make up only a minor part of the index. Furthermore, our definition of an adjustment is defined in terms of the budget balance so that a simultaneous increase (or decrease) in taxes and spending do not affect our dependent variable. The issue of endogeneity is therefore not a problem.

where $COLOUR_j$ is the political position of party j and $NMIN_j$ is the number of ministers of party j, while $NMIN$ is the total number of ministers. This variable is used to test hypothesis 5.

- Two indicators of *size fragmentation of government*, i.e., the number of political parties in government and the number of spending ministers in government to test hypothesis 6. These variables are not included simultaneously in the model.
- A dummy that is one in case of an *upcoming election* (i.e., an election, be that regular or early, in the following year). This variable is used to test hypothesis 7.
- A dummy variable which equals 1 when there is a change of cabinet and 0 otherwise. In line with our data source (the 2005 Cross National Data Archive), a cabinet change is defined as any situation in which a new president/prime minister is appointed or when at least 50% of the ministers is replaced. In addition, we employ a dummy variable which equals 1 when there is a major government crisis and 0 otherwise. The Cross National Data Archive defines a major crisis as a rapidly developing situation that threatens to bring the downfall of the present regime. Both indicators are used to test hypothesis 8. As both variables are proxies for political instability, they are not included simultaneously in the model.

Appendix 2 provides details on the sources used and offers some summary statistics of the variables used. The following section outlines our estimation method.

4 Conditional fixed effect logistic regressions

A shortcoming of previous studies focusing on the determinants of fiscal adjustment decisions is their neglect of the panel nature of the data. In case of a discrete dependent variable with panel data we observe:

$$
\begin{aligned}
y_{it} &= 1 \quad \text{if } y_{it}^* > 0, \\
y_{it} &= 0 \quad \text{if } y_{it}^* \leq 0,
\end{aligned}
\tag{1}
$$

where: $y_{it}^* = x_{it}'\beta + \alpha_i + v_{it}$. This function can be interpreted as the inclination of the government to implement a fiscal adjustment, which is dependent on observed variables (x), unobserved individual (country) characteristics (α) and a random error term (v). The probability that we observe a fiscal adjustment is:

$$
P(y_{it} = 1) = P(y_{it}^* > 0) = P(v_{it} > -x_{it}'\beta - \alpha_i) = F(x_{it}'\beta + \alpha_i). \tag{2}
$$

As can be seen in (2), the number of parameters increases with the number of countries. This is known as the incidental parameters problem. Chamberlain (1980) shows that it is impossible to estimate the parameters of this discrete choice model consistently and proposes conditional logit estimation. The idea of this approach is to condition the likelihood function on a minimal sufficient statistic for the fixed effects. Chamberlain argues that $\sum_{t=1}^{T} y_{it}$ is such a minimum sufficient statistic, which in our case is the number of fiscal adjustments per country. Like standard fixed effects modelling, the conditional fixed effects logit model focuses on the variation in the data observed within countries (Baltagi 2005).

It is well known that variables in a panel model are likely to be temporally dependent, in which case ordinary logit (or probit) models may result in overly optimistic inferences (too high t-statistics). Beck et al. (1998) show that panel logit data are identical to grouped duration data and suggest dealing with this problem by adding a series of dummy variables

to the model marking the number of years since the previous occurrence of an "event" (in our case a fiscal adjustment). An important drawback of this solution is that a lot of degrees of freedom are lost due to the large number of dummy variables. As a solution, Beck et al. (1998) replace the dummy variables with a smooth function based on cubic splines. We also follow another suggestion of Beck et al. by including the number of adjustments in the past. Again this is necessary since standard logit models assume that the adjustments are independent from one another, which is obviously not true.

5 Empirical results

Tables 2 and 3 show the estimation results. Table 2 shows the results if we use the definition of an adjustment as suggested by von Hagen et al. (2001), while in Table 3 the definition of fiscal adjustment of Heylen and Everaert (2000) is used; the first captures rapid adjustments whereas the latter captures gradual adjustments.

Before discussing the results in detail we consider the model specification. According to the Hausman test, which in this context compares the estimates of the conditional logit regression with the standard logit regression, the null hypothesis is always rejected in favour of conditional logit. This suggests that previous studies on successful fiscal adjustments, which usually rely on standard logit or probit models, may have been misspecified.

In column (1) of Tables 2 and 3, we show the outcomes of the conditional logit regression excluding political indicators and without following the approach as proposed by Beck et al. (1998) concerning time dependence and dependence on previous adjustments into account reflected by the splines and prior adjustments variables, respectively. Following the suggestions of Beck et al. (1998), in column (2) we add a variable reflecting the number of prior adjustments and in column (3) we add the variables that take duration dependence into account (3 splines and a variable measuring the number of years since the last fiscal adjustment). Simple t-tests for the individual variables and F-tests for the group of duration variables show that these variables are highly significant. Therefore, this is our preferred specification. In columns 4–14 we add our political and institutional indicators to our preferred baseline model.

Perhaps not surprisingly, we find that a weak fiscal situation increases the likelihood of a fiscal adjustment, be it a rapid or a gradual one. The number of prior adjustments and the number of years since the previous adjustment reduce the likelihood of an adjustment. Somewhat surprisingly, we find that the economic situation is not a strong determining factor of fiscal adjustment; only the coefficient of inflation is often significantly different from zero.

The two most important conclusions that follow from our results are that (1) fiscal adjustments are primarily driven by the budgetary situation and are hardly affected by political variables; (2) the two types of fiscal adjustment are affected differently by the political variables that we take up in the analysis. Whereas the likelihood that a rapid adjustment occurs is (negatively) influenced by upcoming elections, the likelihood that a gradual adjustment takes place is influenced by broad policy reform. Our results differ from previous studies, based on the distinction between successful and unsuccessful adjustments. For instance, Alesina and Perotti (1995b) find that elections do not matter: there is no systematic difference in the likelihood of a successful adjustment in election and non-election years. The same is true for non-successful adjustments. However, our results show that an upcoming election makes it more unlikely that a fiscal adjustment will take place. In line with the view of Rodrik (1994), we find that gradual fiscal adjustment are more likely if the adjustment is part of a broad policy reform.

Table 2 Determinants of rapid fiscal adjustments, full sample period

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Lagged structural deficit	−0.381	−0.255	−0.487	−0.498	−0.474	−0.487	−0.494	−0.486	−0.483	−0.488	−0.482	−0.491	−0.490	−0.483
	(5.60)**	(3.53)**	(4.84)**	(4.89)**	(4.67)**	(4.84)**	(4.86)**	(4.82)**	(4.72)**	(4.83)**	(4.81)**	(4.86)**	(4.81)**	(4.79)**
Debt to GDP ratio	0.060	0.100	0.101	0.102	0.105	0.100	0.101	0.101	0.101	0.104	0.100	0.102	0.101	0.101
	(5.18)**	(6.33)**	(5.45)**	(5.52)**	(5.52)**	(5.43)**	(5.43)**	(5.45)**	(5.43)**	(5.49)**	(5.38)**	(5.45)**	(5.43)**	(5.46)**
Inflation	0.057	−0.096	−0.126	−0.131	−0.117	−0.128	−0.125	−0.126	−0.124	−0.130	−0.130	−0.126	−0.128	−0.129
	(1.15)	(1.71)	(1.89)	(1.95)	(1.75)	(1.90)	(1.88)	(1.89)	(1.86)	(1.94)	(1.94)	(1.90)	(1.92)	(1.95)
Economic growth	−0.093	−0.178	−0.161	−0.165	−0.155	−0.160	−0.151	−0.161	−0.158	−0.180	−0.159	−0.159	−0.162	−0.151
	(1.32)	(2.24)*	(1.77)	(1.81)	(1.68)	(1.75)	(1.64)	(1.77)	(1.73)	(1.96)	(1.74)	(1.74)	(1.76)	(1.65)
Unemployment	−0.032	0.024	−0.039	−0.032	−0.050	−0.041	−0.044	−0.038	−0.040	−0.061	−0.040	−0.044	−0.043	−0.036
	(0.39)	(0.26)	(0.38)	(0.32)	(0.49)	(0.40)	(0.43)	(0.38)	(0.40)	(0.59)	(0.39)	(0.43)	(0.42)	(0.35)
Prior adjustments		−2.319	−1.816	−1.774	−1.886	−1.810	−1.776	−1.822	−1.829	−1.844	−1.866	−1.831	−1.824	−1.843
		(5.87)**	(4.40)**	(4.29)**	(4.50)**	(4.38)**	(4.24)**	(4.35)**	(4.36)**	(4.42)**	(4.39)**	(4.44)**	(4.41)**	(4.45)**
Time since previous adjustment			−2.370	−2.434	−2.326	−2.374	−2.429	−2.364	−2.364	−2.549	−2.372	−2.399	−2.341	−2.407
			(4.43)**	(4.45)**	(4.32)**	(4.43)**	(4.42)**	(4.36)**	(4.41)**	(4.59)**	(4.43)**	(4.45)**	(4.37)**	(4.45)**
Spline 1			−0.315	−0.330	−0.300	−0.317	−0.326	−0.314	−0.314	−0.346	−0.314	−0.318	−0.308	−0.319
			(2.88)**	(2.96)**	(2.71)**	(2.88)**	(2.92)**	(2.83)**	(2.87)**	(3.09)**	(2.86)**	(2.90)**	(2.81)**	(2.90)**
Spline 2			0.087	0.093	0.081	0.088	0.091	0.087	0.087	0.097	0.086	0.087	0.085	0.087
			(2.24)*	(2.34)*	(2.05)*	(2.25)*	(2.30)*	(2.20)*	(2.23)*	(2.45)*	(2.22)*	(2.25)*	(2.18)*	(2.25)*
Spline 3			−0.004	−0.005	−0.003	−0.004	−0.004	−0.004	−0.004	−0.005	−0.004	−0.004	−0.004	−0.004
			(0.59)	(0.75)	(0.42)	(0.62)	(0.65)	(0.58)	(0.58)	(0.75)	(0.57)	(0.57)	(0.58)	(0.55)
Cabinet change														0.298
														(0.95)
New government													−0.324	
													(0.88)	

Table 2 (*Continued*)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Government crises												0.230 (0.68)		
Broad policy reform											0.016 (0.64)			
Upcoming election										−0.892 (2.16)*				
Political ideology of government									0.027 (0.19)					
Maximum political distance in government								0.018 (0.08)						
Government fragmentation							−0.181 (0.55)							
Excess seats in parliament						−0.569 (0.20)								
Number of spending ministers					0.100 (1.19)									
Effective number of parties in government				−0.380 (1.07)										
Observations	426	426	426	426	426	426	426	426	426	409	426	426	426	426
Pseudo R-squared	0.23	0.35	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Hausman test	22.99	44.56	59.02	61.36	58.94	36.97	63.71	63.07	58.87	50.69	69.11	58.79	58.51	58.21
p-value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Absolute value of z statistics in parentheses
*Significant at 5%, **significant at 1%

Table 3 Determinants of gradual fiscal adjustments, full sample period

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Lagged structural deficit	−0.224	−0.094	−0.425	−0.436	−0.421	−0.427	−0.446	−0.431	−0.426	−0.452	−0.441	−0.425	−0.425	−0.422
	(4.71)**	(1.75)	(5.17)**	(5.19)**	(5.02)**	(5.15)**	(5.26)**	(5.16)**	(5.15)**	(5.24)**	(5.44)**	(5.17)**	(5.17)**	(5.12)**
Debt to GDP ratio	0.024	0.047	0.048	0.049	0.049	0.048	0.048	0.049	0.048	0.056	0.048	0.049	0.049	0.049
	(3.16)”	(4.92)**	(4.29)**	(4.38)**	(4.26)**	(4.23)**	(4.23)**	(4.33)**	(4.21)**	(4.64)**	(4.22)**	(4.30)**	(4.30)**	(4.36)**
Inflation	0.014	−0.098	−0.186	−0.191	−0.185	−0.190	−0.184	−0.187	−0.187	−0.188	−0.198	−0.186	−0.186	−0.191
	(0.37)	(2.26)*	(3.31)**	(3.39)**	(3.28)**	(3.36)**	(3.31)**	(3.34)**	(3.30)**	(3.28)**	(3.54)**	(3.30)**	(3.31)**	(3.40)**
Economic growth	0.009	−0.049	−0.027	−0.031	−0.027	−0.023	−0.000	−0.021	−0.028	−0.010	−0.023	−0.024	−0.027	−0.014
	(0.17)	(0.80)	(0.37)	(0.42)	(0.37)	(0.31)	(0.00)	(0.28)	(0.38)	(0.13)	(0.32)	(0.33)	(0.37)	(0.19)
Unemployment	0.106	0.118	0.096	0.106	0.094	0.092	0.092	0.092	0.098	0.103	0.068	0.095	0.097	0.098
	(1.76)	(1.79)	(1.22)	(1.34)	(1.20)	(1.16)	(1.16)	(1.18)	(1.20)	(1.27)	(0.85)	(1.21)	(1.24)	(1.24)
Prior adjustments	−1.582	−1.292	−1.269	−1.303	−1.287	−1.191	−1.248	−1.292	−1.390	−1.362	−1.291	−1.290	−1.320	−1.943
		(6.66)**	(4.51)**	(4.43)**	(4.49)**	(4.48)**	(4.12)**	(4.31)**	(4.51)**	(4.62)**	(4.60)**	(4.50)**	(4.50)**	(4.55)**
Time since previous adjustment			−1.920	−1.944	−1.921	−1.944	−1.993	−1.935	−1.920	−1.965	−1.934	−1.921	−1.926	−1.943
			(6.91)**	(6.89)**	(6.91)**	(6.92)**	(6.93)**	(6.90)**	(6.91)**	(6.80)**	(6.87)**	(6.91)**	(6.90)**	(6.91)**
Spline 1			−0.005	−0.005	−0.005	−0.005	−0.005	−0.005	−0.005	−0.005	−0.005	−0.005	−0.005	−0.005
			(3.76)**	(3.81)**	(3.72)**	(3.80)**	(3.84)**	(3.72)**	(3.76)**	(3.70)**	(3.51)**	(3.73)**	(3.77)**	(3.73)**
Spline 2			−0.166	−0.168	−0.166	−0.169	−0.173	−0.167	−0.166	−0.172	−0.160	−0.166	−0.167	−0.167
			(5.19)**	(5.20)**	(5.19)**	(5.23)**	(5.29)**	(5.19)**	(5.18)**	(5.11)**	(4.96)**	(5.17)**	(5.19)**	(5.18)**
Spline 3			0.086	0.088	0.086	0.088	0.090	0.086	0.086	0.090	0.082	0.086	0.087	0.086
			(4.92)**	(4.94)**	(4.91)**	(4.96)**	(5.03)**	(4.92)**	(4.91)**	(4.84)**	(4.63)**	(4.89)**	(4.92)**	(4.90)**
Cabinet change														0.327
														(1.25)
New government													0.124	
													(0.43)	

Table 3 (*Continued*)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Government crises												0.102 (0.36)		
Broad policy reform											0.051 (2.41)*			
Upcoming election										−0.501 (1.55)				
Political ideology of government									−0.012 (0.10)					
Maximum political distance in government								−0.190 (0.83)						
Government fragmentation							−0.544 (1.59)							
Excess seats in parliament						−1.683 (0.77)								
Number of spending ministers					0.017 (0.25)									
Effective number of parties in government				−0.412 (1.29)										
Observations	503	503	503	503	503	503	503	503	483	503	503	503	503	
Pseudo *R*-squared	0.11	0.23	0.47	0.47	0.47	0.47	0.48	0.47	0.47	0.48	0.48	0.47	0.47	0.47
Hausman test	9.43	42.94	74.81	75.19	76.82	53.69	70.11	76.48	80.57	64.53	68.86	68.51	71.21	83.67
p-value	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Absolute value of z statistics in parentheses

*Significant at 5%; **significant at 1%

6 Sensitivity analysis

In this section we report how sensitive our results are with respect to: (1) the sample of countries considered, and (2) the time period taken into account. It is important to check whether our results are not driven by the inclusion of a particular country in the analysis. Furthermore, the literature on size fragmentation suggests that the impact of political factors on fiscal policy may not be constant over time (see, for instance, Volkerink and De Haan 2001). We therefore also check to what extent our results are influenced by our choice of the time span considered.

We have checked the robustness of our findings with respect to the countries taken up in the analysis by excluding each country in our sample one by one for all of the regressions shown in Tables 2 and 3. This is a very straightforward way to test whether or not the results depend on the set of included countries. It turned out that variables that were insignificant generally remain insignificant (not shown). Table 4 shows the results for the variables that we found to be significant. Each row first shows the country that has been excluded. Next, the coefficient and t-statistic for upcoming elections for rapid adjustments, and the coefficient and t-statistic for broad policy reform for gradual adjustments are shown. It is clear that neither the result for rapid adjustments (i.e., a significant negative impact for upcoming elections), nor the result for gradual adjustments (i.e., a significant positive impact for broad policy reform) are significantly affected by the exclusion of any country.

Finally, we have redone the regressions reported in Tables 2 and 3 for different time periods. We have simply cut our estimation period in two periods of more or less equal length. It turns out that our main results are robust. Elections have a negative impact on the likelihood that a rapid fiscal adjustment will take place, while the likelihood of the occurrence of a gradual adjustment increases in case of broad policy reform. Tables 5 and 6 show, for illustrative purposes, the results for the second half of our sample period. In Table 5, also the variable Excess Seats becomes significant, with a negative sign. This probably reflects that in various countries ruled by minority governments, notably in Scandinavia, fiscal adjustments took place during this period, lending support to the views of Pech (2004).

7 Conclusions

This paper examines an issue that has hardly received attention in the literature so far, i.e., which factors determine the likelihood that a fiscal adjustment takes place, no matter whether or not it is successful. So far, the literature on fiscal adjustments primarily focuses on the determinants of successful fiscal adjustments, where success is generally defined in terms of the lasting effect that the policy efforts have on reducing the government debt-to-GDP ratio and/or the budget deficit-to-GDP ratio. As fiscal adjustments have a significant effect on the state of the economy it is, however, also relevant to know which factors affect the likelihood that a fiscal adjustment will occur in the first place.

In contrast to previous studies on the determinants of successful fiscal adjustments, we use conditional logit models taking the suggestions of Beck et al. (1998) to deal with time dependence and dependence on previous adjustments into account. Various tests clearly show that this modelling approach is superior to traditional logit or probit models.

Two definitions of fiscal adjustments are used in order to capture the differences between rapid and gradual adjustments. It is found that these types of fiscal adjustment are differently affected by political variables. Whereas the likelihood that a rapid adjustment will occur is only influenced by upcoming elections, the likelihood that a gradual adjustment will take

Table 4 Results for significant
variables if countries are
excluded

Excluded	Upcoming elections	Broad policy reform
Australia	−0.862	0.050
	(2.09)*	(2.40)*
Austria	−0.911	0.051
	(2.08)*	(2.39)*
Belgium	−1.176	0.055
	(2.62)**	(2.57)*
Canada	−0.826	0.035
	(1.94)	(1.63)
Denmark	−0.840	0.053
	(1 .98)*	(2.47)*
Finland	−0.894	0.058
	(2.06)*	(2.59)**
France	−0.903	0.051
	(2.18)*	(2.43)*
Germany	−0.850	0.051
	(2.05)*	(2.40)*
Greece	−0.800	0.055
	(1.87)	(2.44)*
Ireland	−0.952	0.033
	(2.23)*	(1.56)
Italy	−0.905	0.048
	(2.02)*	(2.12)*
Japan		0.043
		(1.82)
Netherlands	−0.887	0.049
	(2.09)*	(2.32)*
New Zealand		0.051
		(2.41)*
Norway		0.061
		(2.61)**
Portugal	−0.868	0.055
	(2.10)*	(2.54)*
Spain	−1.050	0.050
	(2.45)*	(2.40)*
Sweden	−0.837	0.057
	(1.91)	(2.65)**
United Kingdom	−0.843	0.050
	(1.86)	(2.30)*
United States		0.049
		(2.29)*

Table 5 Determinants of rapid fiscal adjustments, second half of the sample period

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Lagged structural deficit	−0.499	−0.184	−0.460	−0.496	−0.515	−0.413	−0.457	−0.468	−0.516	−0.400	−0.452	−0.448	−0.458	−0.452
	(4.43)**	(1.47)	(2.16)*	(2.26)*	(2.32)*	(1.82)	(2.21)*	(2.18)*	(2.16)*	(1.88)	(2.14)*	(2.08)*	(2.14)*	(2.12)*
Debt to GDP ratio	0.170	0.290	0.297	0.304	0.297	0.335	0.330	0.301	0.304	0.299	0.305	0.302	0.311	0.306
	(4.77)**	(5.01)**	(3.99)**	(3.96)**	(3.89)**	(3.92)**	(3.93)**	(3.93)**	(3.92)**	(3.98)**	(3.82)**	(3.89)**	(3.94)**	(3.95)**
Inflation	0.353	0.206	0.226	0.225	0.188	0.152	0.387	0.239	0.254	0.288	0.232	0.230	0.274	0.258
	(2.26)*	(1.38)	(0.85)	(0.82)	(0.66)	(0.52)	(1.26)	(0.88)	(0.93)	(1.04)	(0.88)	(0.86)	(0.99)	(0.94)
Economic growth	0.076	0.112	0.037	0.035	0.094	0.224	0.180	0.047	0.008	0.004	0.041	0.023	0.038	0.025
	(0.67)	(0.85)	(0.24)	(0.23)	(0.57)	(1.15)	(0.93)	(0.30)	(0.05)	(0.03)	(0.27)	(0.14)	(0.24)	(0.16)
Unemployment	−0.360	−0.711	−0.673	−0.704	−0.698	−0.821	−0.805	−0.694	−0.688	−0.658	−0.696	−0.679	−0.681	−0.694
	(2.47)*	(3.25)**	(2.58)**	(2.62)**	(2.62)**	(2.76)**	(2.72)**	(2.55)*	(2.57)*	(2.52)*	(2.55)*	(2.55)*	(2.54)*	(2.60)**
Prior adjustments		−4.844	−4.329	−4.273	−4.846	−6.370	−4.132	−4.267	−4.175	−4.369	−4.372	−4.412	−4.429	−4.361
		(4.55)**	(3.58)**	(3.47)**	(3.44)**	(3.47)**	(3.35)**	(3.47)**	(3.43)**	(3.56)**	(3.55)**	(3.54)**	(3.61)**	(3.58)**
Time since previous adjustment			−1.712	−1.950	−2.189	−2.152	−2.134	−1.776	−1.742	−1.901	−1.686	−1.692	−1.702	−1.734
			(2.12)*	(2.21)*	(2.34)*	(2.26)*	(2.27)*	(2.10)*	(2.14)*	(2.26)*	(2.10)*	(2.07)*	(2.10)*	(2.13)*
Spline 1			−0.128	−0.195	−0.248	−0.279	−0.226	−0.145	−0.126	−0.156	−0.121	−0.124	−0.125	−0.135
			(0.74)	(1.01)	(1.23)	(1.36)	(1.12)	(0.78)	(0.72)	(0.88)	(0.70)	(0.71)	(0.72)	(0.77)
Spline 2			0.020	0.047	0.065	0.088	0.056	0.027	0.020	0.027	0.017	0.019	0.019	0.023
			(0.31)	(0.66)	(0.89)	(1.16)	(0.76)	(0.39)	(0.30)	(0.41)	(0.27)	(0.29)	(0.30)	(0.36)
Spline 3			0.005	−0.001	−0.003	−0.012	−0.001	0.004	0.005	0.005	0.005	0.005	0.005	0.004
			(0.38)	(0.05)	(0.21)	(0.82)	(0.06)	(0.28)	(0.36)	(0.40)	(0.42)	(0.38)	(0.38)	(0.31)
Cabinet change														−0.387
														(0.62)
New government													−0.598	
													(0.92)	

Table 5 (*Continued*)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Government crises												−0.383 (0.41)		
Broad policy reform											0.019 (0.30)			
Upcoming election										−0.895 (1.18)				
Political ideology of government									−0.177 (0.61)					
Maximum political distance in government								−0.129 (0.29)						
Government fragmentation							−1.073 (1.34)							
Excess seats in parliament						−17.224 (2.58)**								
Number of spending ministers					−0.282 (1.49)									
Effective number of parties in government				−0.576 (1.11)										
Observations	216	216	216	216	216	216	216	216	216	216	216	216	216	216
Pseudo R-squared	0.33	0.56	0.70	0.71	0.72	0.74	0.71	0.70	0.70	0.71	0.70	0.70	0.71	0.70

Absolute value of z statistics in parentheses

*Significant at 5%, **significant at 1%

Table 6 Determinants of gradual fiscal adjustments, second half of the sample period

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Lagged structural deficit	−0.609	−0.284	−0.890	−0.915	−0.944	−0.911	−0.891	−0.872	−0.998	−0.904	−0.850	−0.890	−0.873	−0.898
	(5.73)**	(2.29)*	(3.60)**	(3.57)**	(3.71)**	(3.55)**	(3.64)**	(3.55)**	(3.60)**	(3.61)**	(3.24)**	(3.60)**	(3.56)**	(3.59)**
Debt to GDP ratio	0.133	0.226	0.289	0.287	0.286	0.289	0.292	0.290	0.308	0.298	0.270	0.289	0.286	0.292
	(4.88)**	(5.20)**	(4.12)**	(4.11)**	(3.96)**	(4.09)**	(4.13)**	(4.10)**	(4.23)**	(4.15)**	(3.96)**	(4.13)**	(4.13)**	(4.07)**
Inflation	0.218	0.063	−0.216	−0.226	−0.232	−0.237	−0.236	−0.226	−0.210	−0.202	−0.174	−0.215	−0.206	−0.218
	(1.81)	(0.51)	(1.04)	(1.08)	(1.06)	(1.10)	(1.09)	(1.08)	(1.02)	(0.94)	(0.80)	(1.03)	(0.98)	(1.05)
Economic growth	0.178	0.200	0.159	0.158	0.229	0.200	0.141	0.149	0.121	0.145	0.192	0.163	0.145	0.160
	(1.81)	(1.71)	(1.13)	(1.12)	(1.50)	(1.33)	(0.93)	(1.04)	(0.84)	(1.03)	(1.31)	(1.11)	(1.04)	(1.13)
Unemployment	−0.248	−0.518	−0.705	−0.704	−0.723	−0.703	−0.700	−0.690	−0.744	−0.740	−0.555	−0.705	−0.700	−0.713
	(1.95)	(3.03)**	(2.87)**	(2.87)**	(2.84)**	(2.86)**	(2.87)**	(2.79)**	(3.00)**	(2.94)**	(2.20)*	(2.88)**	(2.87)**	(2.86)**
Prior adjustments		−4.575	−5.549	−5.453	−5.776	−5.845	−5.750	−5.761	−5.724	−5.591	−6.457	−5.552	−5.481	−5.597
		(5.10)**	(3.93)**	(3.85)**	(3.95)**	(3.92)**	(3.66)**	(3.76)**	(3.92)**	(4.01)**	(3.98)**	(3.93)**	(3.92)**	(3.89)**
Time since previous adjustment			−1.993	−2.057	−1.938	−2.056	−1.975	−1.966	−2.181	−1.969	−2.146	−1.984	−1.959	−1.991
			(3.76)**	(3.72)**	(3.60)**	(3.81)**	(3.73)**	(3.71)**	(3.62)**	(3.70)**	(3.68)**	(3.69)**	(3.68)**	(3.76)**
Spline 1			−0.004	−0.004	−0.004	−0.004	−0.004	−0.004	−0.004	−0.004	−0.004	−0.004	−0.003	−0.004
			(1.69)	(1.78)	(1.74)	(1.87)	(1.68)	(1.67)	(1.80)	(1.62)	(1.70)	(1.65)	(1.52)	(1.68)
Spline 2			−0.133	−0.143	−0.132	−0.144	−0.129	−0.129	−0.147	−0.128	−0.159	−0.132	−0.128	−0.132
			(2.22)*	(2.27)*	(2.17)*	(2.32)*	(2.14)*	(2.13)*	(2.26)*	(2.09)*	(2.39)*	(2.15)*	(2.10)*	(2.20)*
Spline 3			0.066	0.071	0.067	0.073	0.064	0.064	0.073	0.064	0.080	0.065	0.063	0.065
			(2.03)*	(2.10)*	(2.02)*	(2.16)*	(1.97)*	(1.96)	(2.09)*	(1.90)	(2.21)*	(1.97)*	(1.90)	(2.02)*
Cabinet change														−0.155
														(0.29)
New government													0.361	
													(0.66)	

Table 6 (*Continued*)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Government crises												0.065 (0.09)		
Broad policy reform											−0.113 (2.12)*			
Upcoming election										−0.680 (1.06)				
Political ideology of government									−0.361 (1.35)					
Maximum political distance in government								0.180 (0.42)						
Government fragmentation							0.208 (0.33)							
Excess seats in parliament						−4.890 (0.97)								
Number of spending ministers					−0.288 (1.73)									
Effective number of parties in government				−0.347 (0.68)										
Observations	257	257	257	257	257	257	257	257	257	257	257	257	257	257
Pseudo *R*-squared	0.33	0.56	0.74	0.74	0.75	0.74	0.74	0.74	0.75	0.74	0.75	0.74	0.74	0.74

Absolute value of z statistics in parentheses
*Significant at 5%, **significant at 1%

place is influenced by broad policy reform. These results are robust to changes in the sample of countries and the estimation period. Our results are positive, i.e., they explain past behaviour of politicians and do not lend themselves for policy prescriptions.

Appendix 1. Years with a fiscal adjustment

Country	Rapid adjustments	Gradual adjustments
Australia	86–88	79–80, 86–89, 94–99
Austria	84–85, 96–97, 00–01	96–97
Belgium	84–86, 93–94	84–87, 93–96
Canada	80–81, 86–87, 94–97	79–81, 86–90, 93–97
Denmark	83–86, 98–99	83–86, 96–99
Finland	88–89, 93–94, 99–00	88–89, 93–94, 98–00
France	95–97	94–97
Germany	81–83	80–85, 93–94
Greece	82–83, 86–87, 90–94	82–83, 86–87, 90–94
Ireland	81–84, 86–89	82–84, 86–89, 91–94
Italy	76–77, 82–83, 90–93, 96–97	76–77, 82–83, 89–93, 95–97
Japan	–	79–87
Netherlands	81–83	81–83
New Zealand	–	89–92
Norway	–	93–95, 99–00
Portugal	81–84, 02–03	81–84, 02–03
Spain	85–86, 95–97	86–87, 94–97
Sweden	83–84, 86–87, 95–97	86–87, 94–98
United Kingdom	74–75, 79–81, 95–99	74–75, 79–82, 94–99
United States	–	72–73, 76–79, 87–89, 93–98

Appendix 2a. Data: sources and summary statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max	Source
Cabinet changes	680	0.44	0.58	0	3	2005 Cross National Data Archive
Debt	569	60.76	28.64	8.04	154.61	Sourceoecd.org
Economic freedom (first difference)	660	0.34	0.11	−0.49	0.40	Gwartney and Lawson (2005)
Effective # of parties in government	661	1.68	0.94	0	5.5	Update of Volkerink and De Haan (2001)
Elections	680	0.29	0.45	0	1	Brender and Drazen (2005), updates from Political Data Yearbook (2002, 2003)
Excess seats in parliament	661	0.04	0.10	−0.39	0.39	Update of Volkerink and De Haan (2001)
Fragmentation of government	661	0.47	0.88	0	7.13	Update of Volkerink and De Haan (2001)
Government crisis	680	0.28	0.67	0	5	2005 Cross National Data Archive
Government ideology	661	5.81	1.49	3.07	8.53	Update of Volkerink and De Haan (2001)
Ideological distance in government	661	1.04	1.30	0	5.25	Update of Volkerink and De Haan (2001)
Inflation	680	6.40	5.54	−0.92	28.78	World Development Indicators, 2005, World Bank
New government	680	0.4	0.49	0	1	Own calculations
Number of spending ministers	662	16.35	3.85	7	33	Update of Volkerink and De Haan (2001)
Real GDP growth	678	2.87	2.38	−6.44	11.28	World Development Indicators, 2005, World Bank
Cyclically adjusted deficit	582	0.08	2.98	−9.16	7.12	Sourceoecd.org
Unemployment	680	6.25	3.59	0.08	18.44	World Development Indicators, 2005, World Bank

Appendix 2b. Correlation matrix of explanatory variables

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI
I	Structural deficit	1.00															
II	Government debt	0.19	1.00														
III	Inflation	−0.41	−0.23	1.00													
IV	Real GDP growth	0.12	−0.09	−0.19	1.00												
V	Unemployment	0.15	0.42	−0.14	−0.04	1.00											
VI	Effective number of parties in government	0.21	0.33	−0.14	−0.11	0.10	1.00										
VII	Number of spending ministers	−0.22	0.06	0.24	−0.09	0.07	−0.07	1.00									
VIII	Surplus seats in parliament	0.10	0.04	−0.04	0.02	0.04	0.32	0.09	1.00								
IX	Political fragmentation	0.23	0.11	−0.11	0.02	0.10	0.68	−0.15	0.29	1.00							
X	Maximum political distance in government	0.24	0.14	−0.17	0.00	0.11	0.83	−0.11	0.35	0.82	1.00						
XI	Political ideology of government	−0.01	0.07	−0.04	0.01	0.04	0.01	0.04	0.01	−0.12	−0.08	1.00					
XII	Upcoming elections	0.02	0.02	−0.03	−0.04	−0.03	0.05	−0.02	0.02	0.08	0.03	−0.01	1.00				
XIII	Broad policy reform	0.07	0.11	−0.08	0.05	0.27	−0.03	0.01	−0.02	−0.01	−0.02	0.03	−0.04	1.00			
XIV	Government crises	−0.14	0.17	0.14	−0.08	0.02	0.17	0.20	0.07	0.03	0.09	0.05	−0.05	−0.02	1.00		
XV	New government	−0.08	0.01	0.09	−0.02	−0.07	0.08	0.10	0.07	0.01	0.06	0.02	−0.20	−0.01	0.25	1.00	
XVI	Cabinet changes	−0.17	0.04	0.19	−0.09	−0.05	0.00	0.23	0.06	−0.03	−0.04	0.11	−0.13	0.03	0.33	0.60	1.00

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