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Cabinet Structure and Fiscal Policy Outcomes

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Abstract: Empirical work has consistently found an association between cabinet size or the number of spending ministers and fiscal performance. However, this work is based on small samples, the variable of interest is sometimes poorly operationalized, and the authors give insufficient consideration to the partisan context of cabinet decisions. This article introduces a new dataset of the number of spending ministers in 60 countries between 1975 and 1998. I find a strong positive association between the number of spending ministers and central government budget deficits and expenditures, as well as evidence that these effects are increasing in the partisan fragmentation of the government.

The cross-national empirical literature on the common pool resource problem in budgeting has found strong evidence that the number of spending ministers is associated with fiscal policy outcomes (Volkerink and De Haan 2001, Perotti and Kontopoulos 2002, Woo 2003, Ricciuti 2004). However, this literature has several shortcomings, three of which I highlight here: First, the cross-national literature has been limited to small samples, mostly OECD countries. Second, the operationalization of the key variable has not always been neatly linked to the theoretical literature. Finally, these studies have given insufficient consideration to the likely interaction between the number of spending ministers and the partisan context in which bargaining over the budget takes place.

This article advances the literature on fiscal performance by addressing the above three limitations. It introduces a new and comprehensive dataset of the number of spending ministers. The definition of spending ministers is based on Von Hagen and Harden's (1995) theoretical argument. The analysis shows a strong positive association between the number of spending ministers and central government budget deficits and expenditures. Moreover, I find some evidence that the effect of the number of spending ministers is conditional on the extent of partisan fragmentation in the cabinet. More precisely, it appears that political parties induce their spending ministers to internalize more of the cost of their actions. As a result, the effects of the number of spending ministers on deficits and spending are increasing in the partisan fragmentation of the government. These results confirm and extend previous findings that the structure of cabinet is an essential determinant of fiscal policy outcomes.

The article contains three main parts. Part one reviews the main cross-national studies that include evidence on the fiscal policy impact of cabinet size or the number of spending ministers. I pay particular attention to the definition of the variable of interest, sample characteristics, and the estimated effects. The second part introduces a new dataset of the number of spending ministers in 60 countries over the years 1975 to 1998, which forms the basis of the empirical analysis presented here. This part also describes and motivates the inclusion of additional variables, including partisan fragmentation as well as economic and political controls. Part three presents the statistical models and results. The conclusion offers some remarks on the policy implications of the findings and possibilities for further research.

1. 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 they consider. As a result, assuming universalistic logrolls, 'the degree of inefficiency in project scale… is an increasing function of the number of districts' (ibid.: 654). Von Hagen and Harden (1995) explore the budgetary impact of cabinet decision making and show that a process where spending ministers

independently develop their spending plans results in a budget that is larger than the optimal total for the government as a whole. They argue that ministers without a sectoral portfolio, such as the prime minister or finance minister, have greater incentives to consider the overall impact of excess taxation and can mitigate the profligate tendencies of spending ministers. 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.[1]

Several papers have tested these implications empirically and provide evidence on the relationship between cabinet size or the number of spending ministers and fiscal outcomes. Volkerink and De Haan (2001) use a panel of 22 OECD countries over the 1971 to 1996 period 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' (ibid.: 224). In their sample, the number of spending ministers ranges between 5 and 33 and the average is about 15. They find a robust positive effect of this variable on central government deficits. According to

[1] 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*, i.e. the likelihood and magnitude of departures from the status quo. In the context of fiscal performance, this implies delayed adjustment to economic shocks (Roubini and Sachs 1989, Alesina and Drazen 1991, Poterba 1994). Unlike the common pool approach, veto player theory makes no prediction about the *level* of spending or deficits. The literature on the number of spending ministers is based on the common pool resource problem, and it is beyond the scope of this paper to conduct a unified assessment of the two theories (see Franzese 2008).

their basic results, the addition of one spending minister leads to a deterioration of the budget balance by 0.08 per cent of GDP (ibid. 229). The fiscal effect of an increase in the number of spending ministers is dampened as economic growth increases, although the paper does not contain a complete analysis of this interaction.

Perotti and Kontopoulos (2002) use a panel of 19 OECD countries to investigate the role of fragmentation in fiscal performance over the 1970 to 1995 period, including the number of spending ministers. Their operationalization 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 (ibid.: 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 and Harden 1995, Schick 2001, Jensen *et al.* 2003). I discuss this issue in detail in the following section. At the same time, the count of portfolios by Perotti and Kontopoulos (2002) is highly selective and excludes important ones such as those relating to welfare and social assistance. In this sample, the misleadingly labeled 'number of spending ministers' ranges between 8 and 18 and has a mean of about 11. Despite the poor operationalization 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. The authors also find that an increase in unemployment accentuates this effect (ibid.: 213-214).

The analysis of economic, political and institutional determinants of deficits by Woo (2003) is the most comprehensive in terms of countries covered. He uses data for 57 developed and developing countries comprised of decade averages of all variables for 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 ranged between 11 and 36, with a mean of about 19. During the 1980s, the range was from 9 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 (ibid.: 399).

More recently, Ricciuti (2004) analyzed 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 7 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 basic estimated effect of an additional spending minister on the primary surplus and primary spending is -0.13 and 0.11 per cent of GDP, respectively (ibid.: 378 and 382).

In addition, there is work on the determinants of fiscal performance at the subnational level (see the review by Kirchgässner 2001). Some authors 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. The results are generally consistent with the findings from cross-national studies. Hence, the literature contains strong empirical evidence that cabinet structure affects fiscal policy outcomes. This finding is robust to different operationalizations of the variable of interest and it holds for various indicators of fiscal performance.

However, the existing cross-national literature has several shortcomings. First, the key variable of interest is not always precisely defined and operationalized. 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 internalize much of the cost of their actions. As Von Hagen and Harden (1995: 774) highlight, 'ministers without portfolio, including 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: '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.

A second limitation of existing empirical work on cabinet size or spending ministers and fiscal outcomes is that the samples used are of modest size. The empirical evidence from OECD countries is based on less than 500 observations (Volkerink and De Haan 2001, Perotti and Kontopoulos 2002, Ricciuti 2004). Moreover, this work is limited to a few advanced industrialized democracies. 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. Recent empirical work on the fiscal effects of constitutions uses global samples (Persson and Tabellini 2003). This sets a new standard for work in related areas. The empirical study of fiscal institutions should follow suit and expand beyond the usual suspects.

A third critique is that previous work does not consider the potential interaction between partisan fragmentation and the number of spending ministers. Instead of individual ministers, each political party in government may operate as 'a more or less cohesive entity' and constitute the relevant fiscal actor (Perotti and Kontopoulos 2002: 195; see also Volkerink and De Haan 2001: 222). This suggests that a cabinet with a large number of spending ministers should be less profligate if all of them belong to a single political party that forces them to internalize a larger share of the costs than they otherwise would. Von Hagen and Harden (1995: 775) recognize this possibility and speculate that party discipline may mitigate fiscal illusion, 'but most likely does not do so completely'. To my knowledge, this interaction has yet to be investigated empirically. Here, I conjecture

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

Finally, 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 *et al.* (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 *et al.* (1999) are not detailed enough in this regard (Hallerberg and Marier 2004: 578), while selected indicators in Perotti and Kontopoulos (2002: 220-221) are again limited to some industrialized democracies.[2] Ideally, a comprehensive empirical analysis of the relationship between cabinet structure and fiscal policy outcomes would also cover the 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 a theoretically grounded operationalization of the variable of interest, the contribution of this paper is to test (1) whether the number of spending ministers is associated with fiscal policy outcomes and (2) whether this effect

[2] Moreover, I was unable to obtain this dataset.

is increasing in the partisan fragmentation of the government. More specifically, I 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.

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 government.

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

2. A new dataset of spending ministers

The analysis requires a theoretically grounded definition of the number of spending ministers. Here, all ministers with full cabinet rank are coded as spending ministers with the exceptions of the chief executive (prime minister, president, chancellor) 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, 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.[3] Portfolios that are indicated as vacant in the source book are included in the dataset, assuming this state to be temporary. This operationalization focuses on cabinet members who are most likely to externalize 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 60 countries in Persson and Tabellini's (2003) panel dataset, using the *Europa World Yearbook*. 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 here 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

[3] 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.

(Hallerberg *et al.* 2007), so this is a reasonable assumption (see also Tsebelis and Chang 2004: 457-458).[4]

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 internalize the cost of their actions, it is unclear how this might be achieved. Portfolio salience scores (Druckman and Warwick 2005) do not capture such incentives. Nor do budget shares. Fiscal illusion may affect different components of expenditure differently and 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 are arguably impossible to capture systematically. Finally, any weight would have to be recalculated every time portfolios are reconfigured. This would be very data intensive, given the 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 1406 observations over the period 1975 to 1998 (excluding observations for years during which Freedom House

[4] Cabinets may also exert influence during the formulation process of the budget, prior to its execution during the fiscal year. However, the design and duration of the budget formulation process varies across countries. Moreover, the fiscal year does not always coincide with the calendar year (Tarschys 2002). To take into account all of these differences would require very detailed data on the design and sequence of the budget process across countries and over time, which are not available. As a robustness check, I also experimented with a lagged version of the spending minister variable and obtained substantively similar results for the baseline models reported in the next section.

classified a country as 'not free').[5] Figure 1 summarizes the distribution of spending 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 four (in Switzerland) to 30 (in the Philippines). The median in the pooled sample is 14, 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, with 1137 observations from 57 countries, is based on about two and a half times as many observations as previous work.[6] In the regressions with deficits and spending as the dependent variables, the average number of observations is 19 and 20, respectively. Moreover, as the sample contains both industrialized as well as developing countries, it is substantially more diverse compared with all prior studies reviewed above.

[FIGURE 1 ABOUT HERE]

Note that the 'law of 1/n' may apply to both the executive as well as the legislative arena. 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.

[5] 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 cases there are breaks due to a switch to reporting on an accrual basis.

[6] I have no spending and deficit data for Israel as well as Trinidad and Tobago, and in the case of St. Vincent and the Grenadines data on partisan fragmentation are unavailable.

Gilligan and Matsusaka 2001, Baqir 2002, MacDonald 2008).[7] To date, there is limited cross-national work on the fiscal effect of legislative size (Stein *et al.* 1998, Bradbury and 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 lower house of the legislature as well as the number of spending ministers.

To investigate the possible interaction of spending ministers with the partisan fragmentation of the government, I use a Herfindahl-like index from the World Bank's Database of Political Institutions (Beck *et al.* 2001): $1 - \sum_{i=1}^{n} \text{Party}_i^2$. Here, $Party_i$ denotes the seats of governing party i as a share of the total number of seats held by all n governing parties in the lower house of the legislature (or unicameral parliament). The equation can generate values between zero (single party government) and very close to one (when none of the governing parties has more than a single seat). This measure is better at dealing with outliers at the upper end of the distribution than the 'effective number of parties' (Laakso and Taagepera 1979), which lacks an upper bound.[8]

I would prefer to calculate partisan fragmentation on the basis of data on the party membership of individual members of the cabinet, but the source for the spending

[7] Fiorino and Ricciuti (2007) investigate the effect of legislature size on per capita expenditure by regional governments in Italy.

[8] Note that common pool effects depend on the size-weighted number of parties, but not on their ideological distance (Franzese 2008). Hence, I do not incorporate polarization into this analysis.

ministers variable did not consistently report their partisan affiliation. Empirical studies of portfolio allocation have found a near-perfect correlation between seat shares and portfolio shares in coalition governments, which Warwick and Druckman (2006: 635) describe as 'one of the strongest empirical relationships documented in the social sciences'. Most of this work has focused on parliamentary democracies in Western Europe (see the review in Verzichelli 2008). The comparative study of coalition politics in presidential systems is more recent (Cheibub 2007) and, to my knowledge, has not yet included a systematic analysis of portfolio allocation. Hence, there are significant opportunities for further empirical work on portfolio allocation, which is beyond the scope of this paper. Here, I assume that the findings in the existing empirical literature can be extrapolated across systems of government and different geographical regions, i.e. that the portfolio shares of the governing parties are proportional to their seat shares.[9]

Typical economic control variables used in the relevant literature include the natural logarithm of inflation and annual GDP growth (Hallerberg and Marier 2004) as well as an indicator of trade openness (Alesina *et al.* 1999). In addition, I control for possible electoral budget cycles (Franzese 2002, Brender and Drazen 2005) with a dummy for years with executive elections. 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. Freedom House scores account for the possibility that democracy affects the demand for public spending

[9] A further potential problem with both of these measures of partisan fragmentation is that factions *within* parties may be very powerful and in some cases functionally equivalent to separate parties.

(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). 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, geographical location, the form of government, and the type of electoral system (Persson and Tabellini 2003). Here, as specified below, I use an empirical model with country fixed effects to capture any direct impact of time invariant variables and to 'soak up' most of the explanatory power of rarely changing variables (Beck 2001: 285).

[TABLE 1 ABOUT HERE]

3. Empirical models and results

This section specifies the empirical models and reports 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 a fixed effects specification to model fiscal outcomes (either the central government budget deficit or expenditures as a share of GDP, as applicable) in country *i* at time *t* is as follows:

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

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.[10]

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 government:

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

[10] 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 and Katz 2004: 15). Also, the Fisher test did not indicate that it is problematic to assume stationarity (Maddala and Wu 1999).

The only difference to 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 of the government:

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

In contrast to the coefficient β_1 in the first (additive) model, the coefficient γ_1 in the second (multiplicative or interactive) model represents the effect of a one-unit increase in spending ministers when partisan fragmentation is zero, i.e. under one party government. In the presence of partisan fragmentation, both γ_1 and γ_3 are required to calculate the effect of adding a spending minister (Brambor *et al.* 2006, Kam and 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 $(\gamma_1 + \gamma_3) > \gamma_1$.

[TABLE 2 ABOUT HERE]

Table 2 reports the results. The column headings 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 effect of adding one spending minister is to increase the deficit and public spending by 0.123 and 0.117 per cent of GDP, respectively. 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. With regard to the control variables, only GDP growth and trade openness have a

statistically significant effect on both of these fiscal aggregates. A one-unit increase in GDP growth reduces deficits and expenditures by 0.061 and 0.059 per cent of GDP, respectively, and a one-unit increase in trade openness reduces both deficits and outlays by 0.026 per cent of GDP. 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 does not achieve significance at conventional levels. This suggests that the adverse effect of electioneering on the deficit is partly due to revenue-side measures. It is not appropriate to compare the exact size of the coefficients on spending ministers to those documented in most previous studies, due to the use of different fiscal indicators with varying levels of consolidation, as well as different operationalizations of the variable of interest.[11] Overall, these are strong results in support of the hypothesized link between the number of spending ministers and fiscal performance.

As a robustness check, 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. I do not report these estimates here to conserve space, but they are available upon request. 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 should be explored further through cross-sectional analysis. Moreover, such an analysis should take into account

[11] Volkerink and De Haan's (2001) study is most similar in these regards, but very different in terms of the diversity of the sample. Their estimated effect of adding a spending minister on the deficit is somewhat smaller: 0.08 per cent of GDP in the baseline model (ibid.: 229).

bicameralism and the possibly distinct budgetary impact of second chambers (Heller 1997 and 2001, Bradbury and Crain 2001, Cusack and Fuchs 2003).

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 government. Since γ_3 is positive, the estimates in columns (2a) and (2b) of Table 2 imply that the impact of adding a spending minister to the cabinet on the deficit and expenditures increases as the partisan fragmentation of the cabinet rises. In column (2a), the *t*-value for the interaction term is 1.68 ($p = 0.099$), and in column (2b) it is 1.58 ($p = 0.119$). As a robustness check, I excluded extreme cases of partisan fragmentation, i.e. those with a value of 0.9 or higher, which weakened these results. Overall, these findings do lend some support to the interactive hypotheses, but they are not very strong.

[FIGURE 2 ABOUT HERE]

Graphical exposition helps to further interpret 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 government, 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 less pronounced in single party governments or governments with very low levels of partisan fragmentation than in multi-party coalitions with high levels of partisan fragmentation.[12]

4. Conclusions

This article has advanced the literature on the fiscal effect of cabinet structure in several ways. First, I present evidence with a larger and more diverse sample than any other cross-national study of this topic to date. Second, the operationalization of the main variable of interest is carefully aligned with theoretical work, resulting in a new global dataset of the number of spending ministers. Finally, I give attention to the likely interaction between partisan fragmentation and the number of spending ministers. 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 public spending by 0.123 and 0.117 per cent of GDP, respectively. I also find some evidence that the estimated size of the marginal effect of

[12] 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.

spending ministers on both deficits and expenditures is increasing in partisan fragmentation. This suggests that single party cabinets are able to mitigate, but not eliminate, fiscal illusion. Follow-up research should explore this relationship with data on partisan fragmentation based on the portfolio shares of parties in the governing coalition, rather than their seat shares in the legislature.

In terms of policy implications, these 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 better understand when this would be a feasible approach requires more work on the determinants of cabinet structure. A cursory glance at Figure 1 suggests some possible determinants of cross-country variation in the number of spending ministers, in particular geographical and population size. On the other hand, possible causes of the within-country variation exploited in this analysis are less obvious. Hence, a careful analysis of the determinants of cabinet structure is required to shed more light on this issue. Also, this paper highlights the potential of extending empirical work on fiscal performance beyond the 'usual suspects' of advanced industrialized democracies. Future research should extend the coverage of this database of spending ministers and ensure that the variable is routinely included in empirical analyses of the determinants of fiscal policy outcomes.

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Appendix: Variable definitions and 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).

PARTISAN FRAGMENTATION: The probability that two deputies picked at random from among the government parties in the legislature will be of different political parties. Source: Variable GOVFRAC in Beck *et al.* (2001; April 2008 update).

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).

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. Source: Author's calculations based on the variable EXECRLC in Beck *et al.* (2001; April 2008 update).

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

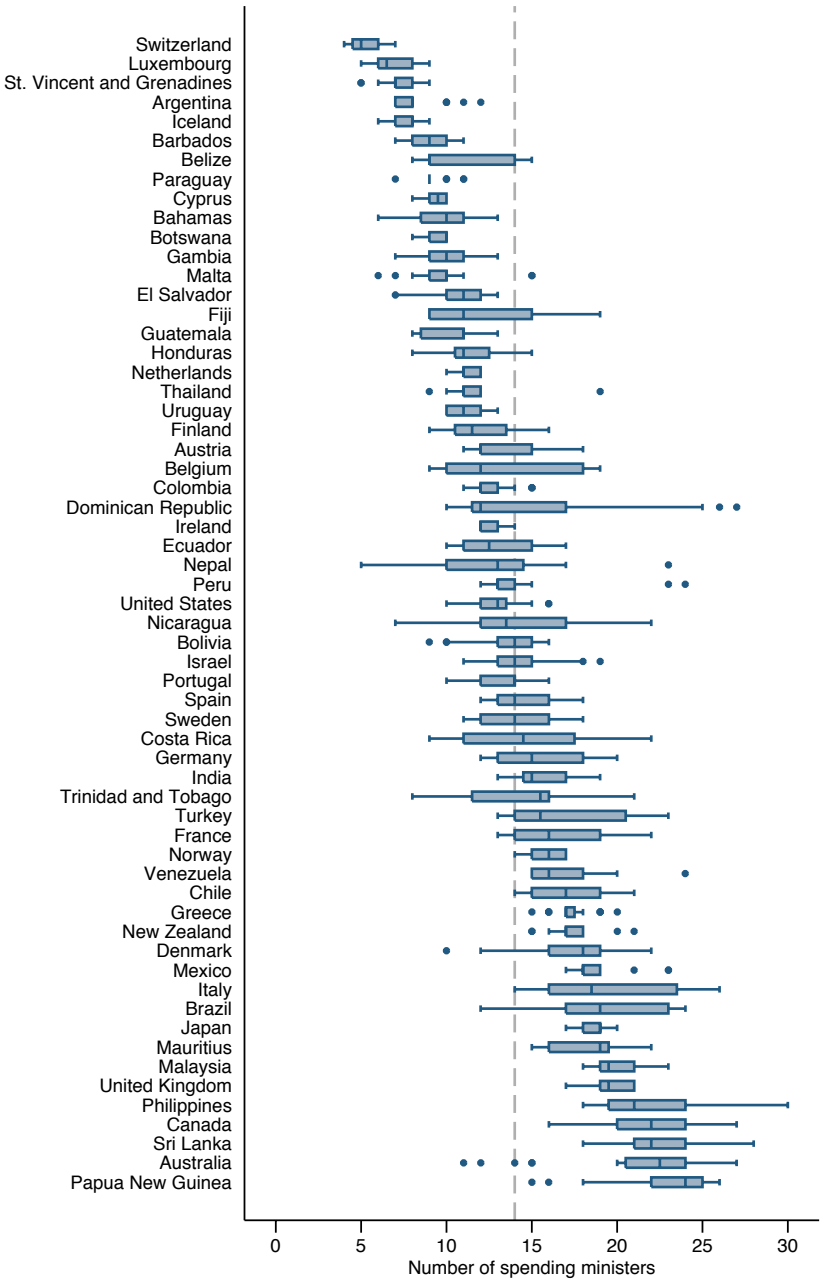
SPENDING: Central government expenditures as a percentage of GDP. Source: Variable CGEXP in Persson and Tabellini (2003; corrected version dated June 2003).

SPENDING MINISTERS: All ministers with full cabinet rank minus (a) the chief executive (prime minister, president, 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: Europa Publications Limited (various years).

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, zero otherwise. Source: Sarkees (2000).

Figure 1: The number of spending ministers in 60 countries, 1975-1998



Notes: Only observations where Freedom ≤ 5.5 are included. The dashed line indicates the pooled sample median (14). N = 1406.

Table 1: Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Deficit	1235	3.409	4.398	-22.631	24.450
EU12	1410	0.060	0.237	0	1
Executive elections	1407	0.239	0.427	0	1
Freedom	1410	2.178	1.258	1.000	5.500
GDP growth	1400	3.404	4.015	-26.479	26.139
Left chief executive	1290	0.316	0.465	0	1
Log of inflation	1391	2.194	1.360	-4.074	9.372
Partisan fragmentation	1281	0.238	0.289	0.000	1.000
Spending	1307	27.681	11.049	8.087	67.702
Spending ministers	1406	14.151	4.838	4.000	30.000
Trade openness	1382	70.085	39.015	8.868	208.643
War	1410	0.101	0.302	0	1

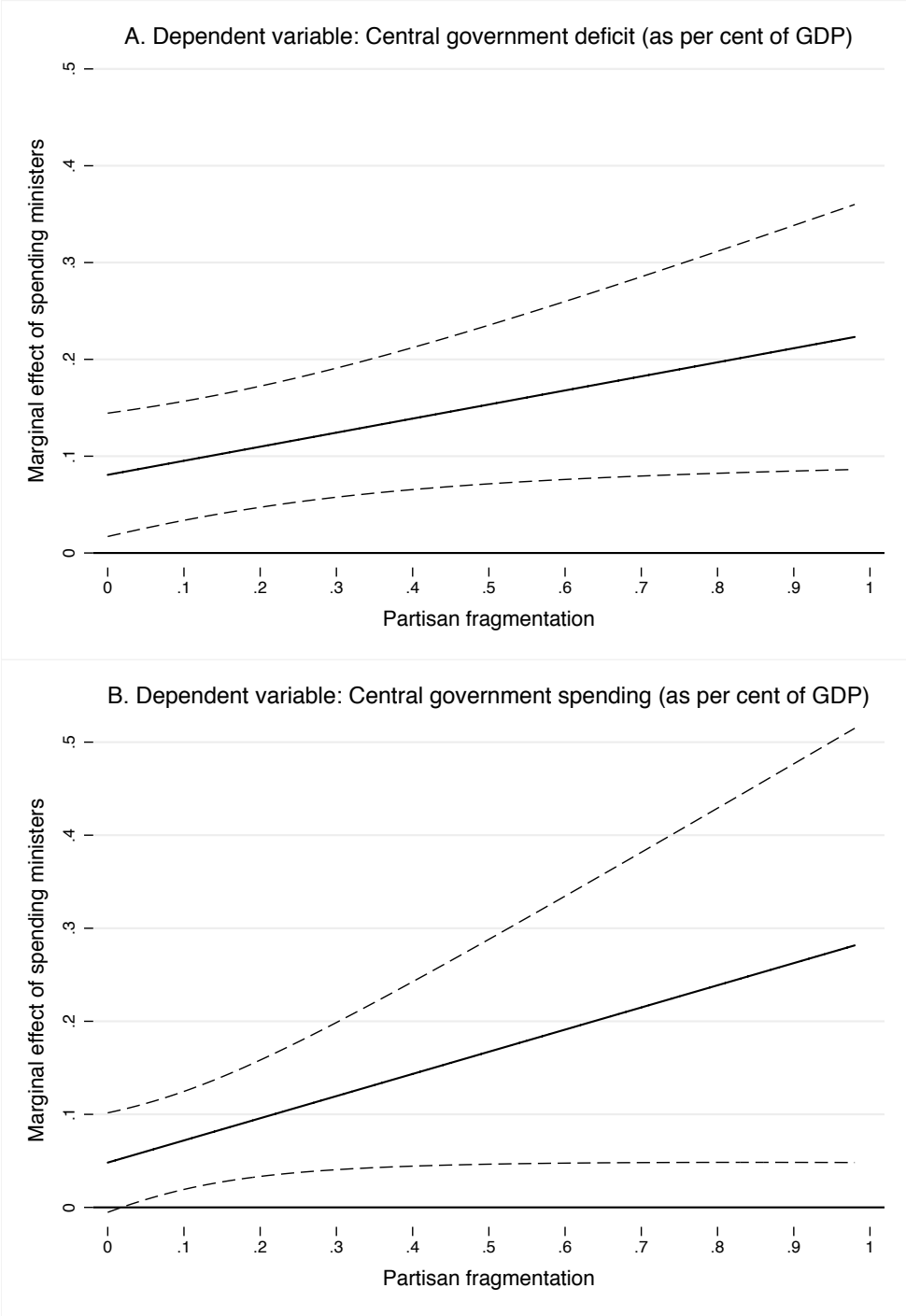
Note: Only observations where Freedom ≤ 5.5 are included.

Table 2: Results

	(1a)	(1b)	(2a)	(2b)
Dependent variable	Deficit	Spending	Deficit	Spending
Spending ministers	0.123	0.117	0.081	0.048
	(0.041)***	(0.048)**	(0.039)**	(0.033)
Partisan fragmentation	0.114	0.750	-2.041	-2.797
	(0.425)	(0.895)	(1.257)	(1.758)
Spending ministers × partisan fragmentation			0.145	0.238
			(0.087)*	(0.150)
Lagged deficit	0.627		0.626	
	(0.060)***		(0.060)***	
Lagged spending		0.702		0.700
		(0.041)***		(0.040)***
Log of inflation	-0.072	-0.088	-0.068	-0.088
	(0.092)	(0.201)	(0.087)	(0.192)
GDP growth	-0.061	-0.059	-0.061	-0.059
	(0.027)**	(0.027)**	(0.027)**	(0.027)**
Trade openness	-0.026	-0.026	-0.027	-0.027
	(0.009)***	(0.010)***	(0.009)***	(0.011)**
Executive elections	0.490	0.171	0.484	0.156
	(0.173)***	(0.152)	(0.171)***	(0.149)
Left chief executive	0.317	0.415	0.321	0.412
	(0.302)	(0.352)	(0.303)	(0.342)
Freedom	-0.156	-0.197	-0.156	-0.200
	(0.168)	(0.156)	(0.165)	(0.163)
EU12	-0.230	-0.106	-0.236	-0.105
	(0.500)	(0.487)	(0.483)	(0.475)
War	0.925	0.520	0.960	0.560
	(0.617)	(0.512)	(0.620)	(0.508)
Observations	1075	1137	1075	1137
Number of countries	57	57	57	57
Year effects	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes

Notes: Standard errors clustered by country 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).

Figure 2: The conditional marginal effect of spending ministers



Notes: 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.