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Cabinet structure and fiscal policy outcomes

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Abstract: A central explanation of fiscal performance focuses on the structure of the cabinet. However, the partisan context of cabinet decisions remains underexplored, the findings are based on small samples and the variables of interest are often poorly operationalised. Using a new dataset of spending ministers and partisan fragmentation in the cabinets of 58 countries between 1975 and 1998, I find a strong positive association between the number of spending ministers and budget deficits and expenditures, as well as weaker evidence that these effects increase with partisan fragmentation.

Keywords: Cabinet; Fiscal policy; Political parties.

JEL classification: H11, H61, H62.

The outcome of the annual budget process is crucial in the competition amongst cabinet ministers for political standing. As one minister sums up the effect of budgetary decisions on his career prospects:¹ ‘If that bugger in transport gets more money than me, I look like a loser.’ Such individual level incentives to boost spending can have profound aggregate consequences (Niskanen 1971; Von Hagen & Harden 1995). Cross-national studies find that cabinet size or the number of spending ministers affects fiscal performance (Volkerink & De Haan 2001; Perotti & Kontopoulos 2002; Woo 2003; Ricciuti 2004). However, this literature suffers from several shortcomings. First, it gives insufficient consideration to the possible interaction between the number of spending ministers and the partisan context of bargaining over the budget. Second, sample size is limited and the extent to which the findings can be generalised beyond a few industrialised democracies remains unclear. Finally, the main variables of interest are often poorly operationalised, which raises doubts about the robustness of some of the results. These shortcomings provide strong reasons to re-examine the relationship between cabinet structure and fiscal performance.

This article advances the literature on fiscal performance by addressing the above limitations. I introduce a new dataset of the number of spending ministers and partisan fragmentation in a diverse sample of countries. The definition of spending ministers is closely linked to the theoretical argument that certain cabinet members lack incentives to internalise the full cost of their actions. The analysis shows a strong positive association between the number of spending ministers and central government budget deficits and

¹ The comment was made under condition of anonymity.

expenditures. Moreover, I use data on the allocation of ministerial portfolios to explore whether the effect of the number of spending ministers is conditional on the extent of partisan fragmentation in the cabinet. I find some evidence that political parties may be able to mitigate the profligate tendencies of individual spending ministers. Overall, my results confirm that the structure of cabinet, and the number of spending ministers in particular, is an essential determinant of fiscal policy outcomes.

The article has three main parts. Part one reviews cross-national studies that include evidence on the fiscal policy impact of cabinet size or the number of spending ministers as well as the partisan fragmentation of the cabinet. I pay particular attention to the definition of the variables of interest, sample characteristics and the estimated effects. The second part introduces a new dataset of spending ministers and partisan fragmentation in the cabinets of 58 countries between 1975 and 1998, which forms the basis of the empirical analysis presented here. This part also describes the remaining variables, including indicators of fiscal performance as well as economic and political controls. Part three presents the statistical models and results. The conclusion explores policy implications and possibilities for further research.

Background and hypotheses

The theoretical literature on the common pool resource problem in budgeting highlights the adverse fiscal effects of fragmented decision making. Weingast, Shepsle and Johnsen

(1981) express this as the ‘law of $1/n$ ’. In their model, expenditure can be targeted at a particular geographical district, while costs are shared equally across all districts. This implies that the larger the number of decision makers with separate constituencies, the smaller the share of the tax burden each considers. As a result, assuming universalistic logrolls, ‘the degree of inefficiency in project scale... is an increasing function of the number of districts’ (p. 654). Von Hagen and Harden (1995) explore the fiscal impact of different cabinet structures. Amongst others, they show that a process where spending ministers independently develop their spending plans results in a budget that is larger than optimal for the government as a whole. The larger the number of spending ministers, the greater this spending bias. Elsewhere, Velasco (2000) demonstrates the effect of increasing the number of special interests represented in fiscal policy decisions on spending, deficits and debt. Overall, this theoretical literature strongly cautions against a proliferation of fiscal decision makers.² In the context of cabinet decision making, the relevant fiscal actor can be either an individual minister or a political party, if the latter operates as ‘a more or less cohesive entity representing the interests of specific groups’ (Perotti & Kontopoulos 2002: 195; see also Volkerink & De Haan 2001: 222).

² The common pool literature contrasts with veto player theory (Tsebelis 2002), according to which the number of decision makers and their ideological dispersion affect policy *change*, that is, the likelihood and magnitude of departures from the status quo. The existence of multiple veto actors is associated with delayed adjustment to economic shocks (Roubini & Sachs 1989; Alesina & Drazen 1991; Poterba 1994). The literature on spending ministers is based on the common pool resource problem. It is beyond the scope of this paper to conduct a unified assessment of the two theories (see Franzese 2008).

Several papers provide empirical evidence on the relationships amongst the number of spending ministers (or cabinet size), partisan fragmentation and fiscal outcomes. Volkerink and De Haan (2001) use a panel of 22 OECD countries over the period 1971 to 1996 to investigate the effects of various indicators of fragmentation on deficits. One of their independent variables is the number of spending ministers, which they define as ‘the total number of ministers in government... minus the ministers of finance and/or the budget and the prime minister’ (p. 224). In their sample, the number of spending ministers ranges between five and 33 and the average is about 15. They find a robust positive effect of this variable on central government deficits. According to their basic results, the addition of one spending minister leads to a deterioration of the budget balance by 0.08 per cent of GDP (p. 229). Their analysis also includes the effective number of parties in government, defined in accordance with Laakso and Taagepera (1979). Volkerink and De Haan (2001: 229) find that adding one effective party to the coalition increases the deficit by 0.4 percentage points. They also report that the fiscal effects of an increase in the number of spending ministers and the effective number of parties in government are dampened as economic growth increases, although the paper does not contain a complete analysis of this interaction. However, they do not interact the number of spending ministers and the effective number of parties in government.

Perotti and Kontopoulos (2002) use a panel of 19 OECD countries between 1970 and 1995 to investigate the role of fragmentation in fiscal performance, including the number of spending ministers. Their operationalisation of this variable is based on counting a selection of sectoral portfolios plus finance ministers and related positions, such as

ministers responsible for the budget (p. 219). The inclusion of the latter does not make theoretical sense, since a central role of finance ministers is to safeguard fiscal discipline vis-à-vis spending ministers (e.g., Von Hagen & Harden 1995; Schick 2001; Jensen et al. 2003). I discuss this issue in detail in the following section. In addition, the count of portfolios by Perotti and Kontopoulos (2002) is highly selective and excludes important ministries such as those relating to welfare and social assistance. In this sample, the misleadingly labelled ‘number of spending ministers’ ranges between eight and 18 and has a mean of about 11. Despite the poor operationalisation of this variable compared with Volkerink and De Haan (2001), the conclusions are similar. Perotti and Kontopoulos (2002: 208) find that spending ministers are ‘a very important and robust determinant of fiscal outcomes’. They estimate that an additional ministry increases the general government deficit by 0.12 percentage points of potential GDP per year, due to impacts on spending. They also include the unweighted number of parties in the coalition as a measure of partisan fragmentation, but the estimates are not statistically significant in almost all of their regressions. According to this analysis, an increase in unemployment accentuates the fiscal effects of spending ministers and parties in the coalition (pp. 213-214). The authors do not explore the interaction between the two variables.

The analysis of economic, political and institutional determinants of deficits by Woo (2003) is more comprehensive in terms of countries covered. He uses data comprised of decade averages for 57 developed and developing countries for the periods 1970 to 1979 and 1980 to 1990. One of his independent variables is cabinet size, defined as the number of ministers. During the 1970s, cabinet size in this sample ranged between 11 and 36,

with a mean of about 19. During the 1980s, the range was from nine to 45 and the average about 22. Woo finds a strong association with public sector deficits. He estimates that adding one minister to the cabinet is associated with an increase in the deficit of the public sector amounting to 0.2 per cent of GDP (p. 399). This analysis also includes indicators of coalition and minority government, as well as measures of partisan fragmentation in the legislature, but none of them is statistically significant at conventional levels. The author does not explore the possible interaction between the partisan fragmentation of the government and cabinet size.

Ricciuti (2004) analyses the association between fragmentation and fiscal policy outcomes using a panel of 19 OECD countries over the years 1975 to 1995. One of his independent variables is the number of spending ministers, based on the definition by Volkerink and De Haan (2001). In this sample, the number of spending ministers varies between seven and 33 and the mean is about 16. According to the results, the number of spending ministers is the only 'consistently significant' determinant of the primary surplus and primary expenditures of central government (Ricciuti 2004: 382). The estimated effects of an additional spending minister on the primary surplus and primary spending are -0.13 and 0.11 per cent of GDP, respectively (pp. 378 and 382). This study also includes a measure of the partisan fractionalisation of the government based on the seat shares of the ruling parties in the lower house of the legislature. The variable has no statistically significant effect on deficits (p. 378) and barely achieves significance at the 10 per cent level in only one out of four expenditure regressions (p. 382). As in the three

other papers reviewed above, the author does not explore the interaction between the number of spending ministers and the partisan fractionalisation of the government.

In sum, the cross-national literature on fiscal performance contains evidence that cabinet size or the number of spending ministers affects budget outcomes.³ This finding appears to be robust to different operationalisations of this variable and to hold for several indicators of fiscal performance. On the other hand, the evidence on an association between partisan fragmentation in the executive and fiscal policy outcomes is much weaker. However, the existing literature also has a number of shortcomings, which I discuss in detail in the following paragraphs.

First, previous work does not consider the potential interaction between partisan fragmentation and the number of spending ministers. If political parties can force their spending ministers to internalise a larger share of the costs than they otherwise would (Perotti & Kontopoulos 2002: 195), then a cabinet with a large number of spending ministers should be less profligate if all of them belong to a single political party. Von Hagen and Harden (1995: 775) recognise this possibility and speculate that party discipline may mitigate fiscal illusion, ‘but most likely does not do so completely’. To my knowledge, this possible interaction has yet to be investigated empirically. Here, I

³ Other authors focus on the determinants of fiscal performance at the subnational level (see the review by Kirchgässner 2001). Some of these consider equivalent measures of cabinet size or the number of spending ministers as independent variables, for instance Ashworth and Heyndels (2005) in their analysis of Flemish local governments or Schaltegger and Feld (2009) in their study of Swiss cantons.

conjecture that the fiscal effect of the number of spending ministers is conditional on the partisan fragmentation of the cabinet.

A second limitation of existing empirical work is that the samples used are of modest size. The evidence from OECD countries is based on less than 500 observations and a selection of the advanced industrialised democracies (Volkerink & De Haan 2001; Perotti & Kontopoulos 2002; Ricciuti 2004). While Woo (2003) expands the number of countries, missing data forces him to work with pooled averages for two decades, which yields a maximum of less than 100 observations. In contrast, important recent contributions to the empirical literature on the fiscal effects of constitutions (Persson & Tabellini 2003) and political budget cycles (Brender & Drazen 2005) use much larger global samples. Such an approach can help to explore the generalisability or context conditionality of theories. The empirical study of fiscal institutions should follow suit and expand beyond the usual suspects.

A third critique is that the key variables of interest are not always precisely defined and operationalised. Notably, Perotti and Kontopoulos (2002) and Woo (2003) use indicators of cabinet size rather than spending ministers. However, the cabinet includes several actors who can be expected to internalise much of the cost of their actions. As Wildavsky (1975: 9) puts it, budgeting always involves ‘spenders’ and ‘savers’. More precisely, Von Hagen and Harden (1995: 774) highlight that ‘the prime minister and the finance minister... are not bound by the particular interests of a spending department and can be assumed to give more weight to the collective interest of the government’. Alesina and

Perotti (1996: 20-21) argue along similar lines: ‘The constituencies of spending ministers are groups and industries who benefit from certain spending programs while, at least in theory, the constituency of the Treasury Minister is the “average” tax-payer. Thus the spending ministers do not internalize the aggregate costs of certain spending programs, while the Treasury has an incentive to internalize.’ Both Volkerink and De Haan (2001) and Ricciuti (2004) use a more appropriate measure, excluding the chief executive and the finance and/or budget ministers.⁴

Moreover, the measures of partisan fragmentation in the government that are used in these studies are flawed. An analysis based on the common pool resource problem requires a size-weighted measure of partisan fragmentation to capture the extent to which parties have incentives to internalise costs (Franzese 2008). Only Volkerink and De Haan (2001) and Ricciuti (2004) use size-weighted measures, but not Perotti and Kontopoulos (2002) and Woo (2003). In addition, none of the studies reviewed here use measures of partisan fragmentation based on the portfolio shares of each party in the cabinet. One reason might be that these data are not routinely collected for a large number of countries and years. For instance, the World Bank’s *Database of Political Institutions* (Beck et al. 2001) includes several measures of partisan fragmentation, but they are based on seat shares in the legislature. Empirical studies of portfolio allocation have found a near-perfect correlation between seat shares and portfolio shares in coalition governments,

⁴ In addition, the relationship between the chief executive and the finance minister deserves more attention in future research. For instance, Jochimsen and Nuscheler (2009) find that the partisan alignment between the prime minister and the finance minister in coalition governments affects deficits in the German Länder.

which Warwick and Druckman (2006: 635) describe as ‘one of the strongest empirical relationships documented in the social sciences’. Yet, this finding is based almost entirely on data for a few parliamentary democracies in Western Europe (see the review in Verzichelli 2008). We cannot simply assume that seat shares translate into portfolio shares in quite such mechanical ways elsewhere (Amorim Neto 2006; Cheibub 2007).⁵

In addition, the model by Von Hagen and Harden (1995) shows that the fiscal effect of an increase in the number of spending ministers depends upon the strategic power of the finance minister in the budget process. Unfortunately, I have insufficient institutional data on the balance of power between the finance minister and spending ministers to test this prediction. Hallerberg, Strauch and Von Hagen (2007) carefully document several institutional features to assess the strategic authority of finance ministers, for example the power to impose ceilings on the budget bids of spending ministers, but only for 15 European Union countries and part of the sample period used here. The data for Latin American countries collected by Alesina, Hausmann, Hommes and Stein (1999) are not detailed enough in this regard (see the critique by Hallerberg & Marier 2004: 578), while selected indicators in Perotti and Kontopoulos (2002: 220-221) are again limited to some industrialised democracies. Ideally, a comprehensive empirical analysis of the relationship between cabinet structure and fiscal policy outcomes would also cover the

⁵ A further potential problem with any measure of partisan fragmentation is that factions *within* parties may be very powerful and in some cases functionally equivalent to separate parties (Thies 2001). Similarly, the role of political parties in policy decisions is affected by the degree of discipline that their leaders can enforce (Hallerberg & Marier 2004; Hankla 2006). These possibilities deserve investigation elsewhere.

interaction between the number of spending ministers and the strategic power of the finance minister. However, given the paucity of institutional data on executive budget processes, this aspect has to be tackled in future research.

Using a diverse sample of countries as well as theoretically grounded operationalisations of the variables of interest, the contribution of this paper is to test whether the number of spending ministers is associated with fiscal policy outcomes and whether this effect is increasing in the partisan fragmentation of the cabinet. The original formulation of the ‘law of $1/n$ ’ suggests that we should expect effects on expenditure levels. However, an empirical test should not ignore tax expenditures, which are substantial in many countries (Organisation for Economic Co-operation and Development 1984 and 1996).⁶ The extensive use of tax expenditures undermines the usefulness of public spending as an indicator of the size of government (Howard 1997). On the other hand, whether money is spent directly or through a ‘tax loophole’ on the revenue side does not affect the budget balance. Hence, I consider impacts on both the budget deficit as well as expenditures and test the following two sets of hypotheses:

H1a: An increase in the number of spending ministers is associated with an increase in the budget deficit.

⁶ A tax expenditure is ‘a transfer of public resources that is achieved by reducing tax obligations with respect to a benchmark tax, rather than by a direct expenditure’ (Kraan 2004: 130). Tax expenditures can take a number of forms, including exemptions, allowances, credits, rate relief and tax deferral.

H1b: An increase in the number of spending ministers is associated with an increase in public spending.

H2a: The effect of an increase in the number of spending ministers on the budget deficit is increasing in the partisan fragmentation of the cabinet.

H2b: The effect of an increase in the number of spending ministers on public spending is increasing in the partisan fragmentation of the cabinet.

A new dataset of spending ministers and partisan fragmentation

The analysis requires a theoretically grounded definition of the number of spending ministers. Here, I code all ministers with full cabinet rank as spending ministers with the exceptions of the chief executive (prime minister, president or chancellor)⁷ and her deputies, finance ministers (including budget ministers, ministers of the economy and the treasury) and attached ministers, as well as any minister who is directly attached to the chief executive or who is subordinate to a portfolio for which a representative minister already exists, such as associate ministers, assistant ministers, minister delegates,

⁷ In Switzerland's unique executive arrangement, the presidency rotates annually and confers no special powers over the other members of the cabinet. In this case only, I do not subtract the president and vice president from my count of spending ministers, unless they also meet one of the remaining conditions for exclusion established in this definition.

ministers in other ministries and parliamentary secretaries. The latter group can also include ministers of state and secretaries of state, but these titles have to be carefully interpreted, since their meaning is heterogeneous across countries.⁸ This operationalisation focuses on cabinet members who are most likely to externalise a large share of the cost of their actions and disregards junior members who are unlikely to be as closely involved in budgetary negotiations as the main minister in charge of a portfolio.

Based on this definition, the project collected data on spending ministers in all 58 countries in Persson and Tabellini's (2003) panel dataset, using the *Europa World Yearbook*. Portfolios that are indicated as vacant in the source book are included in the dataset, assuming this state to be temporary. The number of spending ministers coded for any given year reflects the information on the composition of the cabinet reported in the *Yearbook* for that particular year. Hence, I assume that the cabinets in place around the beginning of the calendar year, when the *Yearbook* data were collected, affect fiscal outcomes for that year. Governments typically have a degree of flexibility during the execution of the budget (Hallerberg et al. 2007; Beetsma et al. 2009), so this is a reasonable assumption (see also Tsebelis & Chang 2004: 457-458).⁹

⁸ In France, Portugal and Japan, 'ministers of state' are full members of cabinet with equivalent or greater status than other independent cabinet ministers and are coded as spending ministers. Similarly, only where the title 'secretary of state' indicates a full member of cabinet – as in the United States, the United Kingdom, the Dominican Republic and Mexico – are they included in the count of spending ministers.

⁹ Cabinets also exert influence during the formulation of the budget, prior to the start of the fiscal year. However, the design and duration of the budget formulation process varies across countries. To take into account these differences would require very detailed data on the executive budget process, which are not

I make no attempt to assign differential weights to portfolios, for several reasons. First, while it would be nice to capture variation in the degree to which spending ministers internalise the cost of their actions, it is unclear how this might be achieved. Portfolio salience scores (Druckman & Warwick 2005) do not capture such incentives. Nor do budget shares. Fiscal illusion may affect different components of expenditure differently, as spending units vary greatly with regard to the structure of their budgets, not only the overall envelope (Dunleavy 1991). Second, political clout in cabinet negotiations depends on personality factors that vary over time depending on the minister in charge, which arguably is impossible to capture systematically. Finally, any weights would have to be recalculated every time portfolios are reconfigured. This would be very data intensive, given the substantial amount of within-country variation in the number of spending ministers (see below). For these reasons, and in line with the empirical literature reviewed above, I give equal weight to each spending minister.

The dataset of the number of spending ministers comprises 1358 observations over the period 1975 to 1998, excluding observations for years during which Freedom House classified a country as ‘not free’.¹⁰ Figure 1 summarises the distribution of spending

available for most countries in this sample. As a robustness check, I experimented with a lagged version of the spending ministers variable and obtained baseline results similar to those reported in the next section.

¹⁰ The Government Finance Statistics (GFS) published by the International Monetary Fund contain fiscal data for more recent periods. However, as a result of the introduction of the 2001 GFS Manual, data availability is limited to the period from 1990 onwards and in many series there are breaks when the basis of reporting changed from cash to non-cash.

ministers with a box plot. For each country, the box contains the inter-quartile range, the whiskers indicate the range of the more extreme values, and the dots mark any outliers. Figure 1 highlights substantial variation both within countries as well as across countries. Overall, the number of spending ministers ranges from five to 28. The median in the pooled sample is 13, which is indicated by the dashed line in Figure 1. Despite losing some observations due to missing data for the dependent or control variables, the analysis in the following section is based on about three times as many observations as previous empirical work. Moreover, as the sample contains both industrialised and developing countries, it is substantially more diverse compared with most prior studies.

[FIGURE 1 ABOUT HERE]

Note that the ‘law of 1/n’ may apply to both the executive and the legislative arenas. Empirical scrutiny of the relationship between the number of legislators and fiscal policy outcomes has largely focused on state and local governments in the United States (e.g., Gilligan & Matsusaka 2001; Baqir 2002; MacDonald 2008).¹¹ To date, there is limited cross-national work on the fiscal effect of legislative size (Stein et al. 1998; Bradbury & Crain 2001). The latter studies do not include cabinet size or the number of spending ministers, although the work reviewed in the previous section highlights that the executive arena should not be neglected. One of the robustness checks I discuss in the following section entails the simultaneous inclusion of both the number of seats in the

¹¹ For an exception, see Fiorino and Ricciuti’s (2007) analysis of the effect of legislature size on per capita expenditure by regional governments in Italy.

lower house of the legislature and the number of spending ministers. Elsewhere, I provide a detailed investigation into the fiscal effect of partisan fragmentation in legislatures (Wehner 2010).

To investigate the possible interaction of spending ministers with the partisan fragmentation of the cabinet, I use a Herfindahl-like index: $1 - \sum_{i=1}^n Party_i^2$. Here, $Party_i$ denotes the number of portfolios of governing party i as a share of the total number of portfolios held by all n parties in the cabinet (excluding deputy ministers and similar junior positions, but this time including the finance minister and chief executive). The equation can generate values between zero (single party cabinets) and close to one (when no party has more than a single cabinet portfolio). This measure is better at dealing with outliers at the upper end of the distribution than the ‘effective number of parties’ (Laakso & Taagepera 1979), which lacks an upper bound. To ensure consistency with the data on spending ministers, the main source is again the *Europa World Yearbook*, supplemented where necessary with data from Amorim Neto (2006) and national sources.

Related literature controls for annual GDP growth and inflation (Hallerberg & Marier 2004) as well as trade openness (Alesina et al. 1999). In addition, I use a dummy for years with executive elections to control for possible electoral budget cycles (Franzese 2002; Brender & Drazen 2005). I also speculate that left parties in government might be more profligate than administrations from the centre or the right of the political spectrum and control for a head of government from a left-of-centre party (for a more nuanced analysis, see Cusack 1997). Freedom House scores account for the possibility that

democracy affects the demand for public spending (Stasavage 2005). I also account for the possible fiscal effect of the 1992 Maastricht Treaty with a dummy set equal to one for the 12 original Eurozone members from that year onwards. Finally, I capture the fiscal cost of armed conflict with a dummy indicating years were countries participated in wars according to Sarkees (2000).¹² The appendix provides variable definitions and data sources, and Table 1 reports summary statistics.

In addition, a wide range of time invariant or rarely changing variables may also affect fiscal policy outcomes, including colonial heritage, population size, geographic location, the form of government and the type of electoral system (Persson & Tabellini 2003). Here, as specified below, I use an empirical model with country fixed effects to capture the direct impact of any time invariant variables and to ‘soak up’ most of the explanatory power of rarely changing variables (Beck 2001: 285).

[TABLE 1 ABOUT HERE]

Empirical models and results

To test the hypotheses that an increase in spending ministers is associated with an increase in deficits (H1a) and public spending (H1b), I use the following fixed effects

¹² These data have casualty-based inclusion criteria, which are explained in detail in Sarkees (2000). More refined measures could be explored in future research.

specification to model fiscal outcomes (either the central government budget deficit or expenditures as a share of GDP) in country i at time t :

$$\text{Fiscal outcome}_{i,t} = \beta_1(\text{Spending ministers}_{i,t}) + \beta_2(\text{Partisan fragmentation}_{i,t}) + \beta_3(\text{Fiscal outcome}_{i,t-1}) + \beta_4(\text{Controls}_{i,t}) + \text{Country}_i + \text{Year}_t + \varepsilon_{i,t}$$

The coefficients β_1 and β_2 capture, respectively, the effect of *Spending ministers* and *Partisan fragmentation*. A lagged dependent variable is included in all models to account for the path dependence of fiscal performance (Davis et al. 1966), plus the controls indicated in the previous section. Unit fixed effects control for unobserved heterogeneity due to country-specific unchanging features, $T - 1$ year effects control for common shocks and ε is an error term.¹³

I extend the above baseline model to test the set of interactive hypotheses that the effect of an increase in spending ministers on deficits (H2a) and public spending (H2b) is increasing in the partisan fragmentation of the cabinet:

¹³ A potential problem of dynamic models with fixed effects is Nickell bias (Nickell 1981), but this is less of a concern when the number of time periods is twenty or more (Beck & Katz 2004: 15). Also, the Fisher test did not indicate that it is problematic to assume stationarity (Maddala & Wu 1999).

$$\begin{aligned} \text{Fiscal outcome}_{i,t} = & \gamma_1(\text{Spending ministers}_{i,t}) + \gamma_2(\text{Partisan fragmentation}_{i,t}) + \\ & \gamma_3(\text{Spending ministers}_{i,t} \times \text{Partisan fragmentation}_{i,t}) + \\ & \gamma_4(\text{Fiscal outcome}_{i,t-1}) + \gamma_5(\text{Controls}_{i,t}) + \text{Country}_i + \text{Year}_t + \varepsilon_{i,t} \end{aligned}$$

The only difference compared with the first regression equation is the inclusion of the interaction term. The second equation can be used to identify the marginal effect of spending ministers at a given level of partisan fragmentation in the cabinet:

$$\partial(\text{Fiscal outcome}_{i,t}) / \partial(\text{Spending ministers}_{i,t}) = \gamma_1 + \gamma_3(\text{Partisan fragmentation}_{i,t})$$

In contrast to the coefficient β_l in the first (additive) model, the coefficient γ_l in the second (multiplicative or interactive) model represents the effect of a one-unit increase in spending ministers when partisan fragmentation is zero, that is, under single party cabinets. In the presence of partisan fragmentation, both γ_l and γ_3 are required to calculate the effect of adding a spending minister (Brambor et al. 2006; Kam & Franzese 2007). I expect partisan fragmentation to augment the effect of an increase in the number of spending ministers. This suggests a positive sign for γ_3 so that $(\gamma_l + \gamma_3) > \gamma_l$.

[TABLE 2 ABOUT HERE]

Table 2 reports the results. The columns are numbered in accordance with the relevant hypothesis. Columns (1a) and (1b) indicate that the number of spending ministers has a strong direct impact on both deficits and public spending. The estimated effects of adding

one spending minister are to increase the deficit and public spending by 0.116 and 0.074 per cent of GDP, respectively.¹⁴ The effect on deficits is significant at the 1 per cent level, while the effect on expenditures is significant at the 5 per cent level. The direct effects of partisan fragmentation, on the other hand, are indistinguishable from zero. With regard to the control variables, only GDP growth and trade openness have statistically significant effects on both of these fiscal aggregates. A one-unit increase in GDP growth reduces deficits and expenditures by 0.058 and 0.070 per cent of GDP, respectively, and a one-unit increase in trade openness reduces both deficits and outlays by 0.024 per cent of GDP (see also Busemeyer 2009). Executive elections are associated with a deterioration of the deficit by almost half a percentage point of GDP. Although the estimated effect on spending is positive, it is smaller and does not achieve significance at conventional levels. This suggests that the adverse effect of electioneering on the deficit is partly due to measures on the revenue side. Finally, a worsening in the quality of democracy by one unit, as measured by Freedom House, reduces expenditures by 0.355 per cent of GDP. Overall, these are strong results in support of the hypothesised link between the number of spending ministers and fiscal performance.

¹⁴ It is not appropriate to compare the exact size of the coefficients on *Spending ministers* with those documented in most previous studies, due to the use of different fiscal indicators with varying levels of consolidation, as well as different operationalisations of the variable of interest. The Volkerink and De Haan (2001) study is most similar in these regards, but very different in terms of the diversity of the sample. Their estimated effect on the deficit of adding a spending minister is somewhat smaller: 0.08 per cent of GDP in the baseline model (p. 229).

I conducted several robustness checks. First, I added the number of lower house seats to models (1a) and (1b) to allow for the possibility that the common pool resource problem in the legislative arena contributes to fiscal performance. This did not substantively affect the results and the coefficient on lower house seats was far from statistically significant in both cases. As there is much less within-country variation in the number of seats in the lower house than in the number of spending ministers, this aspect could be explored further through cross-sectional analysis. Such an analysis should take into account bicameralism and the possibly distinct budgetary impact of second chambers (Heller 1997, 2001; Bradbury & Crain 2001; Cusack & Fuchs 2003). Second, I checked whether the effect of the number of spending ministers differs across forms of government, by interacting this variable with a dummy for presidential systems (Persson & Tabellini 2003). I also tested whether the effect differs according to level of development, using an interaction with a dummy indicating OECD membership. In both cases, the interaction terms were far from statistically significant. In other words, I found no evidence that the effect of the number of spending ministers on deficits and expenditures differs systematically between presidential and parliamentary regimes, or between the industrialised democracies and other countries. I do not report these results here to conserve space, but they are available upon request.

Columns (2a) and (2b) report results for the second set of hypotheses that the effect of the number of spending ministers on deficits and spending is increasing in the degree of partisan fragmentation of the cabinet. Since γ_3 is positive, the estimates in columns (2a) and (2b) of Table 2 imply that the impact on the deficit and expenditures of adding a

spending minister to the cabinet increases as the partisan fragmentation of the cabinet rises. In column (2a), the t -value for the interaction term is 0.87 ($p = 0.388$) and in column (2b) it is 1.85 ($p = 0.069$). As a robustness check, I excluded extreme cases of partisan fragmentation, that is, those with a value of 0.9 or higher, which weakened these results. Overall, these findings do lend some support to the interactive hypotheses, especially with regard to expenditures, but the evidence is not very strong.

[FIGURE 2 ABOUT HERE]

Graphic exposition helps further interpretation of the marginal effect of spending ministers on fiscal policy outcomes as partisan fragmentation changes. Figure 2 plots the conditional coefficients and standard errors for the entire sample range of *Partisan fragmentation*. For both dependent variables, the conditional coefficient on *Spending ministers* is positive across the sample range of, and increasing in, *Partisan fragmentation*. With the deficit as the dependent variable, the coefficient is statistically significant at the 10 per cent level for all values of the conditioning variable. With spending as the dependent variable, the coefficient falls short of significance at the 10 per cent level when a single party forms the cabinet, as the coefficient on *Spending ministers* in column (2b) of Table 2 indicates. However, the coefficient is significant for most non-zero values of *Partisan fragmentation*. In sum, the fiscal effect of increasing the number of spending ministers is somewhat less pronounced in single party cabinets or those with

very low levels of partisan fragmentation than in multi-party coalitions with high levels of partisan fragmentation.¹⁵

Conclusions

This article has advanced the literature on fiscal performance in several ways. First, I give attention to the possible interaction between partisan fragmentation and the number of spending ministers. Second, I present evidence with a larger and more diverse sample than any previous cross-national study of this topic. Finally, the operationalisations of the variables of interest are carefully aligned with theoretical work, resulting in a new dataset of the number of spending ministers and partisan fragmentation. The empirical results impressively confirm that the number of spending ministers affects fiscal performance. Using an additive model, an extra spending minister is estimated to increase the deficit and expenditures of the central government by 0.116 and 0.074 per cent of GDP, respectively. I also find some evidence that the marginal effect of spending ministers on expenditures in particular is increasing in partisan fragmentation. The results suggest that single party cabinets may be able to mitigate, but not eliminate, fiscal illusion.

¹⁵ Of course, it is equally possible to compute the marginal effect of *Partisan fragmentation* as *Spending ministers* changes, but the theoretical discussion does not require this.

An important question for further research is to explore exactly how parties may mitigate the common pool resource problem in the cabinet. For instance, does it help if the finance minister has the same partisan affiliation as important spending ministers, such as those in charge of health or pensions? An answer to this question would require a more detailed look at portfolio assignment in coalition governments. In-depth qualitative work may offer further clues. In terms of policy implications, my findings suggest that a reduction in the number of spending ministers is a promising strategy for fiscal consolidation, in particular in countries with cabinets that are politically fragmented. However, to understand when this would be a feasible approach requires more work on the determinants of the number of spending ministers. A cursory glance at Figure 1 suggests possible determinants of cross-country variation, such as country size, but the causes of the variation within countries are less obvious. Future research should also extend the coverage of this database of spending ministers and partisan fragmentation in the cabinet. These variables should be routinely included in empirical work on fiscal performance.

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Appendix: Variable definitions and data sources

DEFICIT: Central government budget deficit (if positive) or surplus (if negative), as a percentage of GDP. Source: Variable SPL in Persson and Tabellini (2003; corrected version dated June 2003) multiplied by -1.

EU12: Dummy variable, equal to 1 for Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain from 1992 onwards, zero otherwise.

EXECUTIVE ELECTIONS: Dummy variable, equal to 1 in the year the executive is elected, zero otherwise. Source: Persson and Tabellini (2003; corrected version dated June 2003).

FREEDOM: Freedom House combined average scores, ranging from 1 (free) to 7 (not free). Source: www.freedomhouse.org.

GDP GROWTH: GDP growth (annual per cent). Source: World Bank (2007).

INFLATION: Natural logarithm of consumer price inflation (annual per cent). Source: World Bank (2007).

LEFT CHIEF EXECUTIVE: Dummy variable, equal to 1 if the head of government is from a political party at the left of the ideological spectrum, zero otherwise. Sources: Author's calculations based on the variable EXECRLC in Beck *et al.* (2001; April 2008 update); missing data added on the basis of information from Europa Publications Limited (various years) and national sources.

PARTISAN FRAGMENTATION: One minus the sum of the squared portfolio shares of the political parties in the cabinet. Independents are counted as single-member political parties. Sources: Author's calculations based on information in Europa Publications Limited (various years); missing data added on the basis of information from Octavio Amorim Neto (personal correspondence) and national sources.

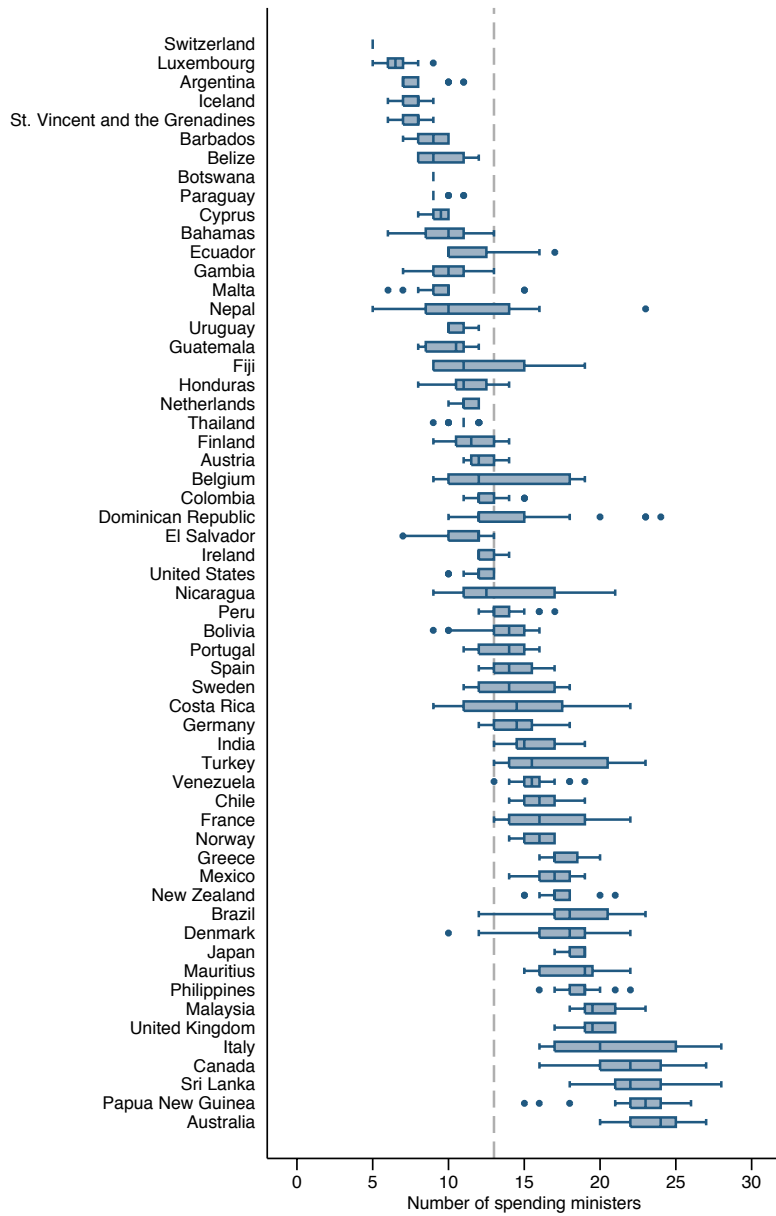
SPENDING MINISTERS: All ministers with full cabinet rank minus (a) the chief executive (prime minister, president or chancellor) and her deputies, (b) finance ministers (including budget ministers, ministers of the economy and the treasury) and attached ministers, as well as (c) any minister who is directly attached to the chief executive or who is subordinate to a portfolio for which a representative minister already exists. See text for further details. Source: Author's calculations based on information in Europa Publications Limited (various years).

SPENDING: Central government expenditures as a percentage of GDP. Source: Variable CGEXP in Persson and Tabellini (2003; corrected version dated June 2003).

TRADE OPENNESS: Sum of exports and imports of goods and services measured as a share of GDP. Source: Variable TRADE in Persson and Tabellini (2003; corrected version dated June 2003).

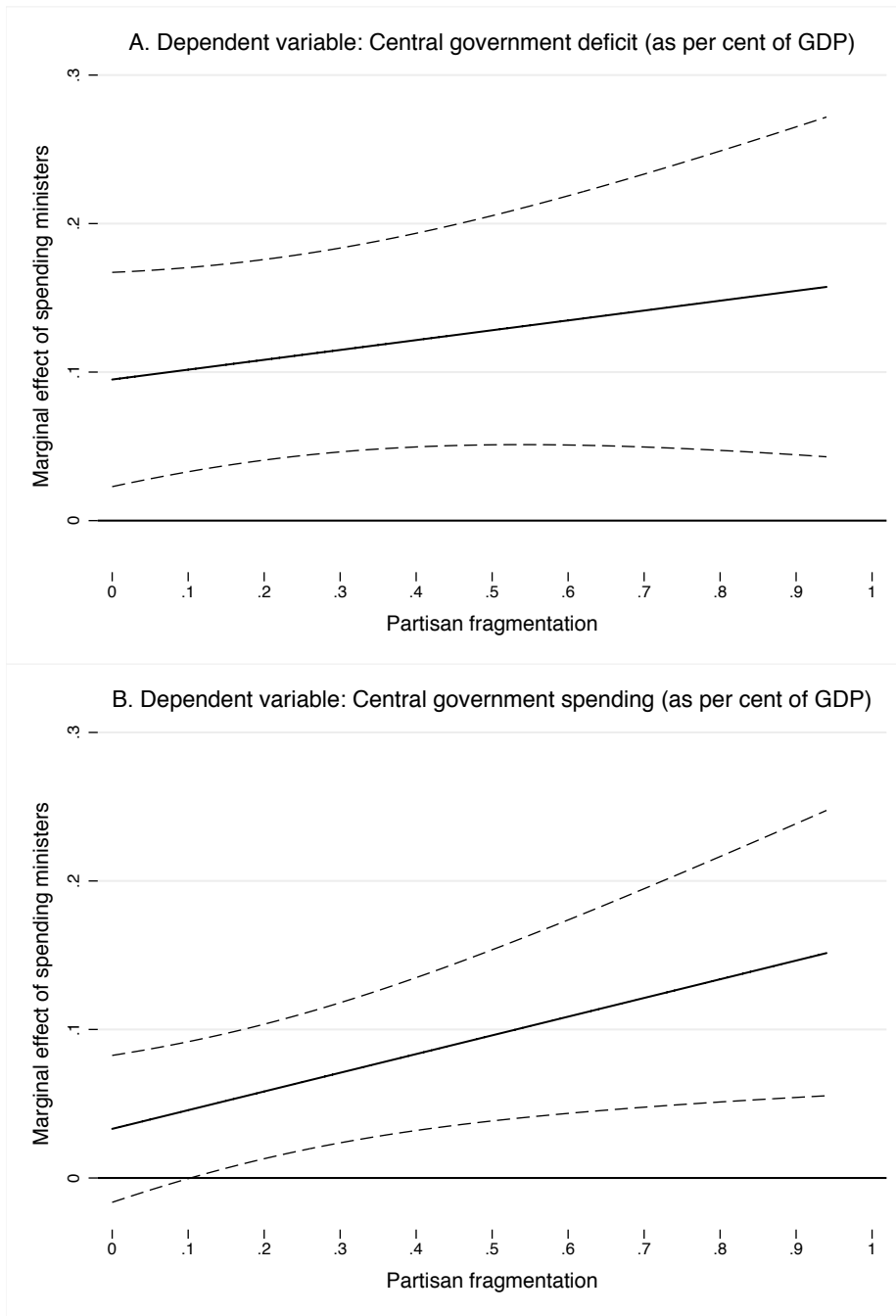
WAR: Dummy variable, equal to 1 for each year in which a country participates in inter-, extra- or intra-state war as defined by the Correlates of War Project, zero otherwise. Source: Sarkees (2000).

Figure 1: The number of spending ministers in 58 countries, 1975-1998



Notes: Only observations where $Freedom \leq 5.5$ are included. The dashed line indicates the pooled sample median (13). N = 1358.

Figure 2: The conditional marginal effect of spending ministers



Notes: The dashed lines indicate 90% confidence intervals. The marginal effects and standard errors in panels A and B are calculated, respectively, on the basis of models (2a) and (2b) in Table 2.

Table 1: Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Deficit	1235	3.409	4.398	-22.631	24.450
EU12	1362	0.062	0.241	0	1
Executive elections	1359	0.239	0.427	0	1
Freedom	1362	2.193	1.275	1.000	5.500
GDP growth	1352	3.417	4.009	-26.479	26.139
Inflation	1343	2.170	1.362	-4.074	9.372
Left chief executive	1262	0.312	0.464	0	1
Partisan fragmentation	1310	0.217	0.300	0.000	0.949
Spending	1307	27.681	11.049	8.087	67.702
Spending ministers	1358	13.898	4.789	5.000	28.000
Trade openness	1334	69.490	39.494	8.868	208.643
War	1362	0.095	0.294	0	1

Note: Only observations where *Freedom* \leq 5.5 are included.

Table 2: Results

	(1a)	(1b)	(2a)	(2b)
	Deficit	Spending	Deficit	Spending
Spending ministers	0.116 (0.042)***	0.074 (0.032)**	0.095 (0.044)**	0.033 (0.030)
Partisan fragmentation	-0.037 (0.366)	0.749 (0.538)	-0.990 (1.055)	-1.072 (1.061)
Spending ministers × Partisan fragmentation			0.066 (0.076)	0.126 (0.068)*
Lagged deficit	0.622 (0.063)***		0.621 (0.063)***	
Lagged spending		0.692 (0.045)***		0.688 (0.044)***
Executive elections	0.481 (0.166)***	0.160 (0.154)	0.478 (0.165)***	0.153 (0.155)
Left chief executive	0.260 (0.276)	0.291 (0.329)	0.265 (0.279)	0.297 (0.329)
Freedom	-0.238 (0.183)	-0.355 (0.147)**	-0.228 (0.181)	-0.337 (0.149)**
EU12	-0.304 (0.518)	-0.158 (0.512)	-0.298 (0.514)	-0.139 (0.511)
GDP growth	-0.058 (0.029)*	-0.070 (0.031)**	-0.058 (0.029)*	-0.070 (0.030)**
Inflation	-0.024 (0.086)	0.030 (0.140)	-0.025 (0.085)	0.025 (0.138)
Trade openness	-0.024 (0.009)**	-0.024 (0.010)**	-0.024 (0.009)**	-0.025 (0.010)**
War	0.702 (0.547)	0.236 (0.480)	0.715 (0.553)	0.257 (0.479)
Observations	1058	1120	1058	1120
Number of countries	58	58	58	58
Country effects	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes
Adjusted R-squared (within)	0.48	0.60	0.48	0.60

Notes: Standard errors clustered by country are in parentheses. Only observations where *Freedom* ≤ 5.5 are included. Refer to the appendix for variable definitions and sources.

* Significant at 10%; ** significant at 5%; *** significant at 1% (two-tailed).