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## With a Little Help from My Friends: Ministerial Alignment and Public Spending Composition in Parliamentary Democracies

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OF ECONOMICS AND  
POLITICAL SCIENCE ■



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# With a Little Help from My Friends: Ministerial Alignment and Public Spending Composition in Parliamentary Democracies

Abel Bojar

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# With a Little Help from My Friends: Ministerial Alignment and Public Spending Composition in Parliamentary Democracies

Abel Bojar\*

## Abstract

*The determinants of public spending composition have been studied from three broad perspectives in the scholarly literature: functional economic pressures, institutional constraints and party-political determinants. This paper engages with the third perspective by placing intra-governmental dynamics in the center of the analysis. Building on the portfolio allocation approach in the coalition formation literature and the common pool perspective in public budgeting, I argue that spending ministers with party-political backing from the Finance Minister or the Prime Minister are in a privileged position to obtain extra funding for their policy jurisdictions compared to their colleagues without such support or without any partisan affiliation (non-partisan ministers). I test these propositions via a system of equations on six spending categories using seemingly unrelated regressions on a panel of 32 parliamentary democracies over two decades and offer largely supportive empirical evidence. With the exception of education, I provide evidence that budget shares accruing to key spending departments reflect this party-political logic of spending outcomes. In addition to the econometric results, I also illustrate the impact of ministerial alignment by short qualitative accounts from selected country cases.*

**Keywords:** Public spending, budget composition, cabinet, ministers, coalition.

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# **With a Little Help from My Friends: Ministerial Alignment and Public Spending Composition in Parliamentary Democracies**

## **Introduction**

If the study of politics is best conceptualized by the time-tested Lasswellian (1936) catchphrase of “who gets what, when and how”, investigating the determinants of public spending composition should be one of the most relevant avenues of inquiry for political science scholarship. Since the birth of the modern “tax state” and its subsequent transformation into the “debt state” (Streeck 2014), an increasing amount of fiscal resources have been channeled from current and future taxpayers to recipients of welfare programs and beneficiaries of public goods and services. In most advanced capitalist democracies, around half of GDP passes through government coffers every year. Decisions on who gets what share of this pie and who gets favored at the expense of whom have great potentials to fuel new political conflicts, restructure existing ones and ultimately decide the electoral fate of ministers, parties and governments responsible for the spending mix.

Yet, despite the large body of literature addressing this issue, we lack a coherent account of the main drivers of spending shares across different budgetary categories. This paper aims to take an important step in that direction by highlighting the role of political agency in the budget process. By building on two influential literatures on intra-governmental dynamics – the

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portfolio allocation model (Laver and Shepsle 1990) and the common pool resource approach (von Hagen and Harden 1995), respectively – I highlight the crucial role of party-political alignment between governmental actors as an important predictor of spending composition in parliamentary democracies. The main argument I put forward and test in a panel of 32 parliamentary democracies over 20 years is that spending ministers with the same party-political background as the Prime Minister and the Finance Minister are systematically privileged in the annual allocation of budgetary resources compared to ministers delegated by coalition partners and their non-partisan colleagues.

This government-centered explanation on spending outcomes does not sit in an uncharted territory, however. The extant literature on public spending composition that I review in the next section has provided a rich empirical arsenal to build on. The economic literature has made important contributions by highlighting some of the structural conditions – globalization, overall fiscal constraints, levels of economic development, demography etc. – that create various sources of social demands on different types of budgetary resources. The institutional perspective, by contrast, has zoomed in on the constitutional and legislative environment that shapes the incentives and strategic flexibility of the main political players to steer spending composition towards their political objectives. Thirdly, an important group of political accounts has stressed the role of ideology of collective actors as well as the personal backgrounds of the political elites as predictors of budget composition.

In this paper I shall not aim to provide a definitive confirmation of these findings, nor shall I aim to call their validity into question. Instead, I argue that the party-political aspect of intra-governmental dynamics merits further analysis because of two important shortcomings of the existing literature. First, much of the evidence provided is concerned with slowly-changing

phenomena, such as functional economic pressures and macro-political institutions. Their explanatory power may be strong in the long run, but they are hard to square with some of the short-term swings that one can observe in spending composition over the timeframe that this paper addresses (1995-2015)<sup>1</sup>. Second, much of the empirical literature all too often conceptualizes governments as monolithic benevolent planners that somewhat mechanistically respond to the underlying demands of their constituencies without taking stock of other, self-serving motives that may shape their behavior. This latter point is of course not entirely new in the long history of political thought; the origins of the public choice school in the context of budgeting (Niskanen 1971, Tullock et al 2002) lie in this very premise. However, an explicit incorporation of the different and often conflicting incentives driving ministers' spending preferences offers valuable contributions to our understanding of the political economy of budgeting.

Figure 1 offers a quick visual summary of our main explanandum. The plots provide a visual snapshot of country-specific spending shares of 6 COFOG<sup>2</sup> categories over our study period. The black circles mark the country-specific minima and maxima while the red squares show the country averages. The vertical blue line cutting across the graphs marks the sample average. All data are expressed in % of overall general government spending.

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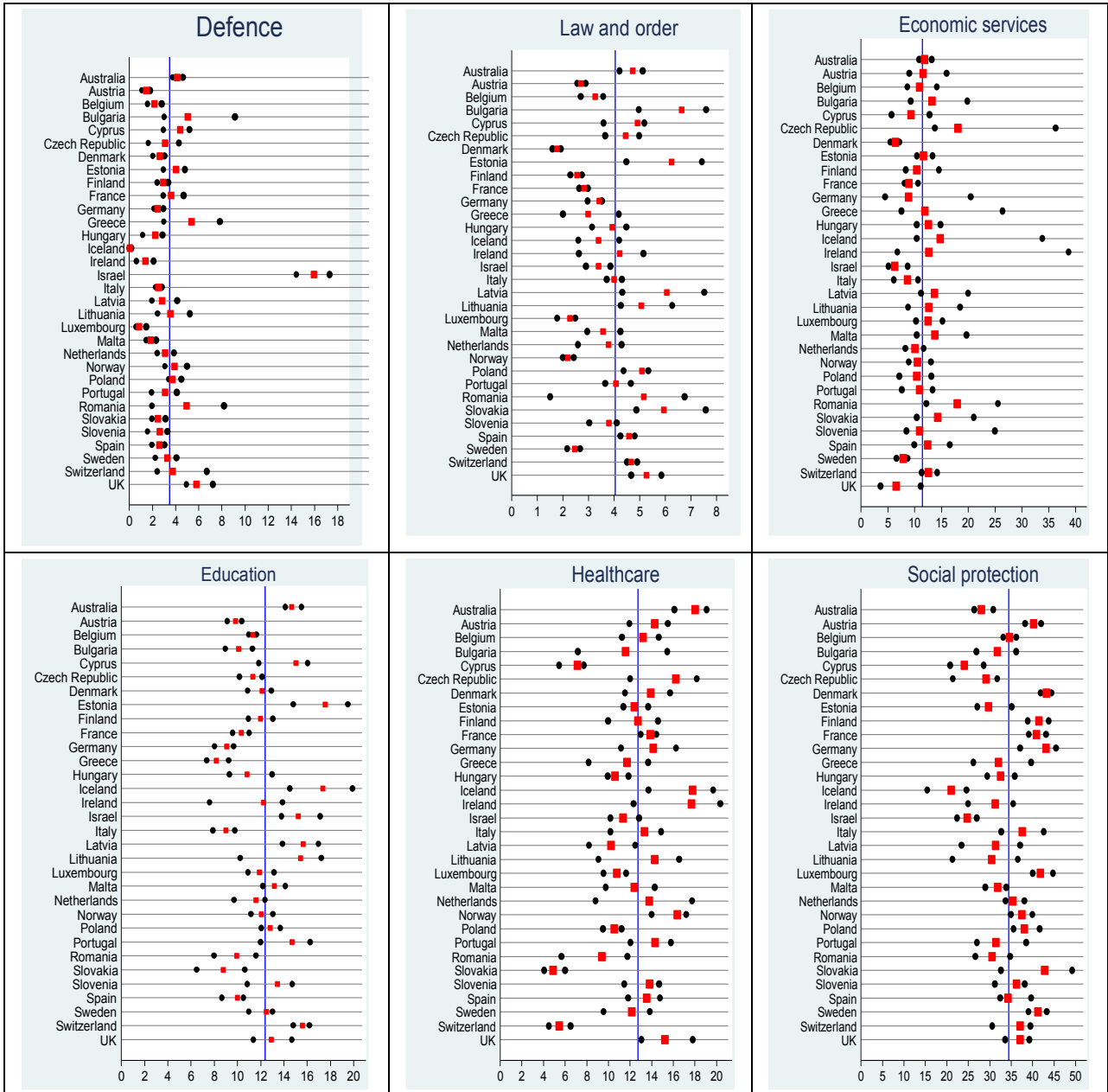
<sup>1</sup> The two exceptions are Finland and Switzerland where data is available from 1990 onwards.

<sup>2</sup> The Classification of Functions of Government developed by the United Nations (UN, 1999) classifies government spending into 10 functional categories: general public services, defence, public law and order, economic affairs, environmental protection, housing, health, recreation and culture, education, and social protection.



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**Figure 1.**  
 Spending shares of 6 COFOG categories in 32 countries between 1995 and 2015  
 (% of total government spending)



Source: OECD, Eurostat, own calculations.

In any given spending category, the width of country-specific ranges reveals that significant within-country variation occurred over a relatively limited time-span of two decades. Whether one looks at the range of spending on public order and safety in Latvia, economic services in the Czech Republic or healthcare in Ireland, it is implausible to attribute these swings to changes in the structural economic conditions or macro-political institutions. The cross-

country patterns also seem hard to reconcile with some of the existing accounts, especially when one looks at some selected pairwise comparisons. In other words, comparing country-specific averages between countries with similar institutional structures (forms of government, electoral and party systems, degree of federalism, welfare and production regimes etc.) leaves some of the large differences unexplained. For instance, how does one account for the relatively large difference in healthcare spending between Latvia and Lithuania, or the difference between spending on economic affairs between Denmark and Finland when these country-pairs largely resemble in their institutional make-up and the prevailing economic conditions and structures? These over-time and cross-country differences highlight the need to turn to short-term governmental dynamics for an answer.

After outlining the three clusters of the relevant empirical literature in greater detail in the next section, I proceed to inquire what the portfolio allocation and the common pool resource literature can contribute to our conceptualization of public spending composition in section III. Section IV outlines my data and my empirical strategy, Section V presents the main empirical findings, complemented by robustness checks and extensions in Section VI. Section VII concludes.

## Structure, institutions or agency? Drivers of public spending composition

The role of structural conditions and constraints prevailing in (post)-industrial societies has long been a prime candidate in accounting for the growth of the public sector (Swank 1988, Adsera and Boix 2002). Only relatively recently did the scholarly community turn from the dynamics of overall spending to its functional purposes. For instance, among the most commonly cited reasons for

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the expansion of government, Wagner's law<sup>3</sup> has provided a fairly accurate prediction on how economic development leads to the growth of government but said little about how the increased fiscal resources would be spent. Likewise, Niskanen's budget maximizing model (1971) has served as an important reference point for conservative critics of government growth but it said little about why certain ministries or agencies would be privileged in the allocation of annual government funds at the expense of others.

Over recent decades, a fertile scholarship emerged that related some of the structural conditions to public spending composition. Unsurprisingly, globalization stood out as one of the most popular narratives in the broader story. Either via FDI penetration (Gemmel et al 2008), external debt stocks (Mahdavi 2004) or more generic metrics of trade and financial openness (Dreher et al 2006; Shelton et al 2007), the degree of embeddedness in the international economy has been linked to variation in the share of public resources allocated between productivity-oriented and other forms of spending (e.g. social protection). Likewise, overall fiscal constraints have been highlighted as an additional structural condition determining the spending mix). Mirroring the effects imposed by globalization, periods of fiscal consolidation also exert differential pressures on productive vs. non-productive budgetary items as evidenced by the relatively higher share of social spending that is cut under heavy fiscal constraints (Casto 2017 ; Sanz 2011). In addition to these contributions studying the overall spending mix, other contributions have lighted the share of particular spending items as a function of structural conditions, such as the rise in pension- and social spending in response to demographic changes (Sanz and Velasquez 2007), the effect of urbanization on environmental spending (Aghte et al 1996) and the

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<sup>3</sup> See Durevall and Henrekson (2011) for its critical reappraisal in an empirical setting

link between crime and government spending on education (Rivera and Zarate-Tenorio 2016)

From a political science perspective, however, it would be rather naïve to presume that functional pressures automatically translate into an optimal change in the spending mix, as if driven by the invisible hand of social demand and political supply. Such critique of structural determinism is widely recognized by institutionalist scholars who see macro-political institutions both as constraints and as shapers of incentives of governmental actors. From the former perspective, Tsebelis and Chang (2004) use the constellation veto players as well as the ideological distance between them to predict changes in budget composition in a multidimensional space. Another example of the view of institutions as constraints is offered by the vast literature on fiscal rules. Tsai (2014), for instance shows that carryover rules in American states condition the changes in states' budget composition in the run-up to gubernatorial elections.

Alternatively, institutions can be conceptualized as strategic opportunities shaping the incentive of governmental actors to further their political objectives. One prominent contribution from this angle is Milesi-Ferretti et al's seminal article (2002) that distinguishes between geographically targetable spending (such as government purchases of goods and services) and broad-based transfers and argues that electoral systems condition which types of spending would be preferred by re-election seeking incumbents. In a similar spirit, Breunig and Busemeyer (2012) distinguish between discretionary and entitlement spending and show how the two types of spending categories are affected differently in times of austerity in different electoral systems.

Despite these important findings, by their very nature macro-political institutions change very rarely and hence their explanatory power in accounting for large within country changes demonstrated earlier is inherently

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limited. This consideration has prompted a group of scholars to zoom in on the role of government itself, as distinct from state structures discussed above, for an answer. After all, elections and government changes bring a new set of players to decision-making positions with an opportunity to act upon their first preferences subject to institutional constraints. The role of government ideology has accordingly been shown to impact on different budgetary categories. Potrafke (2011) shows that government ideology has a weak influence on budget composition with left-wing governments more likely to channel resources to general public services and education. When ideology, strictly understood, is replaced in the empirical studies by the attention that parties devote to certain budgetary items in their manifestos, the effects are considerably stronger. In this vein, Breunig (2011) demonstrates that attention shifts lead to large changes in budget composition whereas Brauninger (2005) shows that the relative salience of issues in parties' manifestos is a strong predictor of the relative share of social and economic types of budget outlays. By focusing on spending on public order and safety policies (police forces, prisons etc.), Wenzelburger (2015) also finds a strong influence of government ideology, as measured by parties' manifestos, on budget outcomes.

In these accounts, ideology has been used to describe collective political actors with governments and political parties in the center-stage. However, certain individuals at the top echelons of the decision-making hierarchy may have an independent influence over budget outcomes, on top of what their parties' preferences may normally dictate. On a general level, Brender and Drazen (2013) show that leadership changes (replacement of prime ministers in parliamentary and presidents in presidential systems) lead to significant changes in budget composition. With a narrower focus on certain budget items, Hayo and Neumeier (2012) emphasizes the role of prime ministers' professional and personal background in the context of the German Landers:

those from lower socioeconomic status tend to privilege spending types that have an equalizing effect, namely healthcare and social protection. If the personal characteristics of political leaders seem to matter for budgetary outcomes, a natural extension of the analytical enquiry is from the top level to the lower echelons of policy-making.

In fact, a related body of literature has studied the role of individual spending ministers in cabinet formation and policy output. The idea that heading spending ministries is a key objective of office-seeking political parties has a clear intuitive appeal. Empirically, one of the most robust relationships in political science that lays a well-deserved claim on its status implied by its name is Gamson's law (Browne and Franklin 1973): parties tend to occupy a share of ministerial portfolios in direct proportion to their seat shares (and in PR systems to their electoral strength) in parliament. It is also fairly well established that parties also place a great emphasis on the type of portfolios they bargain for at the stage of coalition formation (Back et al 2011, Warwick and Druckman 2006): they are more likely to occupy ministries that they emphasize in their election manifestos or reveal to prefer via expert interviews (see also Raabe and Linhart 2014 for salience measures of ministerial portfolios in the German context).

Though the extent to which these ministers enjoy autonomous policy-making powers against the various levers of coalition partners has been subject to a long-standing debate (Laver and Shepsle 1990, 1996; Warwick 1999; Dunleavy and Bastow 2001; Carroll and Cox 2012; Thies 2001), there is a growing body of literature that examines the ministerial impact on policy output. For instance, Martin and Vanberg (2014) analyze the amendments to proposed bills and show that their final version reflects coalition compromises. Gianetti and Laver (2005) focus on cabinet ministers' parliamentary speeches during the Prodi government in Italy over the period of 1996-1997 and finds that they are strong

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predictors of departments' spending allocations. Alexiadou (2015) in turn emphasizes the role of ministers' personal background and empirically shows that they are related to welfare policy output under their jurisdictions. In particular, the author's distinction between partisan heavyweights, loyalists and ideologues serves to illuminate the crucial role of ministers' party-political position in the cabinet in predicting policy outcomes.

Of the multiplicity of factors that determine spending ministers' policy leverage, a shared view in the coalition literature concerns the relative bargaining power between coalition partners. Though cabinets in parliamentary systems vary a lot on the collegial-hierarchical spectrum of policy-making (Alesina and Perotti 1999), two key players are universally viewed as first among equals. Of particular importance as the leading voice of formateur parties in coalitions, the Prime Minister has special agenda setting powers in determining spending priorities at the time of coalition formation and in response to new problem pressures that arise from year to year. While she is politically accountable to all constituencies that benefit from spending programs, the Prime Minister also has partisan goals in mind when navigating the trade-off between spending demands under hard budget constraints. When having to choose between demands by a spending minister delegated by a coalition partner and those made by a partisan colleague, she is likely to favour the latter as it confers both personal (as the Prime Minister ultimately responsible for all governmental decisions) and partisan (typically as head of her party eyeing for the next elections) rewards on her. While bowing to demands of a minister delegated by a different party is often necessary to maintain coalition cohesion, it carries the risk of allowing a potential partisan rival to claim credit for the extra fiscal resources accruing to her department. The implication for budget allocation is clear: spending ministers delegated by the senior coalition party headed by the PM have, *ceteris paribus*, a head-start

when it comes to budget appropriations vis a vis their non-partisan cabinet colleagues.

In addition to the Prime Minister, an equally influential player in the budget process is the Minister of Finance (Hallerberg et al 2009; Jochimsen and Thomasius 2014). Typically conceptualizing the Finance Minister as the guardian of budget discipline whose primary objective is to constrain the spending demands of his cabinet colleagues, another influential body of literature has modelled the total budget as an outcome of a complex interaction between spending ministries and the Minister of Finance who bargain over a common pool of fiscal resources (Velasco 2000; von Hagen and Harden 1995).<sup>4</sup> In the simplest formulation of this model, each player reaps the full benefits of constituency-specific spending but bears only a fraction  $1/N$  of the costs implied by the extra tax and/or debt burden that is spread over the whole population, where  $N$  is the number of relevant players. The more numerous the players are, the weaker is the position of the Finance Minister to stand up against such spending demands unless aided by a set of budgetary institutions created as a counterweight to these pernicious dynamics (Hallerberg et al 2009; Poterba and Von Hagen 1999).

For the purposes of drawing predictions for budget composition, it is crucial to disentangle the specific nature of  $N$  in the common pool perspective. In a partisan-free setting, it is the size of the cabinet that it is mostly relevant: the larger (the more fragmented) the cabinet is, the more severe the spending pressure becomes leading to larger total outlays (Perotti and Kontpoulous 2002; Schaltegger and Feld 2009). More realistically, however, budget negotiation takes place in a partisan setting. In addition to the intrinsic benefit that greater

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<sup>4</sup> For an extensive review of the common pool approach, see also Raudla (2010).



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fiscal resources bring in the form of pork barrel and patronage opportunities as well as personal prestige (Niskanen 1971; Raabe and Linhart 2014), participants at budget negotiation are also likely to have partisan motives in mind with crucial implications for the role of the Finance Minister. In particular, the conflictual relationship that characterizes the link between the Finance Minister, responsible for budget discipline, and spending ministers who fail to internalize the costs of excessive spending and thus push for ever greater funding for their departments, is expected to depend on their party-political background. If the players are conceptualized as parties (Bawn and Rosenbluth 2006; Wehner 2010) rather than individual ministers, the calculus of the Finance Minister is altered. Her motives to rein in department-specific spending are now tampered by her partisan goals to channel higher spending shares to their co-partisan colleagues at the expense of coalition partners. Tentative evidence for this logic is provided by Herzog and Mikhaylov (2014) who show that ministers' proximity to the finance minister, as measured by the content of their contributions in budget debates, appears as a strong predictor of their departments' budget allocations in the Irish context.

In essence, while the coalition formation literature underlines the role of formateur parties, and therefore the Prime Minister as the key actor in constraining department-specific incentives of spending ministers for higher spending, the common pool perspective highlights the Finance Minister as the guardian of budget discipline and as the key to department-specific spending constraints. Crucially, one can infer from both perspectives that shared party-political background is a crucial mediating factor in the budgeting calculus by aligning incentives between the key players on the one hand and the spending ministers, on the other for higher budget shares at the expense of ministries led by coalition partners or non-partisan colleagues.

A reasonable objection to this reasoning at this point concerns the role of procedural budgetary institutions (Hallerberg et al 2009: 2), fiscal rules (Poterba 1996; Rose 2006) and coalition agreements (Torbjorn et al 2005; Indriðason and Kristinsson 2013; Back et al 2017) that constrain the spending power of individual ministers as well as the agenda setting and oversight powers of the two key players – the Prime Minister and the Finance Minister – identified above. We contend, however, that given these institutional constraints, the party-political alignment between the key players continues to matter on the margin. For instance, even if a constitutionally mandated fiscal rule sets a ceiling on the size of the overall budget, the *spending shares* accruing to the specific departments, which is the focus of this paper, is expected to depend on partisan alignment patterns. In other words, the logic of ministerial alignment aligned above is largely independent of overall fiscal constraints. Whether co-partisan colleagues receive more funds because the key players are more likely to acquiesce to budgetary overruns (higher deficits) or because they find it more palatable to shift resources towards their co-partisans' departments at the expense of others, the overall argument remains intact: on the margin, co-partisan ministers are better placed to extract more resources from their two key leading figures in the cabinet.

Likewise, even if coalition parties commit to specific spending priorities in their coalition agreements, which ministers get a better deal from the bargain and who is likely to get the upper hand with year-to-year corrections to the fiscal path in subsequent budgetary years is expected to be a function of party-political alignment. For instance, while the overall spending-allocations over the governments-cycle may be fixed in the initial agreement, the Prime Minister and the Finance Minister have a degree of discretion on how they respond to fiscal shocks over the cycle. Which ministers get sheltered from an unforeseen

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fiscal squeeze, for instance, is likely to depend on their party-political alignment following the logic outlined above.

This paper thus focuses on these party-political alignment patterns between spending ministers on the one hand and the two key players on the other hand and proceeds to test two empirical hypotheses separately:

*H1: Party-political alignment between the Prime Minister and a Spending Minister increases the budget share accruing to the Spending Minister's department.*

*H2: Party-political alignment between the Finance Minister and a Spending Minister increases the budget share accruing to the Spending Minister's department.*

## Data, measurement, estimation

This paper tests the two hypotheses in a sample of 32 parliamentary democracies over the period of 1995-2015 (see Appendix for details). I restrict the sample to parliamentary systems because the constellation of actors under division of powers in presidential regimes implies a fundamentally different – and somewhat more complex – sort of political logic behind budgetary allocations. The temporal dimension is driven by data limitations imposed by functional classification of government spending. The current version of COFOG has been derived by the UN's statistical division from the system of national accounts (OECD 2011) and is available from OECD and EU member states (OECD 2017; Eurostat 2017). I focus on the 6 COFOG categories that are numerically important (make up more than 3% of total spending on average) and can be clearly matched with a spending ministry with the relevant policy jurisdiction. The 6 categories with the relevant ministries are: defence (*minister of defence*), public order and safety (*minister of the interior*), economic affairs (*minister of the economy*), education (*minister of education*), health (*minister of*

*health*) and social protection (*minister of welfare/social affairs*). The party-political background of ministers comes from an online database compiled by Lars Sonntag<sup>5</sup> which I cross-checked with some of the cabinets' Wikipedia pages for reliability.

For each budgetary item, I create a department-specific categorical variable that takes on the following values: 0, when the departmental minister has no party-political alignment with neither the prime minister nor the finance minister; 1, when the departmental minister is aligned with the prime minister but not with the finance minister; 2, when the departmental minister is aligned with the finance minister but not the prime minister; 3, when the departmental minister is aligned both with the finance minister and the prime minister; 4, when the departmental minister is non-partisan; 5, in the rare cases (except for the economics ministry) when no departmental portfolio existed in a given country-year. In the empirical models discussed below, I introduce this variable via a set of dummies for each alignment-type by leaving the non-aligned setting as the reference category (0). The frequency distribution of alignment-types is shown on Table A2 in the Appendix.

The dependent variable of the study is the budgetary share of the respective COFOG categories. All shares are expressed as a % of total general government spending as our primary interest is how resources are allocated subject to a budget constraint, a reasonable approximation for a period of general scarcity in fiscal resources. In other words, we want to measure spending shares in a way that directly takes into account the trade-off between them, i.e. their zero-sum nature.

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<sup>5</sup> See <http://www.kolumbus.fi/taglarsson/dokumentit/governm2.htm> [accessed 15 April 2018].

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The empirical models control for a number of variables deemed relevant by the empirical literature on budget composition. Following the structure of the literature overview, I divide up these controls into three clusters: structural, institutional and political. In particular, I use controls that have either been singled out by the literature as relevant for the entire budget composition or can be directly related to some of the particular budgetary categories by theoretical considerations. For instance, while a measure for fiscal constraint and globalization included for all equations, a demographic variable is only introduced for healthcare, social protection and education.

**Table 1.**  
Summary of control variables in the empirical models

<b><u>Spending Share</u></b>	<b><u>Variable</u></b>	<b><u>Measure</u></b>	<b><u>Source</u></b>
<i>All models</i>	Growth Structural deficit Debt GDP per capita Trade openness Gallagher index of disproportionality Election year	(Annual growth, %) % of potential GDP % of GDP Thousand USD (Export+import)/GDP Index score Dummy variable	OECD, Eurostat OECD, Eurostat OECD, Eurostat World Bank World Bank Democracy Barometer Parlgov database
<i>Defence</i>	Military personnel Minister's party's ideology	% of population Dummy for left-of center	World Bank Parlgov database
<i>Public order and safety</i>	Urban population Riots Minister's party's ideology	% of population in cities Dummy for large riots Dummy for left-of center	World Bank Democracy Barometer Parlgov database
<i>Economic affairs</i>	Urban population Minister's party's ideology	% of total population Dummy for left-of center	World Bank Parlgov database
<i>Education</i>	Dependency ratio (young) Minister's party's ideology	Young/working-age Dummy for left-of center	World Bank Parlgov database
<i>Healthcare</i>	Dependency ratio (old) Life expectation Minister's party's ideology	Old/working-age Years Dummy for left-of center	World Bank World Bank Parlgov database
<i>Social protection</i>	Dependency ratio (old) Unemployment Minister's party's ideology	Old/working-age % of labour force Dummy for left-of center	World Bank IMF Parlgov database

Table 1 above summarizes the controls, together with their source, that enter the spending share-specific models. Apart from the overall criteria outlined

above, I aimed to prioritize variables that can be thought of as exogenous structural or institutional drivers of (or constraints over) the respective spending shares. Of course, exogeneity, in a strict sense can't always be guaranteed. The size of the military, for instance, is not just a demand-side driver of defence spending but is also a function of the allocated funds for the military. I thus aimed for a practical compromise between minimizing type 1 and type 2 errors: not omitting some of the most relevant exogenous drivers and not including too many that may cause endogeneity bias in our main estimates of interest.

Since I estimate a system of equations with potentially contemporaneously correlated errors<sup>6</sup>, I follow the budget composition literature (see Dreher et al 2006 and Breunig and Busemeyer 2012 for examples) and fit seemingly unrelated regressions (SUR) on the data (Zellner 1962). SUR has the advantage over conventional panel techniques that it increases the efficiency of the estimates when the residuals from the different equations are correlated and a different set of regressors enter as explanatory variables in the different equations. Taking into account country-heterogeneity that we are unable to explicitly model and may introduce severe bias in our estimates in case of correlation between the country-specific errors and the regressors, I also include a set of country dummies. I thus essentially model the impact of ministerial alignment on the deviation of the different spending shares from their country-specific means. As a robustness check I provide results by estimating the spending shares separately via fixed-effects OLS with panel corrected standard-errors (Beck and Katz 1995).

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<sup>6</sup> In fact, since the spending shares are expressed as a % of the total budget, any omitted that shows up in the error term in one equation variable – for instance, shocks affecting only one of the spending items - is likely to be negatively related to the error term in another equation.

The estimated system of equations can be parametrically described as follows:

$$S_{jit} = \alpha_{jit} + \beta_{jit} * X_{jit} + \gamma_{jit} * C_{jit} + \gamma_{ji} + \varepsilon_{jit}$$

The dependent variable  $S$  stands for the spending share in budgetary category  $j$ , in country  $i$  at time  $t$ ,  $\alpha_{jit}$  is the regression intercept,  $X_{jit}$  is the main independent variable (the categorical variable for different constellations of ministerial alignment),  $C_{jit}$  is a vector of control variables,  $\gamma_{ji}$  are  $n-1$  country dummies,  $\varepsilon_{jit}$  are the residuals and  $\beta_{jit}$  and  $\gamma_{jit}$  are a set of coefficients to be estimated.

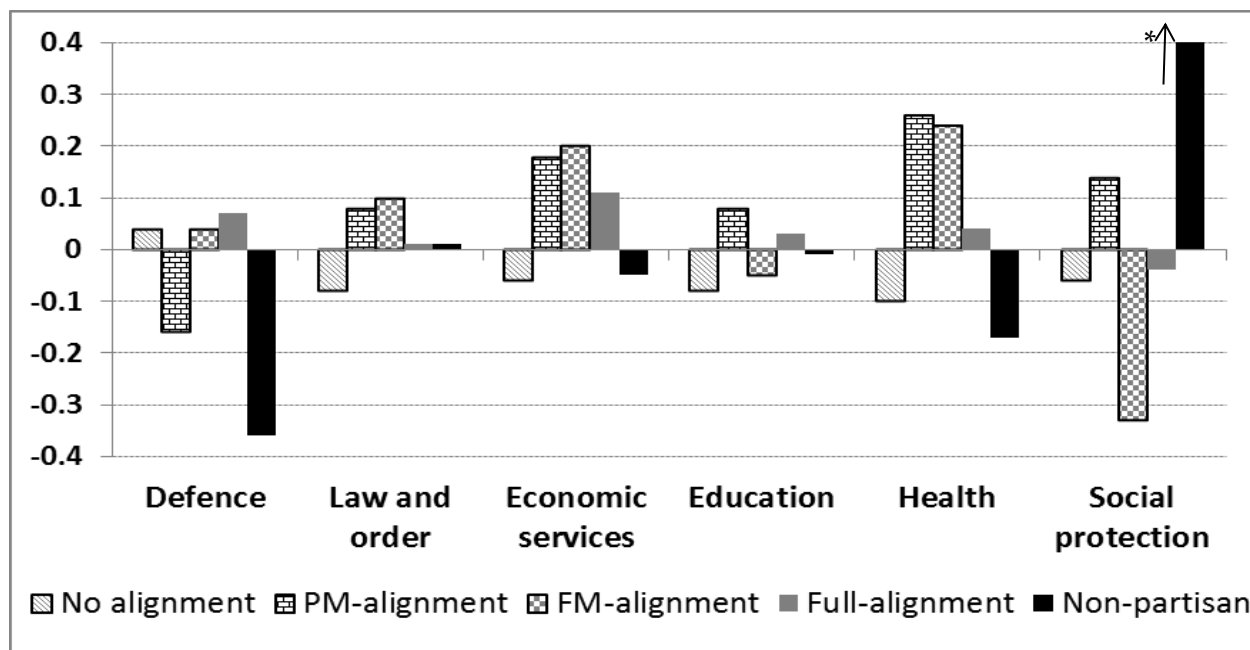
### Results: the impact of ministerial alignment on budget composition

As a first test of the empirical plausibility of the theories, I provide descriptive summary statistics of budget shares under different constellations of ministerial alignment. Since the econometric tests model the country means by country-specific fixed effects, the spending shares shown on Figure 2 below are demeaned averages, i.e. deviations from the country-specific means.

Though the patterns are somewhat mixed and differ greatly between the different spending shares, there are some interesting commonalities to be observed. For instance, apart from the defence budget, periods of non-alignment tend to be associated with below-average department-specific spending shares. The reverse seems to be true for most alignment types. Although to varying degrees and with some exceptions, periods of ministerial alignment with the Prime Minister, Finance Minister or both tend to be associated with above average spending shares. Spending shares under non-partisan spending ministers are mixed; especially the spending share of social protection under the few cases of non-partisan minister (14 country years) is a

large outlier: 1.58 % above the country-means. Of course, these figures are simple period averages which do not take into account the effect of controls, nor do they reveal much about the statistical significance between the group differences.

**Figure 2.**  
Demeaned spending shares under different constellations of ministerial alignment (% of total government spending)



\*Outsized column (1.58%), not fully shown to preserve the axis scale.

I thus proceed to estimate the econometric models. As a first step, I fit a baseline model – results shown on Table 2 – that regresses spending shares on country-fixed effects and the department-specific alignment variables. Coefficients for fixed effects and the 6<sup>th</sup> category of missing ministerial portfolio are suppressed from the table to ease readability in this and all subsequent models.



**Table 2.**  
Coefficient estimates from the baseline SUR-model

Dependent Variable (% of total budget)	Defence	Public Order and Safety	Economic affairs	Education	Health	Social Protection
PM-alignment	-0.173 (1.72)*	0.234 (3.55)***	0.051 (0.14)	0.237 (1.82)*	0.423 (2.20)**	0.214 (0.71)
FM-alignment	-0.183 (1.50)	0.229 (2.67)***	0.375 (0.94)	-0.099 (0.66)	0.324 (1.33)	-0.523 (1.42)
Full-alignment	0.189 (2.33)**	0.118 (1.95)*	0.169 (0.50)	0.070 (0.75)	0.164 (1.05)	-0.073 (0.32)
Non-partisan	-0.307 (2.21)**	0.125 (1.19)	-0.068 (0.17)	0.078 (0.47)	-0.267 (1.10)	0.953 (1.74)*
2 N	0.93 644	0.87 644	0.56 644	0.90 644	0.85 644	0.86 644
Bresuch-Pagan $\chi^2$ (p-value)	525.05 (p<0.001)					

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

The model fits, captured by the R2s are very high with the economic affairs equation being somewhat of an exception. This exception is partly explained by the fact that large unmodelled one-off measures, such as bank bailouts or recapitalization of public enterprises, fall in this category. The Breusch-Pagan  $\chi^2$  test for residual independence allows for an easy rejection of the independent errors null-hypothesis, providing a strong justification for the choice of SUR estimation. Indeed, the cross-equation correlation matrix (see Table A-3 in the Appendix) reveals some interesting patterns, such as the large negative correlation coefficient (-0.48) between the social protection and economic affairs equations, suggesting that the two spending shares respond to shocks in an opposite direction: when the share of social spending rises, spending on economic affairs tends to drop.

The main coefficients of interest are the alignment dummies (with the case of non-alignment as the reference category). With the exception of social protection, the other five equations provide evidence for the portfolio allocation approach. This is most visible in the area of public order and safety where all three alignment types are significantly associated with higher spending shares compared to the non-aligned setting (with the non-partisan country-years non-significantly different from the non-aligned setting). In the other spending areas, the evidence from the baseline model is weaker: for defence, only the fully aligned setting appears to significantly differ from the non-aligned one whereas for education and health, alignment with the prime minister only seems to be decisive.

These initial patterns however need to be treated with caution as they do not take into account some of the structural and institutional drivers of spending outcomes. In the extended models, I thus include a first set of controls that relate to all spending shares as outlined in Table 1 above: growth, debt level and changes in the structural balance (fiscal constraint), trade (globalization), gdp per capita (Wagner's law) Gallagher index of disproportionality (institutional constraint) and a dummy for election year to test for any department-specific effects of political budget cycles (see de Haan and Klomp 2013 for a relatively recent review).

In these extended models, the  $R^2$ s edge up a bit and the Breusch-Pagan  $\chi^2$  continues to provide strong evidence for cross-equation correlation of the errors. Of the control variables, the election dummy and trade penetration do not appear as significant predictors of spending composition. By contrast, with the caveats of possible endogeneity concerns in mind, higher growth appears systematically associated with higher spending shares for defence, public order and safety and education, and lower shares for economic affairs, health and social protection. The fiscal variables (debt levels and changes in the structural

## Ministerial Alignment and Public Spending

budget balance) also appear to play an important role: higher debt levels act as a break on education and healthcare spending while social protection takes up a larger share of the total budget under a high debt burden. Likewise, when governments balance the books (increases in the structural balance), social protection is systematically protected at the expense of economic affairs and defence spending. Wagner's law points towards increased social spending (both social protection and healthcare) with an increase in gdp per capita at the

**Table 3.**  
Coefficient estimates from the extended SUR-models

Dependent Variable (% of total budget)	Defence	Public Order and Safety	Economic affairs	Education	Health	Social Protection
PM-alignment	0.076 (0.75)	0.129 (2.00)**	0.184 (0.54)	-0.019 (0.16)	0.229 (1.51)	-0.296 (1.05)
FM-alignment	-0.031 (0.26)	0.198 (2.39)**	1.028 (2.62)***	-0.057 (0.41)	0.330 (1.67)*	-0.708 (2.05)**
Full-alignment	0.388 (4.65)***	0.034 (0.55)	0.162 (0.46)	-0.084 (0.99)	0.251 (1.97)**	0.238 (1.10)
Non-partisan	-0.173 (1.23)	0.125 (1.23)	0.068 (0.17)	-0.124 (0.81)	-0.046 (0.24)	0.547 (0.94)
growth	0.022 (2.45)**	0.033 (5.53)***	-0.064 (1.89)*	0.034 (3.52)***	-0.260 (1.18)	-0.117 (4.28)***
trade	0.003 (1.21)	-0.000 (0.24)	-0.008 (1.00)	0.009 (3.90)***	-0.008 (2.58)***	0.005 (0.73)
debt	0.001 (0.42)	-0.007 (5.06)***	-0.002 (0.26)	-0.021 (8.96)***	-0.029 (9.01)***	0.023 (3.54)***
$\Delta$ structuralbalance	-0.037 (2.08)**	0.013 (1.04)	-0.152 (2.24)**	-0.010 (0.49)	0.026 (0.92)	0.164 (2.99)***
gdppercapita	-0.047 (9.81)***	0.010 (3.09)***	-0.023 (1.24)	0.001 (0.10)	0.115 (15.30)***	0.060 (4.06)***
gallagher	-0.002 (0.11)	-0.035 (3.01)***	-0.041 (0.60)	0.006 (0.32)	0.026 (0.97)	0.011 (0.20)
election	-0.037 (0.61)	0.043 (1.06)	-0.083 (0.36)	0.002 (0.04)	-0.005 (0.05)	0.072 (0.39)
R2	0.94	0.90	0.57	0.93	0.92	0.90
N	566	566	566	566	566	566
Bresuch-Pagan $\chi^2$ (p-value)			381.42 (p<0.001)			

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

expense of defence. Finally, less proportionate electoral systems (high scores on the Gallagher disproportionality index) seem to be associated with lower

spending on public order and safety, somewhat contrary to the pertinent literature (Milesi-Ferretti et al 2002; Chang 2008) to the extent that such spending is geographically targetable.

Turning to the coefficients of interest, the overall evidence still provide evidence for the two hypotheses. The large and highly significant estimates for defence spending as well as health spending under periods of full alignment, public order and safety as well as economic affairs spending (the latter estimate is especially noteworthy for its size) in periods of PM- and FM-alignments all offer confirmatory evidence for the positive spending impact of ministerial alignment. The only “casualty” of the model extension is the education budget: with the introduction of the controls, no significant difference can be detected between the different alignment types. Also, again, social protection stands out as an exception: periods of FM-alignment here are characterized by a significantly lower share of spending compared to the country-specific means.

Finally, Table 4 presents the last set of models that include further controls for department-specific variables: size of the military for defence spending, % of urban population for spending on public order and safety as well as economic affairs, a dummy variable for riots for public order and safety, young- and old-age dependency rates for education-, healthcare- and social protection, life expectancy for healthcare and unemployment rate for social protection. Also, a partisan dummy variable (taking on value 1 under left-of-center formateur parties) is included for all the equations.

As expected, a larger military in relation to the whole population is associated with a higher share of defence spending and a higher share of urban population is associated with more spending on public order and safety as well as economic services. A high old-age dependency ratio increases spending for healthcare and social protection but rather surprisingly, a high ratio of young-

## Ministerial Alignment and Public Spending

age dependency appears to be associated with lower share of education spending. Unsurprisingly, life expectancy is positively associated with healthcare spending, just as higher unemployment leads to a higher share of social protection spending in the overall budget.

**Table 4.**  
Coefficient estimates from the fully-specified SUR-models

Dependent Variable (% of total budget)	Defence	Public Order and Safety	Economic affairs	Education	Health	Social Protection
PM-alignment	0.106 (1.05)	0.087 (1.41)	0.154 (0.40)	0.015 (0.13)	0.198 (1.39)	-0.106 (0.37)
FM-alignment	0.018 (0.16)	0.142 (1.76)*	1.014 (2.40)**	-0.080 (0.58)	0.183 (0.98)	-0.885 (2.54)**
Full-alignment	0.391 (4.61)***	0.015 (0.26)	0.410 (1.04)	-0.071 (0.87)	0.295 (2.48)**	0.293 (1.35)
Non-partisan	-0.599 (1.00)	0.133 (1.33)	-0.763 (0.86)	-0.275 (0.43)	-0.715 (1.58)	-0.909 (0.86)
growth	0.016 (1.87)*	0.041 (7.09)***	-0.061 (1.77)*	0.036 (3.75)***	-0.003 (0.19)	-0.104 (3.88)***
trade	0.003 (1.46)	0.000 (0.06)	-0.008 (0.98)	0.008 (3.67)***	-0.011 (3.67)***	0.006 (0.95)
debt	-0.001 (0.33)	-0.010 (7.16)***	-0.004 (0.46)	-0.021 (9.17)***	-0.039 (12.36)***	0.016 (2.39)**
Δstructuralbalance	-0.032 (1.80)*	0.008 (0.71)	-0.145 (2.10)**	-0.021 (1.10)	0.010 (0.40)	0.141 (2.61)***
gdppercapita	-0.038 (7.49)***	-0.003 (0.95)	-0.046 (2.28)**	-0.013 (2.16)**	0.044 (3.83)***	0.042 (2.66)***
gallagher	-0.002 (0.11)	-0.031 (2.78)***	-0.030 (0.44)	0.004 (0.20)	0.034 (1.35)	0.000 (0.00)
election	-0.043 (0.74)	0.021 (0.55)	-0.107 (0.47)	0.006 (0.09)	0.011 (0.13)	0.030 (0.17)
Left	0.050 (0.77)	-0.035 (0.87)	-0.074 (0.29)	0.082 (1.32)	-0.317 (3.47)***	-0.424 (2.61)***
armedforces	0.428 (4.88)***					
riot		0.072 (1.24)				
urbanpop		0.104 (7.40)***	0.195 (2.92)***			
dependency_young				-0.093 (4.62)***		
dependency_old					0.155 (4.77)***	0.111 (2.04)**
lifexp					0.363 (5.32)***	
unemployment						0.050 (2.54)**
R2	0.94	0.91	0.56	0.93	0.93	0.90
N	561	561	561	561	561	561
Bresuch-Pagan $\chi^2$ (p-value)			335.76 (p<0.001)			

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

Most importantly, however, the overall pattern conveyed by the ministerial alignment estimates remains largely intact compared to the models with a more limited set of controls. Most importantly, the large and significant positive estimates for full alignment still hold for the defence and the health budget, while the public order budget and the economic budget rise above their country-specific means only in periods of FM-alignment. The only countervailing is, again, the large drop in the share of social protection spending in years of FM-alignment.

## Robustness and Extensions

In addition to the stepwise inclusion of the groups of controls outlined above, I first re-estimate the models with a more conventional panel specification that treats the equations as independent from each other. The fixed effects OLS estimates with panel corrected standard errors are shown in the Appendix (Table A4). While some of the estimates' size now change (for example, the large estimate for the share of economic spending in periods of FM-alignment is now somewhat smaller), the qualitative picture remains the same. The defence budget and the health budget provide strong support for both hypotheses, while the models on spending on public order and safety as well as economic affairs offer somewhat weaker evidence in favour of the second hypotheses on the role of the Finance Minister. The model for education spending still provides no support for either of the hypotheses and the model for social protection still stands out for the reverse impact of FM-alignment.

Secondly, I return to the original model specification by zooming in the two largest and at the same time two most problematic budgetary categories: healthcare and social protection. Unlike the other four categories where the bulk of spending takes the form of discretionary spending, these two budgetary

items include a large number of entitlement programs with multi-annual legislative (and quite often constitutional) safeguards. In addition to the structural drivers specified by the SUR-models, as a result of these safeguards these two spending items often display long-term trends unaccounted for by the previous estimates. In fact, a simple regression of these two budget shares on a uniform sample-wide trend predicts that the budgetary share of healthcare and social protection increases by 0.12% and 0.18%, respectively, on an average annual basis.

**Table 5.**  
Coefficient estimates from the detrended models for healthcare and social protection spending

Dependent Variable (% of total budget)	Healthshare (residuals)	Socialshare (residuals)
PM-alignment	0.015 (0.15)	-0.016 (0.09)
FM-alignment	0.147 (1.08)	-0.083 (0.35)
Full-alignment	0.169 (2.17)**	0.285 (2.08)**
Non-partisan	0.122 (0.91)	0.069 (0.17)
Constant	-0.088 (1.46)	-0.123 (1.14)
R2	0.01	0.01
N	590	590
<i>Bresuch-Pagan</i> $\chi^2$ (p-value)	2.902 (0.08)	

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

To circumvent the potential problems that the omitted trend variable may entail, I first reran the SUR models without the ministerial alignment dummies but adding country-specific trends via a set of interaction variables between the country-specific fixed effects and the trend variable. The residuals from these auxiliary regressions can thus be used as proxies for the discretionary part of the respective spending categories that are not explained neither by the underlying drivers specified in the models nor by the country-specific trends.

As a second step, I thus regressed these residuals via another set of SURs on the ministerial dummies only. These estimates are shown below on Table 5.

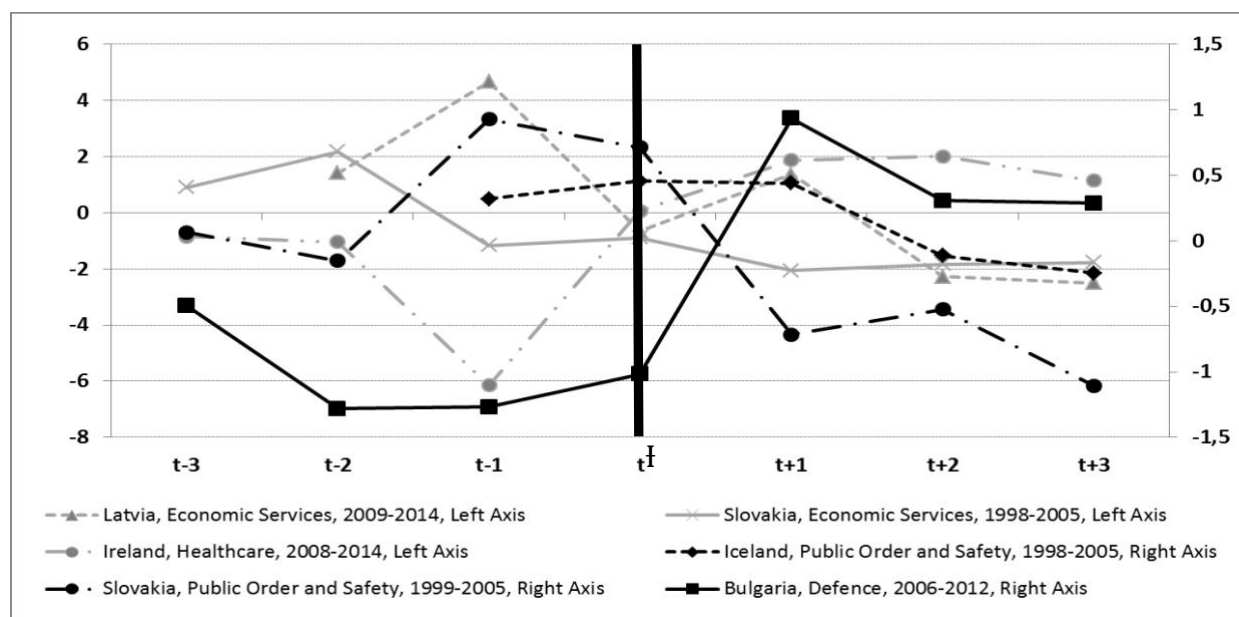
Reassuringly, the coefficients for ministerial-alignment in the healthcare sector in these detrended models behave similarly to the main estimates presented earlier. The marginal effect of full ministerial alignment (full-alignment dummy) is now somewhat smaller (0.17%) than in the previous models though it still safely passes conventional significance thresholds ( $p=0.03$ ). More importantly, when the country-specific trends are accounted for, the model for social protection now provide evidence for our hypotheses: similar to the health budget, in years of full party-political alignment between the PM, the FM and the minister of social affairs, the share of social protection is almost 0.3% ( $p=0.037$ ) larger than in years without any ministerial alignment.

As a final extension, I use a similar identification strategy to illustrate the impact of ministerial alignment in selected country-cases. First, I rerun the SUR-models with the structural, institutional and political drivers as well as country-specific trends but omitting the ministerial alignment dummies. The residuals from these regressions now include the impact of the ministerial alignment dummies as well as other omitted variables (and white noise). Second, I identify years where the residuals are more than 5% below and more than 5% above the predicted values as proxies for large positive and negative spending shocks (discretionary measures). Third, I identify periods where at least 2 years of negative (positive) shocks are followed by at least 2 years of positive (negative) shocks and check if these periods correspond to changes in government and/or ministerial alignments that are consistent with the empirical results. Overall, I was able to identify 6 such periods that Figure 3 illustrates below. On the chart, the x-axis covers the years 3 years before and 3 years after the year of government change. The data points correspond to the



regression residuals from the SUR-model without the inclusion of the ministerial alignment dummies.

**Figure 3.**  
Evolution of the structural (and detrended) model residuals before and after changes in government in selected episodes (% of total budget)



t year of government change

For illustrative purposes, the changes in defense spending in Bulgaria between 2006 and 2013 are especially noteworthy. Between 2005 and 2009, the constellation of the relevant ministries was a paradigmatic example of a non-aligned setting. Under the leadership of Sergei Stanishev from the Bulgarian Socialist Party, the Finance Ministry was headed by the non-partisan Plamen Oresharski and the Ministry of Defence was first led by Vesselin Bliznakov then by Nikolai Tsonev, both from the coalition partner NDSV, the party of the ex-tsar Simeon II. The 2009 election, however, gave way to a significant overhaul of Bulgarian party politics with the right-wing GERB led by Boyko Borissov becoming the strongest party on the Bulgarian party scene with close to 40% of the vote (Parlgov 2016). As a result of this landslide victory GERB formed a single-party government with all spending ministries under its control. In parallel with the political swing in party politics, the share of resources

accruing to the defence budget also changed significantly: while between 2009 it stood around 1% lower than would be predicted by the SUR models with the structural, institutional and political drivers, it shot above the predicted value following the year of the 2009 elections and stayed slightly above its predicted level thereafter.

While in the Bulgarian episode a coalition government gave way to a single-party one, the Irish 2011 election brought to power a coalition government between Fine Gael and Labour, led by Enda Kenny, replacing the Fianna Fail-Progressive Democrats Coalition of Brian Cowen as Prime Minister. The change in government took place in the aftermath of the Irish banking crisis and the 2010 IMF intervention mandating severe cuts in the public budget. I focus here on the health budget for two reasons. First, as a budgetary category typically dominated by entitlement spending (health insurance), it is a hard test for the theory. Second, the ministerial alignment between the minister of health and the PM/FM also changed with the change in leadership. Whereas in the pre-2011 FF government, the ministry was headed by Mary Harney, delegated by the Progressive Democrats, FF's junior coalition partner, in the post-bailout episode both the health ministry and the finance ministry (as well as the Prime Minister position itself) was occupied by Fine Gael politicians. Importantly, James Reilly, who headed the health ministry after 2011 was a prominent partisan figure in FG, acting as deputy party leader since 2010 (Wikipedia, 2017). Correspondingly, in the midst of severe cuts in the overall budget, the relative share of healthcare spending edged up relative to what would be predicted by the structural model (including the trend variable) on healthcare spending. The swing between  $t-1$  (a year before government change) and  $t+1$  (a year after the government change) amounts to a full 8 % of total spending.

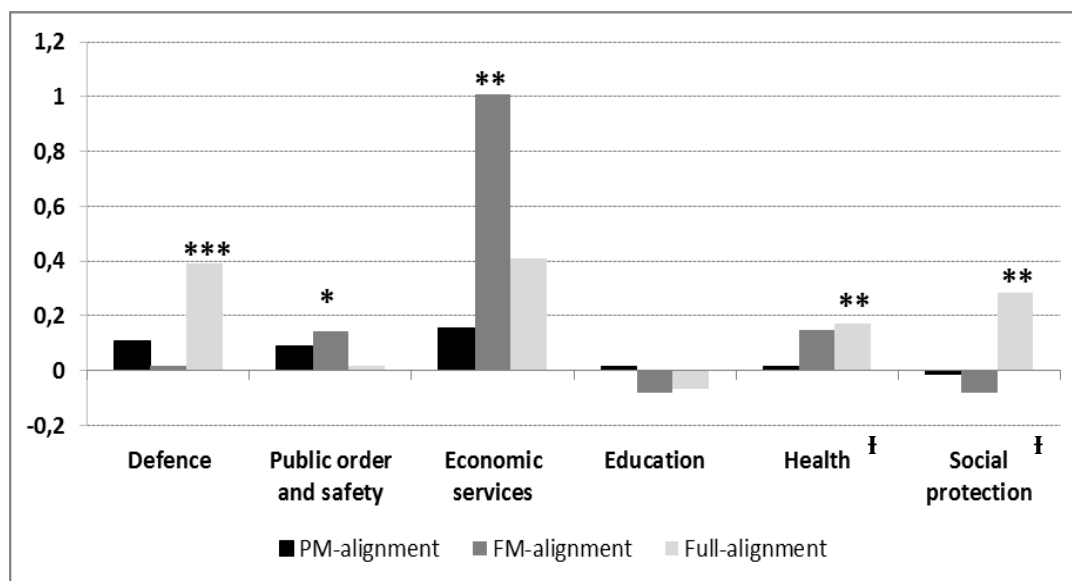
## Discussion and Conclusion

In the labyrinth of spending shares and different constellations of ministerial alignments, it is inherently difficult to disentangle a neat story that is consistent across countries, time and types of budgetary items. The aim I set out in the beginning of this paper is to find some commonalities in the underlying intra-governmental logic that drives public spending composition. By restricting the analysis to within-country changes and controlling for a multitude of exogenous forces that impact on public spending composition, I offered two hypotheses on such logic: one derived from the portfolio allocation approach in the coalition formation literature emphasizing the role of formateur parties and therefore the Prime Minister, the other inspired by the common pool resource approach in public budgeting putting the Finance Minister in the centre-stage. The overall weight of evidence, as summarized on Figure 4, provides more support for the second perspective: alignment with the PM's party alone is rarely a strong predictor of budget outcomes; ministerial alignment with the FM (and in some cases both the PM and the FM), however, tend to be associated with higher spending shares in the respective budget items.

Beyond the statistical significance found for some of these effects that are marked on Figure 4, the substantive point estimates are also noteworthy. In the area of defence, for example, the fact that in periods of full ministerial-alignment the expected spending share is almost 0.4% above periods of non-alignment when holding other drivers of defence spending constant, is especially noteworthy given that this type of spending is typically a relatively small component of the total budget (3.5% in the sample average). The 1% positive impact estimated for periods of FM-alignment in economic services also stands out both in absolute number and in relative terms to the average budget share for economic services (11.4% in the sample).

**Figure 4.**

Summary of coefficient estimates from the fully specified SUR models  
(Partial effect of ministerial alignment compared to the reference category of no alignment, % of spending share in total budget)



\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

‡ Estimates are used from the detrended models

Two limitations of these findings, however, merit further analysis. One concerns the specific causal mechanism that connects ministerial alignment with budget outcomes. In the simplest formulation of the portfolio allocation approach, coalition partners arrive to the negotiation table with fixed preferences on portfolio salience and spending priorities and bargain for portfolio positions that maximize their potential to act upon those preferences. Our empirical findings, however, leave open an important question in the underlying causal mechanism: do the spending outcomes merely reflect these underlying preferences, or in other words, do higher/lower spending shares under ministerial alignment/non-alignment simply suggest that formateur parties succeeded/failed to succeed in obtaining ministerial portfolios that they wanted to flood with resources in the first place? Or alternatively, are spending share differentials testimony to ministerial autonomy in the strict sense of the word, whereby appointed ministers are more successful in ensuring higher funding for their departments when their co-partisans occupy one or both of

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the two most important budgetary positions? Though the empirical patterns shown by this paper are interesting in their own right, one needs to understand them with a certain dose of agnosticism with regards to the specifying underlying causal mechanism.

The second limitation of our findings concerns the different patterns across budgetary items. While in some categories (defence and health and in the detrended models, social protection), full ministerial alignment – i.e. PM, FM and SM being all delegated by the same formateur party – appears to have the greatest impact, in others (public order and safety and economic services) party alignment with the finance minister seems to matter the most. More problematically, in the domain of education no group differences were found and the results in the domain of social protection only corroborate the hypothesis when country-specific trends are explicitly modelled. At this point, no definitive answer can be provided for the reasons for such differences. An important next step in this research agenda would be understanding the department-specific dynamics that lead to these divergent trajectories.

Finally, these findings raise an important question for institutional design. While the case for independent central banks have been widely established both theoretically and empirically (Barro and Gordon, 1983, Franzese, 2002:4), only relatively recently has the idea of non-political appointments as Finance Ministers gained intellectual currency. Apart from the general fears of budgetary overruns and deficit biases under highly politicized Finance Ministers, our findings point to an additional risk of partisan appointments. Even if the overall fiscal regime is highly conservative and constrained by rules and budgetary institutions, large relative spending shifts between spending departments in response to changing ministerial alignments may be equally problematic. If party-political favoritism rather than the long-term exigencies of the national economy is the key determining factor in resource allocation, it

raises awkward questions about the very quality of democratic responsiveness and representation.

## Appendix

**Table A1.**  
Countries and years in the data sample

<b>Country</b>	<b>Time-frame</b>
Australia	1998-2014
Austria	1995-2015
Belgium	1995-2014
Bulgaria	1998-2014
Cyprus	2001-2014
Czech Republic	1995-2015
Denmark	1995-2015
Estonia	1995-2015
Finland	1990-2015
France	1995-2015
Germany	1995-2014
Greece	1995-2015
Hungary	1995-2014
Iceland	1998-2015
Ireland	1995-2014
Israel	1995-2015
Italy	1995-2015
Latvia	1995-2015
Lithuania	1995-2015
Luxembourg	1995-2015
Malta	1995-2015
Netherlands	1995-2015
Norway	1995-2015
Poland	2002-2015
Portugal	1995-2014
Romania	1995-2014
Slovakia	1995-2014
Slovenia	1999-2014
Spain	1995-2014
Sweden	1995-2015
Switzerland	1990-2014
UK	1995-2015

**Table A2.**

Frequency distribution of ministerial alignment types in the sample (number of country-years)

	<b>Defence Minister</b>	<b>Interior Minister</b>	<b>Economic Minister</b>	<b>Education Minister</b>	<b>Health Minister</b>	<b>Minister for social affairs</b>
Non-alignment	200	171	197	171	180	207
PM-alignment	107	115	72	92	111	122
FM-alignment	59	68	40	78	46	48
Full-alignment	337	373	171	334	288	334
Non-partisan minister	32	34	47	37	38	24
No relevant ministry	26	0	234	49	98	26

**Table A3.**

Correlation matrix of the equation residuals from the SUR models

<b>Baseline Model</b>						
	<b>Defence</b>	<b>Public order and safety</b>	<b>Economic services</b>	<b>Education</b>	<b>Health</b>	<b>Social protection</b>
<b>Defence</b>	1					
<b>Public order and safety</b>	-0.06	1				
<b>Economic services</b>	0.02	-0.05	1			
<b>Education</b>	0.08	0.21	-0.32	1		
<b>Health</b>	-0.3	0.24	-0.3	0.24	1	
<b>Social protection</b>	-0.32	-0.8	-0.48	0.01	0.12	1

<b>Extended Model</b>						
	<b>Defence</b>	<b>Public order and safety</b>	<b>Economic services</b>	<b>Education</b>	<b>Health</b>	<b>Social protection</b>
<b>Defence</b>	1					
<b>Public order and safety</b>	-0.05	1				
<b>Economic services</b>	-0.09	-0.05	1			
<b>Education</b>	0.06	0.04	-0.41	1		
<b>Health</b>	-0.1	0.29	-0.3	0.16	1	
<b>Social protection</b>	-0.21	-0.03	-0.45	0.11	-0.02	1

<b>Fully specified Model</b>						
	<b>Defence</b>	<b>Public order and safety</b>	<b>Economic services</b>	<b>Education</b>	<b>Health</b>	<b>Social protection</b>
<b>Defence</b>	1					
<b>Public order and safety</b>	0.03	1				
<b>Economic services</b>	-0.09	-0.05	1			
<b>Education</b>	0.1	0.04	-0.4	1		
<b>Health</b>	-0.04	0.19	-0.32	0.22	1	
<b>Social protection</b>	-0.14	-0.07	-0.43	0.08	-0.1	1



# Ministerial Alignment and Public Spending

**Table 4A.**  
Regression output table from OLS panel estimates<sup>†</sup>

	Defence	Public Order and Safety	Economic affairs	Education	Health	Social Protection
PM-alignment	0.110 (1.21)	0.059 (1.10)	0.447 (0.92)	-0.038 (0.26)	0.373 (2.42)**	-0.320 (1.14)
FM-alignment	0.069 (0.81)	0.157 (2.24)**	0.608 (1.73)*	0.124 (0.78)	0.346 (1.61)	-0.857 (2.29)**
Full-alignment	0.427 (5.46)***	-0.012 (0.21)	-0.345 (0.76)	-0.055 (0.60)	0.419 (3.12)***	0.349 (1.20)
Non-partisan	-0.136 (0.83)	0.134 (1.75)*	-0.128 (0.27)	-0.190 (1.38)	-0.073 (0.49)	0.442 (1.17)
growth	0.022 (1.82)*	0.038 (5.15)***	-0.066 (1.52)	0.034 (2.12)**	-0.009 (0.51)	-0.108 (3.10)***
trade	0.002 (1.79)*	0.000 (0.11)	-0.008 (1.00)	0.008 (3.16)***	-0.011 (4.04)***	0.005 (0.93)
debt	0.001 (0.39)	-0.009 (7.56)***	-0.002 (0.13)	-0.021 (7.55)***	-0.040 (9.51)***	0.013 (1.78)*
Δstructuralbalance	-0.037 (1.88)*	0.009 (0.83)	-0.148 (1.72)*	-0.007 (0.33)	0.011 (0.34)	0.143 (2.74)***
gdppercapita	-0.047 (16.89)***	-0.006 (2.36)**	-0.023 (1.15)	-0.015 (3.24)***	0.056 (4.99)***	0.035 (2.36)**
gallagher	-0.002 (0.12)	-0.029 (3.21)***	-0.058 (0.90)	0.009 (0.43)	0.031 (1.17)	0.004 (0.09)
election	-0.035 (0.67)	0.027 (0.84)	-0.081 (0.34)	0.010 (0.17)	0.007 (0.07)	0.010 (0.07)
riot		0.060 (1.08)				
urbanpop		0.123 (14.83)***	0.019 (0.36)			
dependency_young				-0.110 (3.66)***		
dependency_old					0.215 (5.48)***	0.195 (4.29)***
lifexp					0.237 (2.68)***	
unemployment						0.080 (2.86)***
R <sup>2</sup>	0.94	0.91	0.57	0.93	0.93	0.90
N	566	566	566	566	566	563

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

† fixed effects with panel-corrected standard errors

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