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RESEARCH WORK IN PROGRESS

N. 295, OCT. 2008

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THE POLITICAL ECONOMY OF PUBLIC SPENDING COMPOSITION: EVIDENCE FROM A PANEL OF OECD COUNTRIES *

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Abstract:

We evaluate the influence of political and institutional features in public spending and its functional composition, by focussing on political actors' preferences, both opportunistic and partisan, as well as on institutional arrangements as political fragmentation, the electoral system and the political regime. We use a dataset covering 23 OECD countries from 1970 to 2004. Empirical evidence supports the opportunistic approach in the sense that governments tend to engage in fiscal policy manipulation in order to win the next parliamentary election. This pre-electoral manipulation seems to be stronger in new democracies and under center and left-wing governments. There is, however, no evidence of pure partisan behavior. Furthermore, political fragmentation, with regard to both the government and the parliament, seems to favor fiscal indiscipline, particularly on social items.

JEL classification: D72, H5

Keywords: public spending; functional composition; political economy

* We acknowledge helpful comments from Linda G. Veiga.

1 INTRODUCTION

The main goal of this essay is to assess the influence of political and institutional factors on government spending composition, using a data sample drawn from OECD countries. The paper is organized as follows. Section 2 reviews the literature on the political and institutional determinants of public spending. We briefly review the studies which, based on the political economy approach, test the impact of political and institutional factors on the path of fiscal policy, in order to collect from the theory the political and institutional determinants of public expenditure composition.

We concentrate on the literature that views the government decision-making process as being determined not only by the relevant economic variables, but also by the political and institutional environment in which it takes place. Two types of political motivation have been typically considered by this literature: the incumbent politicians' desire to be reelected - opportunistic motivation -, and the desire, by the party in power, to procure the particular interests of its political constituency - ideological or partisan motivation. More recently, other factors have been taken into account by the economic literature, in particular, those we designate by institutional arrangements. We focus on the political fragmentation approach, the electoral system and the political regime.

Section 3 describes the empirical analysis. We examine public spending and its composition, which is a particularly interesting tool for opportunistic policy-makers, as voters do not easily observe its costs. Shifting spending to more visible items in pre-electoral years might increase the chances of reelection. Furthermore, we intend to evaluate whether left-wing parties are more favorable to certain spending, such as social protection or health spending, than right-wing parties. Finally, it will be tested whether the effects of institutional arrangements vary with the public expenditure function. Section 4 concludes the paper.

2 POLITICAL AND INSTITUTIONAL DETERMINANTS OF FISCAL POLICY

Opportunistic political cycle models assume that the goal of all policy-makers is to be reelected and so they use policy toward this end while the goal pursued by policy-makers in partisan political cycle models is to implement their constituency's ideology. The rational expectations critique has led to new developments in both opportunistic and partisan models with regard to future policy and voting behavior. Under this assumption, the scope for a pre-electoral stimulation of the economy is more limited and post-electoral effects are more short-lived. Although there is some empirical evidence of both opportunistic and partisan effects, there is still disagreement about the driving forces. Drazen (2000) argues that economic manipulation through monetary policy is both theoretically and empirically unsustainable and that research should concentrate on fiscal policy[1], especially considering the existence of central bank independence in several countries.

More recently, other effects, besides those of political actors' preferences, have been taken into account by the economic literature, in particular, those we designate as institutional arrangements. The models that focus on disagreement among agents (policy-makers or parties, both in government and in parliament, or voters) in the decision-making process have received considerable attention from the literature. The deeper the conflicts among such agents, the greater the difficulties encountered when reducing public spending and budget deficits. The political-economic literature has also emphasized the role of several other institutional arrangements in the management of public finance. We focus on the electoral system and the political regime.

2.1 The opportunistic approach

The seminal contributions concerning political-economic interaction models belong to Kalecki (1943) and Akerman (1947). However, this analysis experienced its greatest boost in the mid 1970s. In particular, the influence of political variables on short-run economic outcomes became known as the political business cycle after Nordhaus (1975) and Lindbeck's (1976) seminal works. Overall, their results, based on the assumption of myopic and uninformed voters, suggest that all governments, independently of their ideological orientation, act in the same way: as the end of term comes closer, policy-makers stimulate the economy in order to improve electoral results. Therefore, immediately before each election, unemployment decreases but prices and public deficit tend to increase, leading to the adoption of restrictive policies in the post-electoral period so as to reverse the pre-electoral stimulus.

These early studies were criticized in the context of the rational expectations revolution leading to new contributions, with voters forming their expectations in light of all available information and maximizing their expected utility. The opportunistic models were rationalized assuming temporary imperfect information about the government's competence,

[1] Drazen (2000) claims to be the first author to incorporate both fiscal and monetary policy in a rational opportunistic framework with separate monetary and fiscal authorities.

where policy-makers are more informed than the citizens about their own competence and expansionary policy before an election is taken as an sign of high competence, leading to explanations for electorally-timed distortions of fiscal policy (Rogoff and Sibert, 1988; Cukierman and Meltzer, 1989; Rogoff, 1990). The generalized adoption of rational expectations models in the 1990s, by predicting a much less pronounced political business cycle, also caused a shift towards the analysis of political cycles in macroeconomic policy instruments, rather than of its targets.

Rogoff's (1990) work is particularly relevant for our investigation. He develops a dynamic signaling model in which a political budget cycle arises due to temporary information asymmetries about the incumbent's competence in the provision of public goods. In pre-electoral years, the incumbent biases pre-election fiscal policy towards easily observed consumption expenditures and away from government investment, From that observation, voters extract a signal of the degree of government competence, which is the only endogenous variable capable of influencing electoral results. However, voters only observe the policy outcomes with a lag, while the government is able to predict the state of the economy contemporaneously. The temporary information asymmetry in favor of the government implies an observational lag for voters, generating political business cycles similar to Nordhaus' (1975). The main empirical result concerning the adoption of rational expectations, as compared to Nordhaus' model, is the lower amplitude and duration of the political business cycle, which is due to the fact that demand policies loose effectiveness under rational expectations.

Recent contributions have argued that pre-electoral manipulation of fiscal policy is driven by the experience of new democracies (Akhmedov and Zhuravskaya, 2004; Brender and Drazen, 2005; Drazen and Eslava, 2005). Shi and Svensson (2006) show that, although electoral budget cycles appear to be a common phenomenon across countries, there are large systematic differences between developed and developing countries in the size and composition of those cycles. Alt and Lassen (2006) only observe electoral cycles in lower transparent countries. These findings are consistent with the assumption that rational and well informed voters would punish fiscal expansions (Alesina *et al.*, 1998).

Moreover, even with perfectly informed and experienced voters in established, transparent and developed democracies, pre-electoral manipulation may occur at the spending composition level by targeting particular groups of voters, either leaving the aggregate spending and deficit unchanged (Drazen and Eslava, 2005) or increasing total spending as well (Akmhmedov and Zhuravskaya, 2004; Shi and Svensson, 2006; Veiga and Veiga, 2007).

More specifically, there is both evidence consistent with the Rogoff's (1990) work in the sense that there are biases in pre-election fiscal policy towards consumption expenditures (Block, 2002; Akmhmedov and Zhuravskaya, 2004 and Shi and Svensson, 2006) and also evidence of biases towards investment expenditure (Drazen and Eslava, 2005; Veiga and Veiga, 2007).

Drazen and Eslava (2005) stress the role of swing voters. The larger the share of swing voters, the more visible spending (mainly investment expenditures in power, water, communications, roads, benefiting large groups of voters) tends to increase before elections. A political business cycle emerges even if voters dislike high government spending and are perfectly informed, because opportunistic manipulation may also reflect sincere preference of the incumbent for types of spending voters favor. The authors find evidence supporting their arguments in Colombian municipalities. Veiga and Pinho (2007) find evidence that, in the early years of the Portuguese democracy, municipalities with more swing voters were favored in the distribution process of grants from central government.

Block (2002), Akmhmedov and Zhuravskaya (2004) and Shi and Svensson (2006) stress the importance of institutional features on the magnitude of political-fiscal cycles. Shi and Svensson (2006), in a panel data set covering 123 developed and developing countries, find clear evidence of spending increases before elections and revenue decreases. They show that there are systematic differences between developed and developing countries in the size and composition of the electoral policy cycles. The cycle's magnitude tends to be higher in developing countries and government expenditure shifts towards easily observed consumption spending. The differences are shown as dependent on institutional features: the higher the private benefits of remaining in power and the lower the share of informed voters, the stronger the incentives to manipulate fiscal policy prior to elections. In particular, they show there is only weak evidence of election-induced expenditure cycles in developed countries.

According to Block (2002), political budget cycles can only be observed in countries with competitive elections, which is not the case in many developing countries. Controlling for this institutional feature and using a panel of developing countries, the author finds that budget composition shifts away from investment towards more visible items in face of the elections.

Akmhmedov and Zhuravskaya (2004), using regional monthly panel data for Russia, a decade-old democracy, find significant and short-lived political cycles in public spending and its composition. Consistent with Rogoff (1990), the authors observe a pre-electoral shift of public spending towards direct monetary payments to voters, through the repayment of wage arrears to public workers and spending in welfare and other public assistance programs. But the instruments of pre-electoral manipulation of the overall spending are also almost immediately observed by voters – healthcare, education and culture. These effects are captured because of the use of low frequency data.

Summing up, according to the opportunistic approach, we can formulate the hypothesis that, in pre-electoral moments, governments tend to engage in expansionary fiscal policy, in particular, when it comes to public spending on visible items, although there is no consensus whether these are consumption or investment goods. Recent literature emphasizes that the importance of electoral fiscal cycles is stronger in less developed countries and in new democracies. We extend the existent empirical contributions by investigating electoral-induced distortions in the functional composition of public spending. So far, the analysis has just relied on the distinction between investment and consumption expenditures.

2.2 The partisan approach

Partisan models emerged based on the assumption that different political parties maximize different objective functions: left-wing parties favor social aspects, in particular policies fighting unemployment, whereas right-wing parties tend to focus their attention on the fight against inflation. While opportunistic policy-makers choose policies just to win the next election, partisan policy-makers pursue ideological goals and want to win elections in order to implement policies favoring their constituencies.

Hibbs (1977 and 1986) formulates the partisan approach, using an expectations and economic structure similar to Nordhaus' (1975). Due to different objective functions - reflecting the ideological standings of heterogeneous groups of voters -, left-wing political parties would favor reducing unemployment (even if with higher inflation), while anti-inflationary objectives would be pursued (at the expense of higher unemployment) by right-wing parties. This is because left-wing constituencies tend to belong to average and low income groups suffering more the costs of unemployment while right-wing constituencies are usually the owners of capital, who are particularly averse to inflation. Therefore, macroeconomic policy tends to reflect the interests of the constituency of the party in office and voters are assumed to be perfectly aware of these differences. According to the author, in the first half of the term, left-wing governments focus on fighting unemployment while right-wing parties pursue restrictive policies so as to fight inflation but leading to unemployment. In the second half of the term, the former tend to conduct restrictive policies to offset the effects of inflation while the latter, once price control is achieved, develops policies aiming at economic growth.

As in the opportunistic approach, these early studies were criticized in the context of the rational expectations revolution (Alesina, 1987; Swank, 1993). The contrast between the predictions of Hibbs' (1986) adaptive expectations model and the rational partisan model is somewhat sharper. The latter predicts only a temporary (immediately after election) difference in unemployment (higher after a right-wing electoral result) and output growth, tending afterwards to return to similar permanent levels; inflation, however, would be permanently higher under a left-wing government. In general, the rational partisan theory predicts that peaks marking the beginning of a contraction occur much sooner after the election of a right-wing party than after the election of a left-wing party. Conversely, the beginning of an expansion phase is more likely if the electoral victory goes to a left-wing party. Therefore, partisan effects on growth and unemployment are more short-lived.

More recently, another kind of partisan approach has received considerable attention. The strategic debt behavior models argue that the current policy-makers can affect the economic conditions inherited by their successors through their choice of fiscal policy. If the government anticipates the possibility of defeat in the next election and if current and future governments have different preferences on fiscal policy, the incumbent government can use the debt strategically in order to influence the policy of its successor. Different governments in office at different times can take advantage of this strategic possibility and this political game may lead to an accumulation of the debt level above the optimal level prescribed by the tax-smoothing theory.

There are two main seminal contributions emphasizing strategic considerations in debt policy: the approaches of Alesina and Tabellini (1990) and Persson and Svensson (1989). Both models predict that the strategic use of deficits or surpluses will be larger, when the preference differences between policy-makers are greater and the likelihood that the current government will be replaced is higher. The more priority the current government gives to current spending, that is, the less it internalizes the costs of current spending, the larger this conflict will be. The two approaches have different empirical implications with regard to debt.

Alesina and Tabellini (1990) predict that there is a deficit bias regardless of the incumbent's political ideology, while Persson and Svensson (1989) predict that only the right-wing government should issue debt whereas the left-wing government should leave a surplus.

Alesina and Tabellini's (1990) work is particularly relevant for our research as it assumes a two-party system in which the two parties differ with respect to their preferences about the composition of government spending. If the current government knows that it is going to be replaced by another government which has the opposite preference, it realizes that its preferred type of spending will be cut in the future anyway so it borrows a great amount now because the debt costs will fall on other types of spending which it cares little about. So, today's government can reduce the spending of future governments, by committing future tax revenues to debt service. This strategic interaction will lead to public deficits.

Empirical studies either have rejected or found little evidence of the strategic explanation of debt (Franzese, 2001; Lambertini, 2003) or have not been able to isolate this effect (Grilli *et al.*, 1991; Crain and Tollison, 1993). However, Pettersson's (2001) results strongly support the explanation suggested by Persson and Svensson (1989). To our knowledge, an empirical analysis has yet to be made of Alesina and Tabellini's (1990) approach with regard to the composition of government spending. We intend to shed some light on this through the empirical investigation to be conducted, knowing that the role of partisanship is clearer in Persson and Svensson's approach.

Summing up, under both the traditional and the rational partisan models it is expected that left-wing governments pursue a more expansionary fiscal policy and run higher fiscal deficits than right-wing governments (although Persson and Svensson (1989) predict the opposite) through the increase of spending on social items.

2.3 The institutional arrangements approach

The economic literature on institutional arrangements affecting fiscal policy has paid particular attention to the so-called political fragmentation approach, but it has also emphasized the role of several other institutions in the management of public finance. We focus on the electoral system and the political regime.

The models that focus on disagreement among agents in the fiscal policy decision-making process have received reasonable attention from the literature, in particular in the 1990s.

Studies have investigated the importance of government, parliament and voters fragmentation on fiscal performance.

With regard to government fragmentation, the analysis has focused on both parties and ministers. The deeper the conflicts among such agents and the larger the number of agents, the greater the difficulties encountered when engaging in fiscal retrenchment. In this view, coalition governments are more prone to fiscal indiscipline, particularly because parties in the coalition will veto spending cuts or tax increases that go against the interests of their respective constituencies (Roubini and Sachs, 1989; Alesina and Drazen; 1991). Moreover, coalitions tend to be more associated to unstable governments (De Haan and Sturm, 1994). However, subsequent research found less support for this so-called weak government hypothesis (Ohlsson and Edin, 1991; De Haan and Sturm, 1997; De Haan *et al.*, 1999). Another line of investigation emphasized size fragmentation: the larger the number of decision-makers, the less each will internalize the costs that a certain policy will impose on others (Alesina and Perotti, 1995; Alesina *et al.*, 1998; Kontopoulos and Perotti, 1999; Perotti and Kontopoulos, 2002; Spolaore, 2004).

Volkerink and De Haan (2001) extend the literature in a number of ways. First, they note that one serious shortcoming of most previous empirical work in this line of reasoning is that the data used refers to general government, whereas the theoretical notions that underlie the estimates usually refer to central government. Second, other theoretical hypotheses, besides size fragmentation, are analyzed, in particular, parliament fragmentation: the more fragmented the parliament, that is the higher the number of parties in the parliament, the higher the central government's budget deficit; moreover, the more politically divided the parliament, the less government may have to fear from the opposition.

Persson and Tabellini (2002) present another model of conflicts among political parties based on the importance of "swing-voters" in the choice of the electoral platforms by two different parties which maximize the probability of winning the election. To win the election, both parties tend to direct economic benefits towards these voters inducing less fiscal discipline.

Overall, the empirical literature suggests that government fragmentation (both in number of parties and ministers, specially spending ministers[2]), as well as parliamentary and voters fragmentation, lead to higher public deficits. Moreover, shorter-lived governments are

[2] In the literature on budgetary procedures, the prime-minister and finance minister are usually not considered spending ministers but instead ministers that take into account the general public interest.

associated with higher deficits. We are particularly interested though in discovering whether this means higher public spending and/or a change in its composition.

As for the electoral system, legislative elections differ mainly in district size and electoral formula[3]. With proportional elections, the districts tend to be larger, favoring broad, non-targeted programs while majority elections are conducted in smaller districts favoring spending targeting smaller yet pivotal constituencies. A proportional rule, by requiring half of the national vote in order to guarantee half of the seat shares in the national legislature, induces politicians to emphasize large welfare programs while plurality or majority representation tends to favor smaller programs specially aimed at pivotal, even if smaller, jurisdictions. As a consequence, proportional systems tend to produced fractionalized governments, in particular short-lived multiparty coalition governments and therefore fiscal deadlocks whereas under majority systems, power tends to be concentrated in a single party, which may create excessive variability in fiscal policy (Roubini and Sachs, 1989; Grilli *et al.*, 1991; Persson and Tabellini, 2002; Persson and Tabellini, 2004; Persson *et al.*, 2005). As Alesina and Perotti (1995) argue, there is a trade-off underlying the choice of the electoral system. As the electoral system cannot change frequently there has to be a permanent choice relative to this trade-off. For instance, as the authors point out, a country with a highly polarized distribution of preferences should opt for a proportional system so as to avoid excessive policy variability due to changes of governments with extreme positions.

Persson *et al.* (2005) argue that the effect of electoral rules on government spending is indirect: proportional systems induce a more fragmented party system[4] and, therefore, favor coalition governments. On the other hand, majority elections favor single-party governments. According to this view, the electoral system shapes the party system and so the type of government, which directly affects fiscal policy.

However, Milesi-Ferretti *et al.* (2002) show that the effect of the electoral system on fiscal outcomes is independent of its impact on party fractionalization. They argue that the effect of the electoral system on public spending is ambiguous depending on its composition. Total primary spending tends to be higher, in a proportional system, if the share of transfer spending is high and in a majority system, if the share of transfer spending is low. The

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[3] District size determines how many legislators acquire a seat in a voting district whereas the electoral formula determines how votes are translated into seats in national legislature. Under the plurality rule, only the winners of the highest vote shares get seats in a given district while, under proportional representation, seats are awarded in proportion to vote share (Persson, 2002).

rationale for this is that proportional systems are more prone to transfer spending because they permit a greater variety of interests (are easier to target across social groups). On the contrary, majority systems are more prone to public goods spending because they allow for a greater relevance of local interests (are easier to target geographically).

Regarding the political regime, in a democratic presidential system, the president is voted directly into office and has significant independent authority while, in parliamentary systems, the prime-minister is accountable to the legislature. Grilli *et al.* (1991), Persson (2002) and Persson and Tabellini (2002) argue that debt and deficits are smaller under presidential regimes, because the main target of spending are minorities and, under parliamentary systems, bargaining power is more equally shared among government members leading to an increased provision of public goods through large social security and welfare programs[5]. However, Hahm (1996) presents arguments in favor of the hypothesis that, in presidential regimes, the president tends to pursue ambitious initiatives, fostering public spending, especially when his/her popularity is high.

Overall, there is more evidence favoring the argument that public debts and deficits tend to be larger in proportional electoral systems than in majority ones (in a single-party government, the power of the finance minister tends to be stronger) and that the fractionalization of government tends to be positively correlated with the degree of proportionality of the electoral system.

3 EMPIRICAL ANALYSIS

It is our hope that this section comprises an empirical contribution to the political-economic analysis of public spending composition. Previous sections made it clear that there is already a large set of theoretical models developed on this subject. However, research has mainly analyzed aggregate fiscal variables like public deficit and debt or, at most, current and capital public spending. To our knowledge, there are not many empirical studies focusing specifically on public spending functional composition, which is the intention of our study. Moreover, the review made highlighted the need for empirical refinements, namely in what concerns the sample size, the quality of the data and the specifications to be tested. Besides, although there

[4] See Colomer (2005) for a different approach, suggesting that it is the number of parties that explains the choice of the electoral system and not the other way round.

[5] Persson and Tabellini (2004) find that parliamentary democracies are associated with larger governments but do not find support that they foster larger broad welfare programs.

is extensive literature on the three theoretical approaches, as far as we know, no comprehensive empirical investigation of their relative importance in public spending functional composition in a panel of countries has as yet been accomplished.

We, therefore, intend to test some of the hypotheses formulated in the previous sections with regard to public spending functional composition. The political-economic approaches at stake are the opportunistic and partisan motivations and the political fragmentation approach. Moreover, we test the effect of the electoral system and the political regime in fiscal performance.

3.1 Specification

In order to ensure a broader validity of the results, the model will be applied to a set of 23 OECD[6] countries, covering the period between 1970 and 2004 (35 years of observations). A compromise had to be made in order to guarantee a sufficiently long period and the availability of data. Moreover, due to some missing values, it is clearly an unbalanced panel[7]. A description of both the dependent and the explanatory variables follows below. A description of the data sources and the descriptive statistics is presented in the Appendix.

We model the annual change in central government expenditure as a percentage of the GDP as a function of a vector of political and institutional variables ($POLINST_{it}$) and a vector of control variables ($CONTROL_{it}$). The baseline empirical model is described in equation (1), where t represents the year and i the country, β and γ are vectors of the parameters to be estimated and ε_{it} the error term:

$$C\_EXPEND_{it} = POLINST'_{it}\,\beta + CONTROL'_{it}\,\gamma + \varepsilon_{it}$$

$$i = 1, \ldots, N\ ;\ t = 1, \ldots, T \qquad (1)$$

The dependent variable to be regressed concerns central government accounts: the annual change in public spending as a percentage of the GDP. We use data on expenditure by function, according to the classification of the functions of government (COFOG) and the following rearrangement: *Defense*; *Education*; *Health*; *Social Security and Welfare*; *Housing*

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6 Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom and the United States of America. In order to guarantee the quality of the database, data on Germany until 1990 were left out of the analysis.

7 Although some of the missing values could be eliminated by crossing sources, the choice was not to do so, so as to guarantee that the criteria would not vary and thus assure the quality of the data.

and Community Amenities; *Recreational, Cultural and Religious Affairs* and *Economic Affairs and Services*.

The first control variable considered is the real output gap as a percentage of potential GDP[8] (OUTPUT_GAP). The hypothesis underlying this variable consists in the fact that fiscal performance depends heavily on the economic situation. The general gross government debt as a percentage of the GDP (DEBT) and the lagged public spending as a percentage of the GDP are also taken into account as additional restrictions on public spending growth. Moreover, higher public spending is expected in countries with a higher share of young and older population due to the particular needs of these groups of the population, which demand specific services typically provided by public authorities, such as elementary education, facilities for the elderly and social security. In order to capture this effect, we consider the annual change in the population dependency ratio (C_DEP).

The main source of political and institutional data is Armingeon *et al.* (2005)[9], which is a collection of political and institutional data. In order to capture potential opportunistic behavior and therefore test electoral political business cycles, the dates of the elections for the national parliament are taken into account in the construction of two variables: ELECT1: (1) election year; (0) no election year and ELECT2: (1) if a ballot took place in the second half of the year or in the first half of the following year; (0) otherwise[10].

In order to quantify the ideology of governments and test partisan political business cycles, we adopt the GOVPARTY index constructed in the following way[11]: (0) hegemony of right-wing parties, that is, the percentage of social-democratic and other left-wing parties in total cabinet posts, weighted by days, is 0; (1) dominance of right-wing (and center) parties, that is, the percentage of social-democratic and other left-wing parties in total cabinet posts, weighted by days, is less than 33,3; (2) patt between left and right, that is, the percentage of social-democratic and other left-wing parties in total cabinet posts, weighted by days, is between 33,3 and 66,6; (3) dominance of social democratic and other left-wing parties, that is, the percentage of social-democratic and other left-wing parties in total cabinet posts, weighted by

[8] It was computed using the Hodrick-Prescott filter for the 1970-2005 time span.

[9] We use the version updated on 2007-08-17.

[10] Additional data for 2004 necessary to construct ELECT2 were obtained from http://www.electionworld.org/calendar.htm: in the first half of 2005, parliamentary elections were held in Denmark (February 8), Portugal (February 20) and the United Kingdom (May 5).

[11] *Left*: denotes social democratic parties and political parties to the left of social democracy; *right*: denotes liberal and conservative parties; *center*: denotes center parties, in particular Christian Democratic or Catholic parties. Caretaker governments were not taken into account.

days, is greater than 66,6; (4) hegemony of social democratic and other left-wing parties, that is, the percentage of social-democratic and other left-wing parties in total cabinet posts, weighted by days, is 100. Moreover, we consider the variables GOVLEFT (cabinet composition: social-democratic and other left-wing parties in percentage of total cabinet posts, weighted by days) and GOVRIGHT (cabinet composition: right-wing parties in percentage of total cabinet posts, weighted by days).

As indicators of political fragmentation we use the variables PARTIES, which refers to the number of parties in government, and MINISTERS, which is the number of ministers in government[12].

Two indexes are used to measure parliamentary fragmentation. EFFPAR is the effective number of parties in the parliament. RAE is an index of fractionalization of the party-system according to Rae[13]. It is calculated as $1-\sum_{i=1}^{m} t_i^2$, where t_i is the share of votes for party *i* and *m* the number of parties.

As features of the political system, it will be tested whether the electoral system and the political regime (presidential or parliamentary) are influential. The variables are: ELECSYST, coded (0) proportional representation; (1) modified proportional representation; (2) simple plurality systems and PRES, coded (0) parliamentary, (1) presidential or collegial executive.

3.2 Estimation results

We start by investigating the determinants of the overall central government spending and then proceed to study its composition. The econometric software used is *TSP 5.0*. The choice on fixed *versus* random effects is based on the Hausman statistic test. The results reported are robust to alternative specifications.

Central government total public spending

The estimation results on the overall spending are presented in Table 1. The baseline specification accounts for the opportunistic, the partisan and the political fragmentation

[12] In the cases there was a change in the number of parties or ministers in government in a given year, the largest number was adopted.

[13] Rae, Douglas W. (1968), "A note on the fractionalization of Some European Party Systems", *Comparative Political Studies*, 1: pp.413-418.

approaches.

The coefficient of real output gap is quite stable across the various specifications and is always significant at the 5% significance level and negative as expected, which suggests that economic expansion leads to a reduction in public spending, on account of both reduced social needs and increased revenues and also due to countercyclical discretionary policy. Both the lagged gross government debt and the lagged public spending seem to capture the restriction imposed by the fiscal situation; we report the results using the latter as it provides more degrees of freedom. The higher the percentage of public expenditure on GDP, the more need there is to cut back its growth. There is no evidence that, the higher the change in the dependent population share, the more public spending tends to growth, but as this variable intends to capture the particular needs of some groups of the population, it will be tested later if this is an explanatory variable of specific spending categories.

We proceed by analyzing the results on the three political-institutional theories at stake. First, theories regarding political business cycle models imply that fiscal deficits before elections should be observed, but does this effect occur through the reduction of taxes, the increase of expenses or both? ELECT2, although with the correct sign, is not significant at a 10% level, thus not supporting the evidence of opportunistic behavior relative to public expenditure in pre-electoral periods but ELECT1 is significant and has the expected sign. It remains to be checked whether expenditure-induced political-economic cycles are underestimated because of their short length, which would imply the use of low frequency data (Akhmedov and Zhuravskaya, 2004). In specifications 3 and 4, we investigate whether the evidence of political-expenditure cycles is stronger in new democracies. We follow Brender and Drazen (2005), by considering as new democracies Greece, Spain and Portugal. In these three countries, the democratic regime was established in the 1970s. The rationale for this hypothesis is that the rewards of pre-electoral fiscal manipulation are stronger in the presence of less informed and less experienced voters. We interact both electoral variables with NDEM (coded 1 if the country is a new democracy; 0 otherwise) and with 1-NDEM. Although regarding ELECT1 a Wald does not allow the rejection of the hypothesis of equal coefficients, the results suggest that political-expenditure cycles are stronger in new democracies.

Table 1 Estimation results, total central government spending, 1970-2004, OECD(23)

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)
OUTPUT_GAP	-0.213	-0.211	-0.210	-0.208	-0.212	-0.221
	(-2.25)**	(-2.21)**	(-2.21)**	(-2.16)**	(-2.24)**	(-2.28)**
EXPEND(-1)	-0.355	-0.354	-0.353	-0.350	-0.354	-0.357
	(-3.63)***	(-3.60)***	(-3.60)***	(-3.52)***	(-3.62)***	(-3.53)***
C_DEP	0.348	0.347	0.344	0.340	0.348	0.308
	(1.02)	(1.02)	(1.00)	(0.99)	(1.02)	(0.95)
ELECT1	0.402					0.406
	(2.44)**					(2.32)**
ELECT2		0.311				
		(1.33)				
ELECT1*NDEM			1.256			
			(2.05)**			
ELECT1* *(1-NDEM)			0.291			
			(1.96)*			
ELECT2*NDEM				1.561		
				(1.71)*		
ELECT2* *(1-NDEM)				0.163		
				(0.93)		
GOVPARTY	0.112	0.110	0.118	0.110	0.083	0.071
	(1.02)	(1.03)	(1.05)	(1.03)	(0.70)	(0.70)
RIGHT_ELECT1					0.031	
					(0.10)	
OTHER_ELECT1					0.565	
					(2.66)***	
MINISTERS	0.107	0.112	0.106	0.114	0.105	0.101
	(1.90)*	(1.96)*	(1.90)*	(1.97)*	(1.87)*	(1.85)*
EFFPAR	-0.036	-0.028	-0.035	-0.028	-0.037	-0.061
	(-0.16)	(-0.13)	(-0.15)	(-0.13)	(-0.17)	(-0.27)
ELECSYST						0.857
						(1.25)
Estimation	FE	FE	FE	FE	FE	FE
Obs	592	592	592	592	592	584
N	23	23	23	23	23	23
DW	2.09	2.08	2.09	2.09	2.10	2.14
F test	0.000	0.000	0.000	0.000	0.000	0.000
H test (p-value)	0.000	0.000	0.000	0.000	0.038	0.006

Notes: T-statistics in parenthesis. ***, **, * denote significant at 1%, 5%, 10% level, respectively. DW - Durbin Watson's statistic. FE - Fixed effects. F test - F test of (A,B=Ai,B). H test - Hausman test. The econometric software used is TSP 5.0. Standard errors are heteroskedastic-consistent.

As for partisan variables, GOVPARTY is not statistically significant and the joint use of GOVLEFT and GOVRIGHT produces similar results. Overall, there is no evidence of partisan effects. This result is consistent in all the specifications tested. To check the robustness of this result, we construct two additional dummy variables: RIGHT (equal to 1 when GOVPARTY is equal to 0 or 1; 0 otherwise) and OTHER (equal to 1 when

GOVPARTY is equal to 2, 3 or 4; 0 otherwise) and interact these two new variables with ELECT1. The results of specification 5 suggest some evidence of fiscal pre-electoral manipulation through public spending under center and left-wing governments. It remains to be tested whether there is evidence of pure partisan effects on specific types of expenditure.

We now focus the analysis on institutional elements. We first test alternative measures of government fragmentation as the number of parties and ministers in the government. The results suggest that the larger the number of ministers in the government, the higher the annual growth of the public expenditure as a percentage of GDP. As for PARTIES, there is no evidence of any influence (results not shown).

The variable EFFPAR, as a measure of parliamentary fragmentation, turned out statistically non significant indicating that the degree of parliamentary fragmentation does not affect the ratio of public expenditure to GDP[14].

We further test the importance of the electoral system and the political regime. Specification 6 suggests that the electoral system is not influential to this kind of fiscal activity. Although the variable PRES is almost time-invariant, it could help explain cross-country variation, but it turns out inadequate to estimate a fixed effects specification. However, the associated coefficient turned out statistically non significant in all the specifications tested.

Summing up, there is some evidence of pre-electoral fiscal manipulation, particularly in new democracies and under center and left-wing governments and evidence that the larger the number of ministers in government, the more fiscal indiscipline tends to prevail.

Central government public spending functional composition

We now test the influence of political and institutional factors on central government public spending composition. We focus on the following government functions: *Defense*; *Education*; *Health*; *Social Security and Welfare*; *Housing and Community Amenities*; *Recreational, Cultural and Religious Affairs* and *Economic Affairs and Services*. The estimation results relative to the annual change in each spending component ratio to GDP are reported in Table 2. For easy exposition of the results, we chose specification 1 in Table 1, which allows us to test the three approaches at hand: opportunistic, partisan and institutional.

[14] The variable PARTIES is highly correlated with EFFPAR (0,76) suggesting that fragmentized governments are a reflection of fragmented parliaments. As RAE and EFFPAR are highly correlated (0,91), we only report the results on EFFPAR.

Table 2 Estimation results, central government spending composition, 1970-2004, OECD(23), baseline specification

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Annual change in public spending (as a percentage of GDP), on:							
	Total	Defense	Education	Health	Social Security and Welfare	Housing and Community Amenities	Recreational, Cultural and Religious Affairs	Economic Affairs and Services
OUTPUT_GAP	-0.213	-0.013	-0.002	-0.008	-0.049	-0.001	0.003	-0.020
	(-2.25)**	(-2.63)***	(-0.37)	(-0.71)	(-1.83)*	(-0.25)	(2.18)**	(-1.84)*
EXPEND(-1)	-0.355	-0.104	-0.244	-0.077	-0.178	-0.105	-0.039	-0.265
(a)	(-3.63)***	(-2.61)***	(-3.70)***	(-4.11)***	(-8.05)***	(-4.91)***	(-2.28)**	(-8.30)***
C_DEP	0.348	-0.020	-0.002	-0.012	0.290	-0.0004	-0.004	-0.251
	(1.02)	(-0.78)	(-0.05)	(-0.21)	(2.19)**	(-0.02)	(-0.73)	(-3.32)***
ELECT1	0.402	0.033	0.054	0.002	0.033	0.007	-0.002	0.095
	(2.44)**	(2.88)***	(1.98)**	(0.06)	(0.24)	(0.32)	(-0.37)	(1.66)*
GOVPARTY	0.112	-0.004	-0.004	0.012	-0.043	-0.004	-0.001	-0.022
	(1.02)	(-0.54)	(-0.45)	(0.61)	(-0.91)	(-0.52)	(-0.70)	(-0.78)
MINISTERS	0.107	-0.0001	0.010	0.002	0.043	0.0003	0.001	0.012
	(1.90)*	(0.03)	(1.00)	(0.20)	(2.16)**	(0.14)	(0.81)	(0.69)
EFFPAR	-0.036	-0.041	-0.024	0.005	0.186	0.002	0.005	-0.060
	(-0.16)	(-2.76)***	(-0.41)	(0.16)	(2.24)**	(0.19)	(1.78)*	(-0.84)
Estimation	FE	FE	FE	RE	RE	RE	RE	FE
Obs	592	502	502	502	502	502	500	494
N	23	23	23	23	23	23	23	22
DW	2.09	1.91	2.13	2.15	1.54	1.90	2.08	1.81
F test	0.000	0.180	0.000	-	-	-	-	0.000
H test (p-value)	0.000	0.000	0.005	0.366	0.156	0.567	0.447	0.000

Notes: T-statistics in parenthesis. ***, **, * denote significant at 1%, 5%, 10% level, respectively. DW - Durbin Watson's statistic. FE - Fixed effects. RE - Random effects. F test - F test of (A,B=Ai,B). H test - Hausman test. (a) EXPEND(-1) refers to the lagged specific spending function as a percentage of GDP. The econometric software used is TSP 5.0. Standard errors are heteroskedastic-consistent.

We begin by discussing the results on the control variables. A positive output gap seems to have no effect only on the growth of social items spending: *Education*, *Health* and *Housing and Community Amenities*. For all spending items at stake, the lagged share of each item in the GDP restrains its annual growth. As for the population dependency ratio, as expected, we find a positive relationship with public spending on *Social Security and Welfare*. The increase of spending in this item is made at the expense of spending in *Economic Affairs and Services*, leaving total spending unaffected by the population dependency ratio change.

Focusing on political factors, the main findings are the following. The evidence of opportunistic purposes in the management of total spending was already reported in Table 1. Table 2 shows that this is behavior affects total spending through *Defense*, *Education* and

Economic Affairs and Services items. The evidence that opportunistic behavior is particularly strong in new democracies is clear in *Economic Affairs and Services* spending (in Table 3, we report some results on alternative specifications).

Table 3 Estimation results, central government spending composition, 1970-2004, OECD(23), additional specifications

	(1)	(2)	(3)	(4)	(5)
Dependent variable	Annual change in public spending (as a percentage of GDP), on:				
	Economic Affairs and Services	Defense	Education	Economic Affairs and Services	Economic Affairs and Services
OUTPUT GAP	-0.020	-0.013	-0.002	-0.020	-0.024
	(-1.78)*	(-2.59)***	(-0.36)	(-1.88)*	(-2.15)**
EXPEND(-1)	-0.265	-0.104	-0.245	-0.266	-0.265
(a)	(-8.33)***	(-2.60)***	(-3.73)***	(-8.26)***	(-8.48)***
C_DEP	-0.252	-0.020	-0.002	-0.251	-0.257
	(-3.33)***	(-0.77)	(-0.05)	(-3.38)***	(-3.58)***
ELECT1					0.067
					(1.11)*
ELECT1*NDEM	0.266				
	(7.12)***				
ELECT1*	0.081				
*(1-NDEM)	(1.34)				
GOVPARTY	-0.021	-0.005	-0.007	-0.035	-0.027
	(-0.74)	(-0.92)	(-0.76)	(-1.22)	(-0.96)
RIGHT_ELECT1		0.015	0.022	0.057	
		(0.49)	(1.09)	(-0.55)	
OTHER_ELECT1		0.041	0.070	0.169	
		(2.74)***	(1.79)*	(2.32)**	
MINISTERS	0.012	0.0001	0.010	0.011	0.011
	(0.69)	(0.01)	(0.99)	(0.51)	(0.67)
EFFPAR	-0.060	-0.041	-0.023	-0.058	-0.051
	(-0.83)	(-2.75)***	(-0.40)	(-0.81)	(-0.69)
ELECSYST					0.246
					(4.83)***
Estimation	FE	FE	FE	FE	FE
Obs	494	502	502	494	486
N	22	23	23	22	22
DW	1.80	1.91	2.13	1.82	1.86
F test	0.000	0.179	0.000	0.000	0.000
H test (p-value)	0.000	0.000	0.006	0.000	0.000

Notes: T-statistics in parenthesis. ***, **, * denote significant at 1%, 5%, 10% level, respectively. DW - Durbin Watson's statistic. FE - Fixed effects. F test - F test of (A,B=Ai,B). H test - Hausman test. (a) EXPEND(-1) refers to the lagged specific spending function as a percentage of GDP. The econometric software used is TSP 5.0. Standard errors are heteroskedastic-consistent.

As for partisan motives, there is no evidence of any effect on public spending items. To check the robustness of this result, we include the RIGHT*ELECT1 and OTHER*ELECT1 interactions. The results suggest there is evidence of fiscal pre-electoral manipulation under center and left-wing governments on the items for which we already reported evidence of pre-electoral manipulation: *Defense*, *Education* and *Economic Affairs and Services* (Table 3).

Regarding political fragmentation, the number of ministers tends to be positively associated with public spending in *Social Security and Welfare*. As for the parliament fragmentation, the larger the number of parties, the more spending in *Social Security and Welfare* and in *Recreational, Cultural and Religious Affairs* tends to increase; this seems to happen by imposing more control on spending in *Defense*, leaving total spending unaffected. The results suggest that more fragmented governments and parliaments are associated with less fiscal discipline regarding public spending on social items.

As found for the annual change in the central government public spending, there is no evidence that the electoral system influences public spending growth, except for *Economic Affairs and Services* and so not supporting the argument that fiscal indiscipline tends to be larger in proportional electoral systems than in majority ones because in a single-party government, the power of the finance minister tends to be stronger (Table 3).

4 CONCLUSIONS

In this essay we review the literature on the political and institutional determinants of fiscal activity and focus on public spending. We then test the most relevant theories, including those relying on political actors' preferences (opportunistic and partisan) and those accounting for institutional arrangements, in a sample of 23 OECD countries for the 1970-2004 period. With regard to central government total spending, we find some evidence of pre-electoral fiscal manipulation, particularly in new democracies and under center and left-wing governments and evidence that the larger the number of ministers in government, the more fiscal indiscipline tends to prevail.

In terms of central government public spending composition, the results suggest there is evidence of fiscal pre-electoral manipulation in *Defense*, *Education* and *Economic Affairs and Services* items. Moreover, this opportunistic behavior is stronger under center and left-wing governments. The evidence that opportunistic behavior is particularly strong in new democracies is clear in *Economic Affairs and Services* spending. We also find evidence that more fragmented governments and parliaments are associated with less fiscal discipline regarding public spending on social items, especially *Social Security and Welfare* and *Recreational, Cultural and Religious Affairs*.

Overall, evidence supports the opportunistic approach in the sense that governments tend to engage in fiscal policy manipulation in order to win the next parliamentary election. This pre-electoral manipulation is stronger in new democracies and under center and left-wing governments. There is, however, no evidence of pure partisan behavior. Furthermore, political fragmentation, with regard to both the government and the parliament, seems to favor fiscal indiscipline, particularly on social items.

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Appendix - Data sources and descriptive statistics

Variable	Source	Obs	Average	Maximum	Minimum	Std. deviation
Dependent variables*: Central government spending on*						
Defense	IMF, GFS and IMF, IFS	577	2.1	6.4	0.0	1.3
Education	IMF, GFS and IMF, IFS	577	3.1	10.1	0.1	1.8
Health	IMF, GFS and IMF, IFS	577	3.4	13.9	0.0	2.3
Social Security and Welfare	IMF, GFS and IMF, IFS	577	13.0	35.2	3.3	5.3
Housing and Community Amenities	IMF, GFS and IMF, IFS	577	0.7	3.2	0.0	0.6
Recreational, Cultural and Religious Affairs	IMF, GFS and IMF, IFS	575	0.3	1.4	0.0	0.2
Economic Affairs and Services	IMF, GFS and IMF, IFS	566	4.2	15.5	0.7	2.2
Total	IMF, GFS and IMF, IFS	667	35.2	95.0	13.0	9.8
Independent variables						
OUTPUT_GAP	OECD.Stat	805	0.0	9.0	-8.0	2.3
DEBT	Armingeon *et al.* (2007)	651	58.3	168.0	4.1	29.3
C_DEP	Armingeon *et al.* (2007)	761	-0.3	1.7	-3.0	0.6
ELECT1	Armingeon *et al.* (2007)	784	0.3	1.0	0.0	0.5
ELECT2	Armingeon *et al.* (2007)	784	0.3	1.0	0.0	0.5
GOVPARTY	Armingeon *et al.* (2007)	766	2.4	5.0	1.0	1.5
GOVLEFT	Armingeon *et al.* (2007)	767	34.4	100.0	0.0	37.9
GOVRIGHT	Armingeon *et al.* (2007)	767	38.2	100.0	0.0	38.8
RIGHT	Armingeon *et al.* (2007)	784	0.4	1.0	0.0	0.5
OTHER	Armingeon *et al.* (2007)	784	0.6	1.0	0.0	0.5
PARTIES	Lundell and Karvonen (2003)	734	2.1	8.0	0.0	1.4
MINISTERS	Mierau *et al.* (2007) (1)	732	17.4	36	6.0	5.4
EFFPAR	Armingeon *et al.* (2007)	768	4.2	10.3	2.0	1.6
RAE	Armingeon *et al.* (2007)	768	0.7	0.9	0.5	0.1
ELECSYST	Armingeon *et al.* (2007) Keefer (2005)	754	0.6	2.0	0.0	0.8
PRES	Armingeon *et al.* (2007) Keefer (2005)	539	0.2	1.0	0.0	0.4

(1) In both cases, data were provided upon request.
Data for Germany are excluded until 1990.

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