

Potrafke, Niklas

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## General or Central Government? Empirical Evidence on Political Cycles in Budget Composition Using New Data for OECD Countries

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*Niklas Potrafke*

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Telephone +49 (0)89 2180-2740, Telefax +49 (0)89 2180-17845, email [office@cesifo.de](mailto:office@cesifo.de)

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# General or Central Government?

## Empirical Evidence on Political Cycles in Budget Composition Using New Data for OECD Countries

### Abstract

Previous studies used general government data to examine whether national governments' electoral motives and ideology influenced budget composition in OECD countries. General government data includes, however, the state and local level. Using new data for general and central government over the period 1995-2016, I reexamine political cycles in budget composition. The results suggest that, both at the general and central government level, leftwing governments spent more on education and less on public services than rightwing governments. Defense expenditure was somewhat lower under leftwing than rightwing governments and in election years; especially in federal states. Effects of government ideology on the individual expenditure categories are larger at the central than general government level. Scholars need to re-examine results on ideology-induced effects that have been derived from general government data where central government data should have been used.

JEL-Codes: D720, D780, E600, H300, H500, C230, P160.

Keywords: general and central government, budget composition, partisan politics, government ideology, electoral cycles, OECD countries, panel data models.

*Niklas Potrafke*  
*ifo Institute – Leibniz Institute for Economic Research*  
*at the University of Munich*  
*Poschingerstrasse 5*  
*Germany – 81679 Munich*  
*potrafke@ifo.de*

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# 1. Introduction

Electoral motives and government ideology may influence budget composition. Election-motivated politicians are more likely to increase expenditure that is visible to voters in the short-run like social spending than invisible forms of spending like infrastructure investment. Leftwing governments are expected to increase spending on income redistribution (social transfers) to a larger extent than spending on public goods like public safety and order. Since the 2000s, scholars have used data on different types of public expenditure such as the OECD's Classification of Functions of Government (COFOG) to examine political cycles in budget composition (Potrafke 2006 and 2011a, Enkelmann and Leibrecht 2013, Castro 2017, Castro and Martins 2018, Bojar 2019).<sup>2</sup> The empirical evidence is mixed – I return to these studies in section 2.

The OECD data on budget composition was only available for general government, which includes national, state and local government expenditure. Castro and Martins (2018: 45) describe: “Ideally, as De Haan et al. (1999) argue, we are better off using data for the Central Government as it relates to those expenditures that are directly controlled by government ministers. However, as far as we are concerned there is no data by functions available for the Central Government”. The shortcoming of previous studies is that general government expenditure includes expenditure determined by state and local governments, but the electoral motives and government ideology relate to national government.<sup>3</sup> It is very well possible that previous studies reported the effects of national governments' electoral motives and ideology on budget components that the national governments do not influence.

The OECD now provides new data on general and central budget composition. I use this new data to re-examine political cycles in budget composition in OECD countries. Using more

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<sup>2</sup> Studies on the subnational level in countries such as Canada, Germany, Portugal and India include Blais and Nadeau (1992), Galli and Rossi (2002), Potrafke (2011b), Castro and Martins (2016 and 2019), Ferris and Dash (2019). Vergne (2009) uses data for developing countries.

<sup>3</sup> Scholars examine electoral cycles in overall central governments' expenditure and revenue. See, for example, Veiga et al. (2017).

“noisy” data (general instead of central government data) is likely to give rise to biased estimates of political-economic variables such as government ideology. For example, the true effects of national government ideology on central governments’ budget composition may be larger than previous studies suggested when state and local government expenditure was not influenced by government ideology. The true effects of national government ideology on central governments’ budget composition may be smaller than previous studies suggested when politically aligned state and local governments were responsible for ideology-induced effects on general governments’ budget composition. I employ the Seemingly Unrelated Regression (SUR) estimator (Zellner 1962) which considers that expenditure in the individual categories of both general and central government are likely to be correlated. I investigate whether the coefficient estimates of the government ideology and election year variable differ between general and central government for every individual expenditure category. The results suggest that, both at the general and central government level, leftwing governments spent more on education and less on public services than rightwing governments. Defense expenditure was somewhat lower under leftwing than rightwing governments and in election years; especially in federal states. Effects of government ideology on the individual expenditure categories are larger at the central than general government level. Scholars should re-examine results on ideology-induced effects that have been derived based on general government data where central government should have been used.

## **2. Background and previous studies**

Partisan theories describe that leftwing governments implement more expansionary fiscal and monetary policies than rightwing governments (Hibbs 1977, Chappell and Keech 1986, Alesina 1987, empirical evidence surveyed by Schmidt 1996, Potrafke 2017, 2018 and Zohlnhöfer et al. 2018). Political business cycle theories describe that incumbent governments – government ideology notwithstanding – implement more expansionary policies before elections than during

other years in the legislative period (Nordhaus 1975, Rogoff and Sibert 1988, Rogoff 1990, empirical evidence surveyed by De Haan and Klomp 2013 and Dubois 2016). Expansionary fiscal policies include increasing government expenditure.

Election-motivated governments may well increase visible expenditure like social transfers to a larger extent than expenditure such as infrastructure investment that is only visible in the long-run. Leftwing and rightwing governments are expected to design budget composition in line with their constituencies' preferences (Bräuninger 2005). Leftwing governments have been described as gratifying the needs of blue-collar workers and rightwing governments as gratifying the needs of self-employed and high-income citizens. For a more detailed discussion on theories of how leftwing and rightwing governments are expected to prioritize individual expenditure types see, for example, Potrafke (2011a).

Scholars have examined empirically how electoral motives and government ideology influence budget composition in OECD countries (Bräuninger 2005, Potrafke 2006 and 2011a, Katsimi and Sarantidis 2012, Brender and Drazen 2013, Enkelmann and Leibrecht 2013, Morozumi et al. 2014, Castro 2017, Castro and Martins 2018, Bojar 2019). The latest empirical innovation based on general government data was to disentangle the ten COFOG expenditure types further; and to use the “second level” data as well which, for example, include police services, fire-protection services etc. for the “first level” of public safety and order (Castro and Martins 2018; on ideology-induced spending on environment protection see also Facchini et al. 2018). The authors conclude that both electoral motives and government ideology influenced budget composition. The effects of government ideology on budget composition were overall smaller than the effects of electoral motives.

General public service expenditure was somewhat higher in election years than in other years of the legislative period. Government ideology was hardly correlated with general public service expenditure (Enkelmann and Leibrecht 2013, Castro and Martins 2018). Military and defense expenditure is expected to be higher under rightwing than leftwing governments and

not likely to be increased before elections – theories that were confirmed by the new study of Bove et al. (2017). Election-motivated politicians are not likely to increase military expenditure before elections, but rather visible consumptive expenditure such as social expenditure. Previous studies found mixed evidence describing, for example, that leftwing governments also advocate military expenditure to increase public sector employment (Whitten and Williams 2011). Rightwing governments are expected to implement stricter public safety and order policies than leftwing governments. Empirical evidence suggests, for example, that imprisonment rates were higher under rightwing than leftwing governments (Sutton 2004). Spending on public order and safety was however hardly related to government ideology (e.g., Wenzelburger 2014).

Public health expenditure has been shown to be higher before elections than in other years of legislative periods. The electoral cycle in public health expenditure has been confirmed by using manifold empirical techniques, as well as for second level health expenditure such as medical products, appliances and equipment and hospital services. Empirical evidence on the nexus between government ideology and public health expenditure is mixed (Potrafke 2010 and 2011a, Jensen 2011, Herwartz and Theilen 2014a, Castro and Martins 2018).

Education expenditure has been examined by quite a few empirical studies (e.g., Busemeyer 2009, 2015, Garritzmann and Seng 2016). Scholars disentangle types of education (primary, secondary, tertiary) and examine, for example, whether rightwing governments spend more on tertiary education than leftwing governments because the constituencies of rightwing governments in particular benefit from well-established tertiary educational institutions such as universities (Potrafke 2011b, Kauder and Potrafke 2013, Garritzmann 2017, on public opinion on higher education spending see Busemeyer et al. 2018). The empirical evidence is mixed in OECD panels; maybe merely because education policies are often designed by subnational governments and the general government expenditure used by scholars in OECD panels was not suitable for examining political manipulation of the national government (see Table 1).

Social expenditure (the aggregate also includes health expenditure) was examined intensively in other studies. Examples include Kittel and Obinger (2003), Potrafke (2009), Schuknecht and Zemanek (2018) and Herwartz and Theilen (2014b and 2017) who use panel cointegration techniques and arrive at the conclusion that leftwing governments, in particular, were active in increasing social expenditure.<sup>4</sup> Ideology-induced effects have also been confirmed after the great recession that began in 2007 (Savage 2019).

### **3. New data on budget composition: general and central government**

I use the OECD's General Government Accounts data (2018a), which includes new annual data on general and central government budget composition. The panel is unbalanced over the period 1995-2016 for 20 countries (in levels). The countries included are: Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States. I focus on these established OECD countries (that joined the OECD in the 1960s) to make my results comparable with previous studies such as Castro and Martins (2018) and Potrafke (2011a) on political cycles in budget composition. The OECD also provides data for new OECD member countries such as Israel or Poland that I do not use.

The COFOG data includes ten types of expenditure (OECD 2017: p. 256.f): general public services, defense, public order and safety, economic affairs, environment protection, housing and community amenities, health, recreation, culture and religion, education and social protection.

The OECD provides the new COFOG expenditure for central and general government. The lion share of public expenditure is spent on social protection (Table 1). However, average budget shares of social protection are 36.68% for general and 26.43% for central government.

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<sup>4</sup> Bergh et al. (2017) examine how government ideology was associated with social expenditure conditional or policy recommendations of the OECD.

In a similar vein, the average shares of health and education are 14.04% and 11.77% for general and 8.34% and 9.40% for central government.

The average expenditure share on general public services like external affairs and foreign economic aid is far smaller for general (15.09%) than for central government (32.81%). The share of spending on defense is 3.32% for general and 5.65% for central government. Military policies are a domain of national, not state or local government.

The individual budget shares differ, however, quite a bit across countries. For example, the budget share on public services of the central government are very large in countries such as Belgium (69.40%) and Spain (68.14%) and small in countries such as Ireland (15.11%) and the United Kingdom (16.07%). The budget share on social protection of the general government are large in countries such as Denmark (43.22%) and Germany (43.17%) and small in countries such as the United States (19.64%) and Australia (28.09%). The differences across countries arise for several reasons. The sample includes, for example, federal and non-federal countries that are. Clearly, budget composition between general and central government differs between federal and non-federal countries. Moreover, the COFOG data includes transfers between levels of governments, that is transfers which, for example, the central government made to states and provinces. I include fixed country effects in the econometric model to consider these differences across countries and discuss results for federal and non-federal countries (section 5.6).

National governments decide on many policies that are reflected in non-central government expenditure. Social security expenditure is a good example in many OECD countries. National governments decide upon social security policies – lower layers have hardly any say – but must execute national law. To be sure, if all policies were to be designed by national governments and state and local governments were just to execute national law, national governments' electoral motives and ideology may well be identified in general governments' budget composition. But state and local governments have (some) discretionary power in budget composition – differences in decentralization across OECD countries

notwithstanding. For example, social policies like active labor market policies or childcare are often matters for state or local governments. Education policies are also decided by lower layers of government.

It is not quite clear whether ideology-induced effects (and electoral motives in a similar manner) should be stronger for central than general government expenditure. At a first glance, one may want to conjecture that ideology-induced effects should be stronger for central than general government expenditure because central government expenditure excludes “noise” based on state and local governments expenditure. State and local government ideology attenuate or reinforce, however, policies of central governments. When the shares of central and general government expenditure differ – education expenditure may be a good example – and state and local governments are politically aligned with the central government, one may observe ideology-induced effects on general government expenditure because the state and local governments influenced education expenditure at the state and local level, but the national government ideology hardly influenced education expenditure at the national level. Ideology-induced effects on education expenditure of the general government are expected to be especially strong when state and local governments are politically aligned with the central government and all types of governments implement a homogenous ideology-induced policy (see, for example, Kleider et al. 2018 on political alignments between national and sub-national governments).

#### **4. Empirical model**

The estimated baseline panel data model has the following form:

$$\begin{aligned} \text{Public expenditure category}_{ijkt} = & \alpha_{jk} \text{Government ideology}_{it} + \beta_{jk} \text{Election}_{it} + \sum_l \gamma_{jkl} X_{ilt} \\ & + \eta_i + \varepsilon_t + u_{ijkt} \end{aligned}$$

with  $i=1,\dots,20$ ;  $j = 1,\dots, 10$ ;  $k=1,2$ ;  $l=1,\dots,8$ ,  $t=1,\dots,22$  (1)

where the dependent variable public expenditure category $_{ijkt}$  describes the expenditure category  $j$  (ten COFOG expenditure types) of type of government  $k$  (central or general government) as a share of total spending (of central or general government) of country  $i$  in year  $t$ . I measure government ideology by using dummy variables for center and leftwing governments based on the coding by Potrafke (2009). Rightwing governments are the reference category. I use dummy variables for leftwing, center and rightwing governments instead of the encompassing government ideology index, because the governments ideology index assumes linear relations between leftwing, center, and rightwing governments. On measuring government ideology in OECD panel data studies see Potrafke (2017, section 3.2). The election year variable assumes the value one in parliamentary election years and zero in the other years of a legislative period between elections. In the robustness section, I will distinguish between regular and early elections, the exact timing of an election within a calendar year, pre- and post-election effects, the beginning of fiscal years and use government ideology measured in period  $t-1$  instead of period  $t$ .  $X_{ilt}$  contains eight control variables that are likely to be correlated with both elections/government ideology and budget composition. I follow the related studies on budget composition and include the unemployment rate. In recessions, governments are more likely to increase spending on income redistribution and citizens may be more inclined to vote for leftwing parties than in booms.

The new KOF Globalization Index is added (Dreher 2006, Gygli et al. 2019; the KOF index has been used in many studies to examine consequences of globalization, see Potrafke 2015). There are two theories describing how globalization influences budget composition. The “race-to-the bottom hypothesis” predicts that national governments compete in terms of tax rates in the course of increasing globalization. Tax rates decrease and, in turn, revenue decreases and governments have hardly any funds to spend on income redistribution. By contrast, the compensation hypothesis predicts that governments ensure citizens against risks during

increasing globalization and hence spend more on income redistribution (see Schulze and Ursprung 1999, Ursprung 2008). Scholars have examined how globalization influences budget composition (Shelton 2007 and Dreher et al. 2008). Citizens may be more inclined to vote for leftwing parties when they are exposed to pronounced globalization. I acknowledge Donald Trump's election in 2016 as constituting a very prominent exception.

The shares of the young population (aged 14 and below as a share of total population) and the elderly population (aged 65 and above as a share of total population) are included. Pensioners are expected to vote for rightwing more often than for leftwing parties (and young citizens that are eligible to participate soon may well vote more probably for leftwing than rightwing parties). Pensioners (young citizens) are (not) likely to advocate spending on social protection and healthcare rather than education. The deflator of (general) government final consumption expenditure is included because the prices of public services are likely to be correlated with budget composition (Tridimas 2001) and the partisan theories predict that inflation is higher under leftwing than rightwing governments. I also include overall government expenditure (either general or central government) as percentage of GDP, which may well correlate with individual budget categories and government ideology and electoral motives. Technological development is also likely to influence budget composition. I proxy technological development by the change in the OECD's Information and Communication Technology (ICT) capital index. Lastly, I add the level of an individual expenditure category in period  $t-1$ .  $\eta_i$  represents a fixed country effect,  $\varepsilon_t$  is a fixed year effect and  $u_{ijt}$  describes an error term. Expenditure in the individual categories of both general and central government are likely to be correlated. I therefore estimate the model using the Seemingly Unrelated Regression (SUR) estimator (Zellner 1962). The estimator assumes that in every equation, the errors are iid. For robustness checks, I estimate the model without SUR à la Zellner but with other seemingly unrelated estimations that allow for robust and clustered standard errors. I also estimate the equations separately using robust standard errors. Inferences do not change.

I employ Wald tests to examine whether the coefficient estimates of the government ideology and election year variable differ between general and central government for every individual expenditure category. Testing coefficients across equations in a system of equations is certainly an advantage as compared to estimating the individual equations separately. Table 2 includes descriptive statistics of the individual variables.

## **5. Results**

### **5.1 Baseline model**

Tables 3 a-c show the results of the baseline model for general and central government. The estimates are based on one single SUR estimation. I discuss the individual regression results in detail (Tables 3a and 3b) and then turn to the core issue of whether political effects on budget composition differ between the general and central government (Table 3c). The government ideology variable (center) has a negative sign and is statistically significant at the 10% level in column (1) of Table 3a indicating that the share of general government spending on public services was higher under rightwing than center governments. The numerical meaning of the effect is that the budget share in spending on public services was around 1.0 ( $0.269/(1-0.732)$ ) percentage points lower in the long-run under center than rightwing governments (reference category). The government ideology variable (leftwing) has a positive sign and is statistically significant at the 10% level in column (9) suggesting that leftwing governments increased budget shares on education expenditure compared to rightwing governments. The numerical meaning of the effect is that the budget share in spending on education was around 0.36 ( $0.084/(1-0.766)$ ) percentage points higher in the long-run under leftwing than rightwing governments (reference category). The ideology-induced education effect is in line with findings by, for example, Busemeyer and Potrafke who use data till the early 2000s. The election year variable is negative and statistically significant at the 10% level in column (2)

indicating that the budget shares on defense was around 0.16 ( $0.057/(1-0.653)$ ) percentage points lower in election than other years.

Table 3b shows the results for central government. The government ideology variables are statistically significant in three out of ten specifications. The results for central government suggest that expenditure on public services were lower under both center and leftwing than rightwing governments (column 1). The dummy variables for center and leftwing governments are statistically significant at the 5% and 10% level. The dummy variable for leftwing governments has a positive sign and is statistically significant at the 5% level in column (9) indicating that the budget share on education expenditure was higher under leftwing than rightwing governments. The numerical meaning of the effect is that the budget share on education spending was around 0.89 ( $0.213/(1-0.759)$ ) percentage points higher under leftwing than rightwing governments. The electoral dummy variable does not turn out to be statistically significant in columns (1) and (3) to (10) of Table 3b. The estimates in column (5) suggest that center governments had larger budget shares on environment protection expenditure than rightwing governments.

I use Wald tests to examine whether the point estimates of the government ideology and the election year variable differ statistically between general and central government for every individual expenditure category (Table 3c): the effect of center and leftwing governments on public services expenditure (p-values 0.0518 and 0.0324), center governments on public safety and order (p-value 0.0373), center governments on environment protection (p-value 0.0060), center governments on housing (p-value 0.0761), and of leftwing governments on education (p-value 0.0455) compared to rightwing governments are larger for central than general government. The effects of the election year variable do not differ statistically between general and central government.

The unemployment rate is negatively correlated with the general government budget shares on defense, housing and health and culture: when the unemployment rate increased by 1

percentage point, the general government budget share on defense decreased by around 0.04 ( $0.015/(1-0.759)$ ) percentage points (column 2), the budget share on housing decreased by around 0.24 ( $0.015/(1-0.369)$ ) percentage points (column 6), and the budget share on health decreased by around 0.33 ( $0.066/(1-0.797)$ ) percentage points (column 7), and the budget share on culture decreased by around 0.04 ( $0.009/(1-0.773)$ ) percentage points (column 8). These correlations are in line with the expectations – the negative correlation between the unemployment rate and health spending being the exception. The unemployment rate is positively correlated with the general government budget shares on public services, education and social protection: when the unemployment rate increased by 1 percentage point, the general government budget share on public services increased by around 0.14 ( $0.037/(1-0.732)$ ) percentage points (column 1), the budget share on education increased by around 0.36 ( $0.084/(1-0.766)$ ) percentage points (column 9), and the budget share on social protection increased by around 0.37 ( $0.099/(1-0.729)$ ) percentage points (column 10). Public consumption prices are correlated with budget composition. In any event, robustness tests suggest that the ideology-induced effects do not change when the explanatory variables (the unemployment rate, KOF index, young share, elderly share, prices of public consumption, overall government expenditure and the ICT capital index) are included/excluded. The budget share of an individual expenditure category in period  $t-1$  is statistically significant at the 1% level in every specification and has the expected positive sign.

## 5.2 Regular and early elections

I disentangle regular and early elections as proposed by Shi and Svensson (2006). To do so, I replace the election year dummy variable by a dummy variable for regular and early elections. Table 4 in the appendix shows the results. The budget share of defense decreased before regular elections as compared to other years in the legislative period. The results suggest that the coefficients of the regular election variables are larger for central than general government

when expenditure on environment protection (p-value 0.0785) and social protection (p-value 0.0672) are considered.

### **5.3 Timing of elections**

The timing of elections may well be measured in some more detail. I employ the coding proposed by Franzese (2000) which considers the exact date of an election. I replace the common election year dummy variable by a variable that still assumes the value zero in non-election years, and a value between 0.06 and 0.97 in election years. For example, the variable assumes the value 0.5 in election years when the election took place on June 30 and the value 1 when the election took place on December 31. I include a second variable that assumes the complement value in the pre-election year: when an election took place early in a year, for example, the election year variable assumes the value 0.1 and the pre-election variable assumes the value 0.9 (the sum per election should be 1). When there were two parliamentary elections in an individual year, such as in Greece in 2012, I use the first election date in the year. The results in Table 5 suggest hardly any differences in electoral cycles in general and central governments' budget composition.

Scholars also disentangle effects of pre-election, election, and post-election years. I therefore also include a pre- and a post-election year dummy variable. The results in Table 6 suggest that inferences regarding the baseline model hardly change.

Fiscal years do not always start in January. I therefore follow Brender and Drazen (2013) and Veiga et al. (2017): when the election takes place after the fiscal year starts, the election year dummy assumes the value one in period  $t-1$  instead of period  $t$  (in my sample in Australia, Japan, the United Kingdom and the United States). The results in Table 7 suggest that inferences regarding the baseline model hardly change.

#### **5.4 Lagged government ideology and country-cabinet observations**

I considered contemporaneous effects of government ideology in the baseline model. An important reason for examining contemporaneous effects is that governments may well change budget composition quite rapidly once they enter office. Citizens and investors tend to adjust expectations about policies of new governments quickly; journalists take stock of governments' performance after 100 days in office (on the timing of when new governments are likely to take effects see, for example, Gerber and Huber 2009, Jens 2017, and Cahan and Potrafke 2017). To be sure, there are long-run contracts and plans, regarding defense policies for example, that are unlikely be changed within some months. One may therefore want to consider lagged effects of government ideology. I do so by including government ideology in period  $t-1$  instead of period  $t$ . The results in Table 8 corroborate that ideology-induced effects are larger at the central than general government level.

I also estimate the model based on country-cabinet instead of country-year observations (Schmitt 2016). I consider every individual cabinet as an observation and use the averages of the expenditure category per individual cabinet. The results overall corroborate my baseline model and suggest, for example, that the point estimates of the leftwing government dummy variable differ between central and general government for expenditure on public services, defense and education (Table 9). Using country-cabinet observations is not suitable to examine electoral cycles, of course.

#### **5.5 Alternative measure for government ideology**

I also use as an alternative measure for government ideology the data on the political ideology of the chief executive by Cruz et al. (2018). This data is available for 368 out of my 404 country-year observations of the baseline sample and assumes the value 1 for rightwing, 2 for center, and 3 for leftwing chief executives. It is not available for Switzerland and some other individual country-year observations. The political ideology of the chief executive may differ from the

overall government ideology. An example is a leftwing chief executive who leads a center coalition government which consists of a leftwing party (to which the chief executive may belong) and a rightwing party. I include dummy variables for center and leftwing chief executives to be compared with rightwing chief executives (reference category). The results in Table 10 confirm the ideology-induced effects to be larger on central than general governments' budget composition, especially for defense, economic affairs and health. The differences in ideology-induced effects on general and central governments' spending on public services and education slightly fail to be statistically significant.

## **5.6 Federalism**

The degree of fiscal decentralization differs quite a bit within the countries in my sample. I split my sample in federal states (Australia, Austria, Belgium, Germany, Switzerland and the United States) and non-federal states. Table 11 shows results for federal states and reveal some interesting findings. First, government ideology and budget shares on education do not seem to be correlated in federal states when general government data is considered. This result is in line with the institutions describing that education policies are largely decided at the state, not the national level in federal states. For example, ideology-induced effects of national governments may have been counteracted by ideology-induced effects at the state level when political alignment between the national and state level was low. The effect of government ideology on central governments' education expenditure remains positive, large in size and statistically significant at the 1% level, however. This suggests that national government ideology indeed influenced education expenditure at the national level. Second, the results show that leftwing governments spent less on defense than rightwing governments indicating that the results of previous studies such as Bove et al. (2017) on ideology-induced military spending may be driven by federal states. Leftwing governments spent more on housing than rightwing governments (central government level). The results in Table 12 for non-federal states, by

contrast, suggest ideology-induced education spending (the budget share on education at the central level is quite large), but no or even opposite effects of government ideology on defense budget shares. The point estimates of the government ideology variable on education spending do not differ statistically between general and central government. Leftwing governments spent less on housing than rightwing governments (central government level). This effect is opposite to the one in federal states and may well explain why there is no overall effect of government ideology in the full sample. The election year dummy variable suggests lower budget shares on defense of central government in elections years.

### **5.7 Dealing with the financial crisis**

The financial crisis that began in fall 2007 influenced budget composition. I examine whether inferences change when I focus on the pre-crisis period 1995-2007. The results in Table 13 suggest that inferences regarding government ideology hardly change compared to the baseline models in Tables 3a-c.

Countries such as Greece, Ireland and Portugal have especially been hit by the financial crisis. I have therefore excluded Greece, Ireland and Portugal from the overall sample (Table 14). Inferences regarding political cycles do not change when Greece, Ireland and Portugal are excluded.

## **6. Conclusion**

An innovation of previous studies examining electoral motives and government ideology was to focus on budget composition (Bräuninger 2005, Potrafke 2006 and 2011a, Enkelmann and Leibrecht 2013, Castro 2017, Castro and Martins 2018, Bojar 2019). Opportunistic politicians are likely to increase expenditure types before elections that are visible to voters. Leftwing governments are expected to prioritize expenditure that gives rise to income redistribution, rather than public good provision. Scholars have used the OECD's COFOG data on budget

composition. For a long time, the COFOG data was only available for the general government. Hence the shortcoming of the previous studies was to examine whether electoral motives and ideology of the national government influenced general governments' budget composition – ignoring that state and local governments also decide on general government expenditure.

I have used new data on central governments' budget composition and compared political cycles in general and central governments' budget composition. The sample includes data for the period 1995-2016. The innovation is to show that effects of government ideology on individual expenditure categories are larger at the central than general government level: leftwing governments spent more on education and less on public services than rightwing governments. Defense expenditure was somewhat lower under leftwing than rightwing governments and in election years; especially in federal states. Scholars need to re-examine results that have been derived from general government data where central government data should have been used.

An ambitious task for future research is to disentangle central governments' COFOG data in more detail. First, the COFOG data still includes transfers between levels of governments, that is transfers which, for example, the central government made to states and provinces. One may want to exclude the transfers between levels of government. Second, one may well want to unravel expenditure that only central governments influence. We do not know yet which type of expenditure is influenced by European or legislative processes designed by different levels of governments. Considering legislative processes to disentangle discretionary expenditure of individual levels of government is a major task for future research; it applies to many studies that use data on types of expenditure – at the national, state, provincial and local level.

My study is descriptive and reports correlations between political cycles and budget composition. Scholars use regression discontinuity designs (RDD) that focus on tight elections to estimate causal effects of government ideology on economic outcomes. Using RDD has

advanced research on partisan politics in estimating causal local average treatment effects. The shortcoming of using RDD in examining ideology-induced effects is, however, that jurisdictions with crystal-clear political majorities are excluded or get little weight. Examples are California in the United States or Bavaria in Germany – places that are known for ideology-induced policies. Scholars may want to use RDD in OECD panel studies to examine (local) ideology-induced effects or find suitable instrumental variables for government ideology (e.g. Lind 2020).

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Table 1. Individual expenditure categories as a percentage of overall general and central government.

|                     | (1)<br>Public<br>services | (2)<br>Defense | (3)<br>Public Safety | (4)<br>Economic<br>Affairs | (5)<br>Environment<br>protection | (6)<br>Housing | (7)<br>Health | (8)<br>Culture | (9)<br>Education | (10)<br>Social<br>protection |
|---------------------|---------------------------|----------------|----------------------|----------------------------|----------------------------------|----------------|---------------|----------------|------------------|------------------------------|
| <b>General gov.</b> | 15.09                     | 3.32           | 3.51                 | 10.16                      | 1.63                             | 1.55           | 14.04         | 2.26           | 11.77            | 36.68                        |
| <b>Central gov.</b> | 32.81                     | 5.65           | 3.44                 | 10.95                      | 0.70                             | 1.00           | 8.34          | 1.29           | 9.40             | 26.43                        |

Table 2: Descriptive statistics and data sources.

|   | N   | Mean  | Std. Dev. | Min   | Max   | Source                             |
|---|-----|-------|-----------|-------|-------|------------------------------------|
| General public services (general)                       | 426 | 15.09 | 3.82      | 7.95  | 36.31 | OECD (2018a)                       |
| Defense (general)                                       | 426 | 3.32  | 2.01      | 0.55  | 10.99 | OECD (2018a)                       |
| Public safety and order (general)                       | 426 | 3.51  | 1.10      | 1.59  | 6.05  | OECD (2018a)                       |
| Economic affairs (general)                              | 426 | 10.16 | 2.76      | 3.66  | 38.55 | OECD (2018a)                       |
| Environmental protection (general)                      | 426 | 1.63  | 0.86      | 0.00  | 3.69  | OECD (2018a)                       |
| Housing and community amenities (general)               | 426 | 1.55  | 0.90      | 0.23  | 10.08 | OECD (2018a)                       |
| Health (general)  | 426 | 14.04 | 3.29      | 4.38  | 24.41 | OECD (2018a)                       |
| Recreation, culture and religion (general)              | 426 | 2.26  | 0.73      | 0.67  | 4.01  | OECD (2018a)                       |
| Education (general)                                     | 426 | 11.77 | 2.34      | 7.10  | 18.03 | OECD (2018a)                       |
| Social protection (general)                             | 426 | 36.68 | 5.93      | 18.16 | 45.76 | OECD (2018a)                       |
| General public services (central)                       | 426 | 32.81 | 14.85     | 8.98  | 73.16 | OECD (2018a)                       |
| Defense (central)                                       | 426 | 5.65  | 3.41      | 0.57  | 18.83 | OECD (2018a)                       |
| Public safety and order (central)                       | 426 | 3.44  | 1.60      | 0.61  | 6.80  | OECD (2018a)                       |
| Economic affairs (central)                              | 426 | 10.95 | 4.84      | -4.71 | 41.35 | OECD (2018a)                       |
| Environmental protection (central)                      | 426 | 0.70  | 0.46      | 0     | 2.75  | OECD (2018a)                       |
| Housing and community amenities (central)               | 426 | 1.00  | 1.17      | 0     | 16.27 | OECD (2018a)                       |
| Health (central)  | 426 | 8.34  | 7.09      | 0.02  | 29.21 | OECD (2018a)                       |
| Recreation, culture and religion (central)              | 426 | 1.29  | 0.75      | 0.12  | 4.80  | OECD (2018a)                       |
| Education (central)                                     | 426 | 9.40  | 5.17      | 0.10  | 19.62 | OECD (2018a)                       |
| Social protection (central)                             | 426 | 26.43 | 11.56     | 5.67  | 51.59 | OECD (2018a)                       |
| Government ideology (center)                            | 440 | 0.28  | 0.45      | 0     | 1     | Potrafke (2009)                    |
| Government ideology (leftwing)                          | 440 | 0.34  | 0.47      | 0     | 1     | Potrafke (2009)                    |
| Political ideology of chief executive (center)          | 403 | 0.13  | 0.34      | 0     | 1     | Cruz et al. (2018)                 |
| Political ideology of chief executive (leftwing)        | 403 | 0.40  | 0.49      | 0     | 1     | Cruz et al. (2018)                 |
| Election year   | 440 | 0.26  | 0.44      | 0     | 1     | own calculation                    |
| Election year (regular)                                 | 440 | 0.20  | 0.40      | 0     | 1     | own calculation                    |
| Election year (early)                                   | 440 | 0.07  | 0.25      | 0     | 1     | own calculation                    |
| Election (Franzese, pre-election year)                  | 440 | 0.11  | 0.23      | 0     | 0.94  | own calculation                    |
| Election (Franzese, election year)                      | 440 | 0.16  | 0.29      | 0     | 0.97  | own calculation                    |
| Pre-Election year                                       | 440 | 0.25  | 0.43      | 0     | 1     | own calculation                    |
| Post-Election year                                      | 440 | 0.25  | 0.44      | 0     | 1     | own calculation                    |
| Election year (Brender, Drazen and Veiga)               | 440 | 0.26  | 0.44      | 0     | 1     | own calculation                    |
| Unemployment rate                                       | 440 | 7.53  | 4.25      | 1.80  | 27.50 | World Bank (2018a)                 |
| KOF globalization index                                 | 440 | 83.58 | 5.03      | 60.05 | 91.17 | Dreher (2006), Gygli et al. (2019) |
| Population aged younger 15 (share of total)             | 440 | 17.24 | 2.26      | 12.94 | 24.25 | World Bank (2018b)                 |
| Population aged older 65 (share of total)               | 440 | 16.31 | 2.63      | 10.57 | 26.56 | World Bank (2018b)                 |
| deflator of (general) government final consumption exp. | 440 | 0.87  | 0.15      | 0.46  | 1.14  | (OECD 2018b)                       |

|  |     |            |             |         |             |              |
|--|-----|------------|-------------|---------|-------------|--------------|
| Overall government expenditure (general) | 426 | 6279829.54 | 32797580.73 | 6417.19 | 2.10e+08    | OECD (2018a) |
| Overall government expenditure (general) | 426 | 2939221.21 | 14840369.16 | 4529.84 | 95516896.00 | OECD (2018a) |
| ICT capital index                        | 438 | 73.15      | 41.10       | 8.86    | 201.70      | OECD (2019)  |

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Table 3a. Regression Results. Dependent variables: individual expenditure categories (measured as a share of total expenditure).

**General government.** SUR estimator with 20 equations.

|                     | (1)<br>Public<br>services | (2)<br>Defense      | (3)<br>Public Safety | (4)<br>Economic<br>Affairs | (5)<br>Environment<br>protection | (6)<br>Housing       | (7)<br>Health        | (8)<br>Culture      | (9)<br>Education    | (10)<br>Social<br>protection |
|---------------------|---------------------------|---------------------|----------------------|----------------------------|----------------------------------|----------------------|----------------------|---------------------|---------------------|------------------------------|
| Ideology (center)   | -0.269*<br>(0.160)        | 0.039<br>(0.051)    | -0.009<br>(0.029)    | 0.325<br>(0.355)           | 0.004<br>(0.033)                 | 0.029<br>(0.061)     | -0.015<br>(0.102)    | 0.012<br>(0.029)    | 0.107<br>(0.075)    | -0.153<br>(0.214)            |
| Ideology (leftwing) | -0.046<br>(0.108)         | -0.026<br>(0.034)   | -0.008<br>(0.019)    | 0.059<br>(0.241)           | -0.002<br>(0.022)                | 0.014<br>(0.042)     | -0.073<br>(0.069)    | 0.032<br>(0.020)    | 0.084*<br>(0.051)   | 0.046<br>(0.145)             |
| Election year       | 0.102<br>(0.097)          | -0.057*<br>(0.031)  | -0.009<br>(0.017)    | -0.063<br>(0.215)          | -0.004<br>(0.020)                | 0.005<br>(0.037)     | 0.071<br>(0.061)     | -0.004<br>(0.017)   | 0.107<br>(0.075)    | -0.060<br>(0.129)            |
| Unemployment        | 0.037*<br>(0.020)         | -0.015**<br>(0.006) | -0.000<br>(0.004)    | 0.032<br>(0.045)           | 0.003<br>(0.004)                 | -0.015*<br>(0.008)   | -0.066***<br>(0.013) | -0.009**<br>(0.004) | 0.084*<br>(0.051)   | 0.099***<br>(0.027)          |
| Globalization       | -0.045<br>(0.053)         | 0.003<br>(0.017)    | 0.017*<br>(0.010)    | -0.068<br>(0.118)          | 0.027**<br>(0.011)               | -0.025<br>(0.020)    | -0.001<br>(0.034)    | -0.016*<br>(0.010)  | 0.107<br>(0.075)    | 0.057<br>(0.071)             |
| Young share         | 0.058<br>(0.104)          | 0.029<br>(0.033)    | -0.008<br>(0.019)    | -0.377<br>(0.231)          | -0.048**<br>(0.021)              | -0.034<br>(0.040)    | 0.011<br>(0.066)     | 0.017<br>(0.019)    | 0.084*<br>(0.051)   | 0.247*<br>(0.139)            |
| Elderly share       | 0.017<br>(0.072)          | -0.023<br>(0.023)   | -0.004<br>(0.013)    | -0.064<br>(0.158)          | -0.008<br>(0.015)                | 0.010<br>(0.027)     | -0.056<br>(0.046)    | 0.001<br>(0.013)    | 0.107<br>(0.075)    | 0.125<br>(0.096)             |
| Prices public cons. | -0.936<br>(1.078)         | -0.354<br>(0.338)   | -0.485**<br>(0.190)  | -0.229<br>(2.353)          | 0.152<br>(0.224)                 | 1.254***<br>(0.406)  | -0.907<br>(0.676)    | -0.040<br>(0.191)   | 0.084*<br>(0.051)   | 4.106***<br>(1.416)          |
| Government exp.     | -0.000<br>(0.000)         | -0.000<br>(0.000)   | -0.000<br>(0.000)    | 0.000<br>(0.000)           | 0.000<br>(0.000)                 | 0.000<br>(0.000)     | 0.000*<br>(0.000)    | 0.000<br>(0.000)    | 0.107<br>(0.075)    | -0.000<br>(0.000)            |
| ICT capital         | -0.004<br>(0.004)         | -0.001<br>(0.001)   | 0.001<br>(0.001)     | -0.003<br>(0.009)          | -0.003***<br>(0.001)             | -0.005***<br>(0.002) | 0.008***<br>(0.003)  | 0.001<br>(0.001)    | 0.084*<br>(0.051)   | -0.006<br>(0.005)            |
| Exp. cat in t-1     | 0.732***<br>(0.015)       | 0.653***<br>(0.023) | 0.810***<br>(0.019)  | 0.579***<br>(0.019)        | 0.732***<br>(0.022)              | 0.369***<br>(0.024)  | 0.797***<br>(0.021)  | 0.773***<br>(0.023) | 0.766***<br>(0.021) | 0.729***<br>(0.020)          |
| Observations        | 404                       | 404                 | 404                  | 404                        | 404                              | 404                  | 404                  | 404                 | 404                 | 404                          |
| R2 (adj.)           | 0.9400                    | 0.9802              | 0.9789               | 0.4034                     | 0.9540                           | 0.8126               | 0.9702               | 0.9522              | 0.9687              | 0.9586                       |

Standard errors in parentheses, \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01, Fixed country and fixed year effects included.

Table 3b. Regression Results. Dependent variables: individual expenditure categories (measured as a share of total expenditure). **Central government.** SUR estimator with 20 equations.

|                     | (1)<br>Public<br>services | (2)<br>Defense       | (3)<br>Public Safety | (4)<br>Economic<br>Affairs | (5)<br>Environment<br>protection | (6)<br>Housing      | (7)<br>Health       | (8)<br>Culture       | (9)<br>Education    | (10)<br>Social<br>protection |
|---------------------|---------------------------|----------------------|----------------------|----------------------------|----------------------------------|---------------------|---------------------|----------------------|---------------------|------------------------------|
| Ideology (center)   | -0.887**<br>(0.388)       | 0.038<br>(0.082)     | -0.059<br>(0.042)    | 0.493<br>(0.455)           | 0.076**<br>(0.037)               | -0.106<br>(0.086)   | -0.221<br>(0.213)   | 0.006<br>(0.030)     | 0.199<br>(0.122)    | 0.361<br>(0.320)             |
| Ideology (leftwing) | -0.506*<br>(0.262)        | -0.069<br>(0.055)    | 0.003<br>(0.028)     | 0.233<br>(0.308)           | 0.006<br>(0.025)                 | -0.068<br>(0.058)   | 0.094<br>(0.145)    | 0.023<br>(0.021)     | 0.213**<br>(0.083)  | 0.053<br>(0.216)             |
| Election year       | 0.077<br>(0.234)          | -0.099**<br>(0.050)  | -0.030<br>(0.025)    | -0.079<br>(0.275)          | 0.016<br>(0.022)                 | 0.022<br>(0.052)    | -0.039<br>(0.129)   | -0.019<br>(0.018)    | -0.019<br>(0.074)   | 0.174<br>(0.193)             |
| Unemployment        | 0.045<br>(0.049)          | -0.027***<br>(0.010) | -0.002<br>(0.005)    | 0.060<br>(0.057)           | 0.004<br>(0.005)                 | 0.010<br>(0.011)    | -0.029<br>(0.027)   | -0.007*<br>(0.004)   | -0.017<br>(0.015)   | 0.014<br>(0.040)             |
| Globalization       | -0.159<br>(0.128)         | 0.025<br>(0.027)     | 0.040***<br>(0.014)  | 0.009<br>(0.150)           | 0.030**<br>(0.012)               | 0.026<br>(0.028)    | -0.113<br>(0.071)   | -0.034***<br>(0.010) | 0.013<br>(0.040)    | 0.174*<br>(0.106)            |
| Young share         | 0.260<br>(0.251)          | 0.095*<br>(0.054)    | -0.022<br>(0.027)    | -0.382<br>(0.295)          | -0.038<br>(0.024)                | 0.123**<br>(0.055)  | 0.085<br>(0.139)    | 0.064***<br>(0.021)  | -0.017<br>(0.079)   | -0.118<br>(0.208)            |
| Elderly share       | 0.182<br>(0.173)          | -0.045<br>(0.036)    | -0.020<br>(0.018)    | 0.079<br>(0.202)           | -0.005<br>(0.016)                | -0.049<br>(0.038)   | 0.074<br>(0.095)    | 0.053***<br>(0.014)  | 0.002<br>(0.055)    | -0.370***<br>(0.143)         |
| Prices public cons. | -0.791<br>(2.565)         | 0.190<br>(0.556)     | -0.473*<br>(0.275)   | -2.881<br>(3.014)          | -0.189<br>(0.244)                | 1.388**<br>(0.564)  | 1.350<br>(1.421)    | 0.334<br>(0.206)     | -0.963<br>(0.812)   | 2.517<br>(2.122)             |
| Government exp.     | 0.000<br>(0.000)          | -0.000*<br>(0.000)   | -0.000<br>(0.000)    | -0.000<br>(0.000)          | 0.000*<br>(0.000)                | 0.000***<br>(0.000) | 0.000<br>(0.000)    | 0.000<br>(0.000)     | -0.000<br>(0.000)   | 0.000<br>(0.000)             |
| ICT capital         | -0.006<br>(0.010)         | -0.005**<br>(0.002)  | 0.000<br>(0.001)     | 0.000<br>(0.012)           | -0.002<br>(0.001)                | -0.002<br>(0.002)   | 0.006<br>(0.005)    | 0.000<br>(0.001)     | 0.000<br>(0.003)    | 0.000<br>(0.008)             |
| Exp. cat in t-1     | 0.688***<br>(0.016)       | 0.656***<br>(0.022)  | 0.758***<br>(0.022)  | 0.511***<br>(0.019)        | 0.718***<br>(0.026)              | 0.386***<br>(0.021) | 0.724***<br>(0.018) | 0.750***<br>(0.026)  | 0.759***<br>(0.020) | 0.706***<br>(0.017)          |
| Observations        | 404                       | 404                  | 404                  | 404                        | 404                              | 404                 | 404                 | 404                  | 404                 | 404                          |
| R2 (adj.)           | 0.9791                    | 0.9819               | 0.9795               | 0.6453                     | 0.8018                           | 0.7199              | 0.9720              | 0.9490               | 0.9829              | 0.9767                       |

Standard errors in parentheses, \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01, Fixed country and fixed year effects included.

Table 3c. Regression Results. Dependent variables: individual expenditure categories (measured as a share of total expenditure).

**Baseline model.** SUR estimator with 20 equations.

|   | (1)<br>Public<br>services | (2)<br>Defense      | (3)<br>Public Safety | (4)<br>Economic<br>Affairs | (5)<br>Environment<br>protection | (6)<br>Housing    | (7)<br>Health     | (8)<br>Culture    | (9)<br>Education   | (10)<br>Social<br>protection |
|---|---------------------------|---------------------|----------------------|----------------------------|----------------------------------|-------------------|-------------------|-------------------|--------------------|------------------------------|
| <b>General gov.</b>                             |                           |                     |                      |                            |                                  |                   |                   |                   |                    |                              |
| Ideology (center)                               | -0.269*<br>(0.160)        | 0.039<br>(0.051)    | -0.009<br>(0.029)    | 0.325<br>(0.355)           | 0.004<br>(0.033)                 | 0.029<br>(0.061)  | -0.015<br>(0.102) | 0.012<br>(0.029)  | 0.107<br>(0.075)   | -0.153<br>(0.214)            |
| Ideology (leftwing)                             | -0.046<br>(0.108)         | -0.026<br>(0.034)   | -0.008<br>(0.019)    | 0.059<br>(0.241)           | -0.002<br>(0.022)                | 0.014<br>(0.042)  | -0.073<br>(0.069) | 0.032<br>(0.020)  | 0.084*<br>(0.051)  | 0.046<br>(0.145)             |
| Election  | 0.102<br>(0.097)          | -0.057*<br>(0.031)  | -0.009<br>(0.017)    | -0.063<br>(0.215)          | -0.004<br>(0.020)                | 0.005<br>(0.037)  | 0.071<br>(0.061)  | -0.004<br>(0.017) | 0.107<br>(0.075)   | -0.060<br>(0.129)            |
| <b>Central gov.</b>                             |                           |                     |                      |                            |                                  |                   |                   |                   |                    |                              |
| Ideology (center)                               | -0.887**<br>(0.388)       | 0.038<br>(0.082)    | -0.059<br>(0.042)    | 0.493<br>(0.455)           | 0.076**<br>(0.037)               | -0.106<br>(0.086) | -0.221<br>(0.213) | 0.006<br>(0.030)  | 0.199<br>(0.122)   | 0.361<br>(0.320)             |
| Ideology (leftwing)                             | -0.506*<br>(0.262)        | -0.069<br>(0.055)   | 0.003<br>(0.028)     | 0.233<br>(0.308)           | 0.006<br>(0.025)                 | -0.068<br>(0.058) | 0.094<br>(0.145)  | 0.023<br>(0.021)  | 0.213**<br>(0.083) | 0.053<br>(0.216)             |
| Election  | 0.077<br>(0.234)          | -0.099**<br>(0.050) | -0.030<br>(0.025)    | -0.079<br>(0.275)          | 0.016<br>(0.022)                 | 0.022<br>(0.052)  | -0.039<br>(0.129) | -0.019<br>(0.018) | -0.019<br>(0.074)  | 0.174<br>(0.193)             |
| <b>P-values of Wald tests general = central</b> |                           |                     |                      |                            |                                  |                   |                   |                   |                    |                              |
| Ideology (center)                               | 0.0518                    | 0.9767              | 0.0373               | 0.3634                     | 0.0060                           | 0.0761            | 0.3048            | 0.8174            | 0.3333             | 0.0491                       |
| Ideology (leftwing)                             | 0.0324                    | 0.1663              | 0.4567               | 0.1671                     | 0.6348                           | 0.1124            | 0.2198            | 0.5990            | 0.0455             | 0.9678                       |
| Election  | 0.8971                    | 0.1311              | 0.1320               | 0.8862                     | 0.2167                           | 0.7130            | 0.3624            | 0.3293            | 0.2998             | 0.1357                       |
| Observations                                    | 404                       | 404                 | 404                  | 404                        | 404                              | 404               | 404               | 404               | 404                | 404                          |
| Countries                                       | 20                        | 20                  | 20                   | 20                         | 20                               | 20                | 20                | 20                | 20                 | 20                           |

Standard errors in parentheses, \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , control variables: Unemployment rate, Globalization, Young share, Elderly share, Prices public consumption, overall government expenditure, ICT capital (not shown). Fixed country and fixed year effects included.

## Appendix

Table 4. Regression Results. Dependent variables: individual expenditure categories (measured as a share of total expenditure).

**Regular and early elections.** SUR estimator with 20 equations.

|   | (1)<br>Public<br>services | (2)<br>Defense     | (3)<br>Public Safety | (4)<br>Economic<br>Affairs | (5)<br>Environment<br>protection | (6)<br>Housing    | (7)<br>Health     | (8)<br>Culture    | (9)<br>Education    | (10)<br>Social<br>protection |
|---|---------------------------|--------------------|----------------------|----------------------------|----------------------------------|-------------------|-------------------|-------------------|---------------------|------------------------------|
| <b>General gov.</b>                             |                           |                    |                      |                            |                                  |                   |                   |                   |                     |                              |
| Ideology (center)                               | -0.268*<br>(0.160)        | 0.039<br>(0.051)   | -0.010<br>(0.029)    | 0.329<br>(0.355)           | 0.003<br>(0.033)                 | 0.029<br>(0.061)  | -0.017<br>(0.102) | 0.012<br>(0.029)  | 0.105<br>(0.074)    | -0.155<br>(0.214)            |
| Ideology (leftwing)                             | -0.045<br>(0.108)         | -0.026<br>(0.034)  | -0.010<br>(0.019)    | 0.069<br>(0.241)           | -0.004<br>(0.022)                | 0.014<br>(0.042)  | -0.076<br>(0.069) | 0.032<br>(0.020)  | 0.080<br>(0.050)    | 0.042<br>(0.145)             |
| Election (regular)                              | 0.120<br>(0.108)          | -0.056<br>(0.034)  | -0.022<br>(0.019)    | 0.069<br>(0.240)           | -0.025<br>(0.022)                | 0.003<br>(0.041)  | 0.037<br>(0.068)  | -0.001<br>(0.019) | -0.017<br>(0.050)   | -0.104<br>(0.144)            |
| Election (early)                                | 0.041<br>(0.187)          | -0.061<br>(0.060)  | 0.037<br>(0.034)     | -0.506<br>(0.417)          | 0.069*<br>(0.038)                | 0.012<br>(0.071)  | 0.188<br>(0.119)  | -0.013<br>(0.034) | 0.232***<br>(0.087) | 0.089<br>(0.250)             |
| <b>Central gov.</b>                             |                           |                    |                      |                            |                                  |                   |                   |                   |                     |                              |
| Ideology (center)                               | -0.888**<br>(0.387)       | 0.037<br>(0.082)   | -0.060<br>(0.042)    | 0.499<br>(0.455)           | 0.076**<br>(0.037)               | -0.105<br>(0.085) | -0.223<br>(0.213) | 0.006<br>(0.030)  | 0.196<br>(0.121)    | 0.359<br>(0.320)             |
| Ideology (leftwing)                             | -0.511*<br>(0.262)        | -0.070<br>(0.055)  | 0.003<br>(0.028)     | 0.245<br>(0.308)           | 0.006<br>(0.025)                 | -0.067<br>(0.058) | 0.090<br>(0.145)  | 0.023<br>(0.021)  | 0.208**<br>(0.082)  | 0.055<br>(0.216)             |
| Election (regular)                              | 0.010<br>(0.261)          | -0.106*<br>(0.055) | -0.042<br>(0.028)    | 0.075<br>(0.307)           | 0.006<br>(0.025)                 | 0.034<br>(0.057)  | -0.095<br>(0.144) | -0.017<br>(0.021) | -0.098<br>(0.082)   | 0.215<br>(0.215)             |
| Election (early)                                | 0.305<br>(0.454)          | -0.073<br>(0.096)  | 0.009<br>(0.049)     | -0.599<br>(0.534)          | 0.050<br>(0.043)                 | -0.018<br>(0.100) | 0.149<br>(0.250)  | -0.026<br>(0.036) | 0.247*<br>(0.143)   | 0.034<br>(0.374)             |
| <b>P-values of Wald tests general = central</b> |                           |                    |                      |                            |                                  |                   |                   |                   |                     |                              |
| Ideology (center)                               | 0.0506                    | 0.9696             | 0.0380               | 0.3603                     | 0.0054                           | 0.0774            | 0.3034            | 0.8171            | 0.3377              | 0.0488                       |
| Ideology (leftwing)                             | 0.0301                    | 0.1604             | 0.4503               | 0.1630                     | 0.5993                           | 0.1167            | 0.2241            | 0.6001            | 0.0480              | 0.9432                       |
| Election (regular)                              | 0.6050                    | 0.1021             | 0.2199               | 0.9583                     | 0.0785                           | 0.5478            | 0.3296            | 0.3644            | 0.2034              | 0.0672                       |
| Election (early)                                | 0.4772                    | 0.8116             | 0.3081               | 0.6709                     | 0.5397                           | 0.7364            | 0.8696            | 0.6599            | 0.8974              | 0.8557                       |
| Observations                                    | 404                       | 404                | 404                  | 404                        | 404                              | 404               | 404               | 404               | 404                 | 404                          |
| Countries                                       | 20                        | 20                 | 20                   | 20                         | 20                               | 20                | 20                | 20                | 20                  | 20                           |

Standard errors in parentheses, \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , control variables: Unemployment rate, Globalization, Young share, Elderly share, Prices public consumption, overall government expenditure, ICT capital (not shown). Fixed country and fixed year effects included.

Table 5. Regression Results. Dependent variables: individual expenditure categories (measured as a share of total expenditure).

**Exact timing of elections (Franzese).** SUR estimator with 20 equations.

|   | (1)<br>Public<br>services | (2)<br>Defense      | (3)<br>Public Safety | (4)<br>Economic<br>Affairs | (5)<br>Environment<br>protection | (6)<br>Housing    | (7)<br>Health       | (8)<br>Culture    | (9)<br>Education   | (10)<br>Social<br>protection |
|---|---------------------------|---------------------|----------------------|----------------------------|----------------------------------|-------------------|---------------------|-------------------|--------------------|------------------------------|
| <b>General gov.</b>                                     |                           |                     |                      |                            |                                  |                   |                     |                   |                    |                              |
| Ideology (center)                                       | -0.269*<br>(0.161)        | 0.040<br>(0.050)    | -0.008<br>(0.029)    | 0.305<br>(0.355)           | 0.004<br>(0.033)                 | 0.023<br>(0.061)  | 0.000<br>(0.101)    | 0.012<br>(0.029)  | 0.102<br>(0.075)   | -0.144<br>(0.214)            |
| Ideology (leftwing)                                     | -0.040<br>(0.108)         | -0.033<br>(0.034)   | -0.008<br>(0.020)    | 0.045<br>(0.240)           | -0.002<br>(0.022)                | 0.012<br>(0.042)  | -0.063<br>(0.068)   | 0.030<br>(0.019)  | 0.083<br>(0.051)   | 0.053<br>(0.145)             |
| Election (Franzese,<br>pre-election year)               | -0.151<br>(0.191)         | 0.185***<br>(0.060) | -0.009<br>(0.034)    | 0.380<br>(0.425)           | 0.001<br>(0.039)                 | 0.059<br>(0.073)  | -0.264**<br>(0.121) | 0.059*<br>(0.034) | 0.067<br>(0.090)   | -0.252<br>(0.256)            |
| Election (Franzese,<br>election year)                   | 0.065<br>(0.160)          | 0.018<br>(0.051)    | -0.005<br>(0.029)    | -0.124<br>(0.356)          | -0.007<br>(0.033)                | -0.035<br>(0.061) | 0.119<br>(0.101)    | 0.025<br>(0.029)  | 0.027<br>(0.075)   | -0.086<br>(0.214)            |
| <b>Central gov.</b>                                     |                           |                     |                      |                            |                                  |                   |                     |                   |                    |                              |
| Ideology (center)                                       | -0.878**<br>(0.388)       | 0.038<br>(0.082)    | -0.060<br>(0.042)    | 0.458<br>(0.455)           | 0.074**<br>(0.037)               | -0.114<br>(0.086) | -0.222<br>(0.214)   | 0.009<br>(0.030)  | 0.196<br>(0.122)   | 0.394<br>(0.320)             |
| Ideology (leftwing)                                     | -0.497*<br>(0.263)        | -0.079<br>(0.055)   | 0.002<br>(0.028)     | 0.216<br>(0.308)           | 0.006<br>(0.025)                 | -0.072<br>(0.058) | 0.097<br>(0.145)    | 0.023<br>(0.021)  | 0.211**<br>(0.083) | 0.070<br>(0.216)             |
| Election (Franzese,<br>pre-election year)               | -0.234<br>(0.463)         | 0.239**<br>(0.098)  | 0.016<br>(0.050)     | 0.397<br>(0.544)           | 0.029<br>(0.044)                 | 0.111<br>(0.102)  | -0.146<br>(0.256)   | -0.014<br>(0.036) | 0.053<br>(0.146)   | -0.350<br>(0.381)            |
| Election (Franzese,<br>election year)                   | 0.091<br>(0.389)          | -0.017<br>(0.082)   | -0.039<br>(0.042)    | -0.288<br>(0.456)          | 0.008<br>(0.037)                 | -0.012<br>(0.086) | -0.129<br>(0.214)   | 0.006<br>(0.031)  | -0.032<br>(0.123)  | 0.388<br>(0.319)             |
| <b>P-values of Wald<br/>tests general =<br/>central</b> |                           |                     |                      |                            |                                  |                   |                     |                   |                    |                              |
| Ideology (center)                                       | 0.0560                    | 0.9696              | 0.0315               | 0.4113                     | 0.0077                           | 0.0737            | 0.2676              | 0.9154            | 0.3250             | 0.0399                       |
| Ideology (leftwing)                                     | 0.0339                    | 0.1436              | 0.5072               | 0.1741                     | 0.6627                           | 0.1055            | 0.2385              | 0.6984            | 0.0472             | 0.9238                       |
| Election (Franzese,<br>pre-election year)               | 0.8269                    | 0.3209              | 0.3698               | 0.9379                     | 0.3823                           | 0.5622            | 0.6210              | 0.0153            | 0.9014             | 0.7513                       |
| Election (Franzese,<br>election year)                   | 0.9336                    | 0.4451              | 0.1565               | 0.3781                     | 0.5515                           | 0.7647            | 0.2176              | 0.4632            | 0.5362             | 0.0689                       |

election year)

|              |     |     |     |     |     |     |     |     |     |     |
|--------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Observations | 404 | 404 | 404 | 404 | 404 | 404 | 404 | 404 | 404 | 404 |
| Countries    | 20  | 20  | 20  | 20  | 20  | 20  | 20  | 20  | 20  | 20  |

Standard errors in parentheses, \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , control variables: Unemployment rate, Globalization, Young share, Elderly share, Prices public consumption, overall government expenditure, ICT capital (not shown). Fixed country and fixed year effects included.

Table 6. Regression Results. Dependent variables: individual expenditure categories (measured as a share of total expenditure).

**Pre- and post-election variables included.** SUR estimator with 20 equations.

|  | (1)<br>Public<br>services | (2)<br>Defense      | (3)<br>Public Safety | (4)<br>Economic<br>Affairs | (5)<br>Environment<br>protection | (6)<br>Housing    | (7)<br>Health      | (8)<br>Culture     | (9)<br>Education    | (10)<br>Social<br>protection |
|--|---------------------------|---------------------|----------------------|----------------------------|----------------------------------|-------------------|--------------------|--------------------|---------------------|------------------------------|
| <b>General gov.</b>  |                           |                     |                      |                            |                                  |                   |                    |                    |                     |                              |
| Ideology (center)  | -0.266*<br>(0.161)        | 0.040<br>(0.051)    | -0.010<br>(0.029)    | 0.340<br>(0.356)           | 0.005<br>(0.033)                 | 0.032<br>(0.061)  | -0.020<br>(0.101)  | 0.013<br>(0.029)   | 0.110<br>(0.075)    | -0.177<br>(0.214)            |
| Ideology (leftwing)  | -0.044<br>(0.108)         | -0.028<br>(0.034)   | -0.008<br>(0.019)    | 0.055<br>(0.240)           | -0.002<br>(0.022)                | 0.014<br>(0.042)  | -0.069<br>(0.068)  | 0.031<br>(0.019)   | 0.084*<br>(0.051)   | 0.048<br>(0.144)             |
| Pre-Election year  | -0.042<br>(0.115)         | 0.050<br>(0.036)    | -0.011<br>(0.021)    | 0.245<br>(0.256)           | 0.012<br>(0.024)                 | 0.028<br>(0.044)  | -0.127*<br>(0.073) | 0.027<br>(0.021)   | 0.035<br>(0.054)    | -0.227<br>(0.154)            |
| Election year  | 0.108<br>(0.116)          | -0.049<br>(0.037)   | -0.012<br>(0.021)    | 0.030<br>(0.257)           | 0.001<br>(0.024)                 | 0.020<br>(0.044)  | 0.041<br>(0.073)   | 0.002<br>(0.021)   | 0.055<br>(0.054)    | -0.180<br>(0.155)            |
| Post- Election year  | 0.054<br>(0.112)          | -0.023<br>(0.035)   | 0.000<br>(0.020)     | 0.041<br>(0.249)           | 0.004<br>(0.023)                 | 0.019<br>(0.043)  | 0.028<br>(0.071)   | -0.005<br>(0.020)  | 0.010<br>(0.052)    | -0.137<br>(0.149)            |
| <b>Central gov.</b>  |                           |                     |                      |                            |                                  |                   |                    |                    |                     |                              |
| Ideology (center)  | -0.915**<br>(0.388)       | 0.031<br>(0.082)    | -0.061<br>(0.042)    | 0.536<br>(0.456)           | 0.076**<br>(0.037)               | -0.098<br>(0.086) | -0.199<br>(0.213)  | 0.002<br>(0.030)   | 0.200<br>(0.123)    | 0.318<br>(0.320)             |
| Ideology (leftwing)  | -0.503*<br>(0.262)        | -0.072<br>(0.055)   | 0.003<br>(0.028)     | 0.230<br>(0.308)           | 0.006<br>(0.025)                 | -0.069<br>(0.058) | 0.098<br>(0.144)   | 0.023<br>(0.021)   | 0.214***<br>(0.083) | 0.052<br>(0.216)             |
| Pre-Election year  | -0.319<br>(0.279)         | 0.013<br>(0.059)    | -0.008<br>(0.030)    | 0.423<br>(0.328)           | 0.017<br>(0.027)                 | 0.065<br>(0.062)  | 0.039<br>(0.154)   | -0.034<br>(0.022)  | -0.009<br>(0.088)   | -0.252<br>(0.230)            |
| Election year  | -0.078<br>(0.280)         | -0.127**<br>(0.059) | -0.038<br>(0.030)    | 0.139<br>(0.330)           | 0.017<br>(0.027)                 | 0.055<br>(0.062)  | 0.055<br>(0.154)   | -0.040*<br>(0.022) | -0.016<br>(0.089)   | -0.009<br>(0.231)            |
| Post- Election year  | -0.156<br>(0.271)         | -0.092<br>(0.057)   | -0.014<br>(0.029)    | 0.239<br>(0.319)           | -0.012<br>(0.026)                | 0.034<br>(0.060)  | 0.237<br>(0.149)   | -0.029<br>(0.021)  | 0.018<br>(0.086)    | -0.297<br>(0.223)            |
| <b>P-values of Wald tests general = central</b>              |                           |                     |                      |                            |                                  |                   |                    |                    |                     |                              |
| Ideology (center)  | 0.0415                    | 0.8438              | 0.0342               | 0.2930                     | 0.0068                           | 0.0872            | 0.3743             | 0.6576             | 0.3454              | 0.0585                       |
| Ideology (leftwing)  | 0.0327                    | 0.1547              | 0.4728               | 0.1637                     | 0.6542                           | 0.1094            | 0.2177             | 0.6411             | 0.0437              | 0.9836                       |
| Pre-Election year +<br>Election year +<br>Post-Election year | 0.2154                    | 0.0187              | 0.3754               | 0.1288                     | 0.9078                           | 0.5048            | 0.2585             | 0.0030             | 0.5155              | 0.9748                       |

|              |     |     |     |     |     |     |     |     |     |     |
|--------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Observations | 404 | 404 | 404 | 404 | 404 | 404 | 404 | 404 | 404 | 404 |
| Countries    | 20  | 20  | 20  | 20  | 20  | 20  | 20  | 20  | 20  | 20  |

Standard errors in parentheses, \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , control variables: Unemployment rate, Globalization, Young share, Elderly share, Prices public consumption, overall government expenditure, ICT capital (not shown). Fixed country and fixed year effects included.

Table 7. Regression Results. Dependent variables: individual expenditure categories (measured as a share of total expenditure).

**Election year (Brender, Drazen, and Veiga).** SUR estimator with 20 equations.

|   | (1)<br>Public<br>services | (2)<br>Defense    | (3)<br>Public Safety | (4)<br>Economic<br>Affairs | (5)<br>Environment<br>protection | (6)<br>Housing    | (7)<br>Health     | (8)<br>Culture    | (9)<br>Education   | (10)<br>Social<br>protection |
|---|---------------------------|-------------------|----------------------|----------------------------|----------------------------------|-------------------|-------------------|-------------------|--------------------|------------------------------|
| <b>General gov.</b>                             |                           |                   |                      |                            |                                  |                   |                   |                   |                    |                              |
| Ideology (center)                               | -0.266*<br>(0.160)        | 0.041<br>(0.051)  | -0.008<br>(0.029)    | 0.327<br>(0.355)           | 0.000<br>(0.033)                 | 0.030<br>(0.061)  | -0.015<br>(0.102) | 0.015<br>(0.029)  | 0.108<br>(0.075)   | -0.164<br>(0.214)            |
| Ideology (leftwing)                             | -0.045<br>(0.108)         | -0.027<br>(0.034) | -0.009<br>(0.019)    | 0.059<br>(0.241)           | -0.002<br>(0.022)                | 0.014<br>(0.042)  | -0.073<br>(0.069) | 0.032<br>(0.020)  | 0.085*<br>(0.051)  | 0.045<br>(0.145)             |
| Election  | 0.116<br>(0.097)          | -0.033<br>(0.031) | 0.001<br>(0.018)     | -0.035<br>(0.217)          | -0.029<br>(0.020)                | 0.007<br>(0.037)  | 0.067<br>(0.062)  | 0.016<br>(0.018)  | 0.041<br>(0.046)   | -0.132<br>(0.130)            |
| <b>Central gov.</b>                             |                           |                   |                      |                            |                                  |                   |                   |                   |                    |                              |
| Ideology (center)                               | -0.893**<br>(0.388)       | 0.040<br>(0.082)  | -0.059<br>(0.042)    | 0.505<br>(0.455)           | 0.074**<br>(0.037)               | -0.104<br>(0.086) | -0.219<br>(0.213) | 0.005<br>(0.030)  | 0.205*<br>(0.122)  | 0.343<br>(0.320)             |
| Ideology (leftwing)                             | -0.506*<br>(0.262)        | -0.070<br>(0.056) | 0.003<br>(0.028)     | 0.233<br>(0.308)           | 0.007<br>(0.025)                 | -0.068<br>(0.058) | 0.094<br>(0.145)  | 0.022<br>(0.021)  | 0.213**<br>(0.083) | 0.054<br>(0.216)             |
| Election  | 0.024<br>(0.236)          | -0.074<br>(0.050) | -0.026<br>(0.025)    | 0.022<br>(0.278)           | -0.006<br>(0.023)                | 0.032<br>(0.052)  | -0.019<br>(0.130) | -0.024<br>(0.019) | 0.026<br>(0.075)   | 0.023<br>(0.195)             |
| <b>P-values of Wald tests general = central</b> |                           |                   |                      |                            |                                  |                   |                   |                   |                    |                              |
| Ideology (center)                               | 0.0485                    | 0.9735            | 0.0334               | 0.3367                     | 0.0056                           | 0.0794            | 0.3095            | 0.7124            | 0.3081             | 0.0533                       |
| Ideology (leftwing)                             | 0.0322                    | 0.1627            | 0.4651               | 0.1667                     | 0.6286                           | 0.1129            | 0.2221            | 0.5897            | 0.0464             | 0.9595                       |
| Election  | 0.6329                    | 0.1450            | 0.0605               | 0.6142                     | 0.1511                           | 0.5877            | 0.4829            | 0.0105            | 0.7869             | 0.3277                       |
| Observations                                    | 404                       | 404               | 404                  | 404                        | 404                              | 404               | 404               | 404               | 404                | 404                          |
| Countries                                       | 20                        | 20                | 20                   | 20                         | 20                               | 20                | 20                | 20                | 20                 | 20                           |

Standard errors in parentheses, \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , control variables: Unemployment rate, Globalization, Young share, Elderly share, Prices public consumption, overall government expenditure, ICT capital (not shown). Fixed country and fixed year effects included.

Table 8. Regression Results. Dependent variables: individual expenditure categories (measured as a share of total expenditure).

**Government ideology in period t-1.** SUR estimator with 20 equations.

|   | (1)<br>Public<br>services | (2)<br>Defense      | (3)<br>Public Safety | (4)<br>Economic<br>Affairs | (5)<br>Environment<br>protection | (6)<br>Housing    | (7)<br>Health      | (8)<br>Culture    | (9)<br>Education   | (10)<br>Social<br>protection |
|---|---------------------------|---------------------|----------------------|----------------------------|----------------------------------|-------------------|--------------------|-------------------|--------------------|------------------------------|
| <b>General gov.</b>                             |                           |                     |                      |                            |                                  |                   |                    |                   |                    |                              |
| Ideology (center)                               | -0.048<br>(0.164)         | 0.013<br>(0.052)    | -0.029<br>(0.029)    | 0.608*<br>(0.362)          | -0.028<br>(0.033)                | -0.035<br>(0.062) | -0.143<br>(0.104)  | -0.024<br>(0.029) | 0.061<br>(0.076)   | -0.324<br>(0.218)            |
| Ideology (leftwing)                             | -0.023<br>(0.108)         | -0.034<br>(0.034)   | -0.006<br>(0.019)    | 0.197<br>(0.239)           | 0.001<br>(0.022)                 | -0.016<br>(0.041) | -0.080<br>(0.068)  | 0.021<br>(0.019)  | 0.098*<br>(0.050)  | -0.080<br>(0.144)            |
| Election  | 0.115<br>(0.097)          | -0.058*<br>(0.031)  | -0.008<br>(0.017)    | -0.082<br>(0.214)          | -0.004<br>(0.020)                | 0.004<br>(0.037)  | 0.073<br>(0.061)   | -0.005<br>(0.017) | 0.033<br>(0.045)   | -0.050<br>(0.129)            |
| <b>Central gov.</b>                             |                           |                     |                      |                            |                                  |                   |                    |                   |                    |                              |
| Ideology (center)                               | -0.817**<br>(0.396)       | -0.056<br>(0.083)   | -0.090**<br>(0.042)  | 0.969**<br>(0.462)         | 0.031<br>(0.038)                 | -0.135<br>(0.087) | -0.007<br>(0.217)  | -0.029<br>(0.031) | 0.086<br>(0.125)   | -0.091<br>(0.327)            |
| Ideology (leftwing)                             | -0.612**<br>(0.261)       | -0.088<br>(0.055)   | -0.026<br>(0.028)    | 0.461<br>(0.305)           | 0.014<br>(0.025)                 | -0.059<br>(0.058) | 0.325**<br>(0.144) | 0.003<br>(0.021)  | 0.184**<br>(0.083) | -0.197<br>(0.215)            |
| Election  | 0.128<br>(0.233)          | -0.099**<br>(0.049) | -0.027<br>(0.025)    | -0.111<br>(0.273)          | 0.012<br>(0.022)                 | 0.027<br>(0.051)  | -0.037<br>(0.128)  | -0.019<br>(0.018) | -0.031<br>(0.074)  | 0.164<br>(0.192)             |
| <b>P-values of Wald tests general = central</b> |                           |                     |                      |                            |                                  |                   |                    |                   |                    |                              |
| Ideology (center)                               | 0.0174                    | 0.1382              | 0.0118               | 0.0557                     | 0.0289                           | 0.2018            | 0.5031             | 0.8618            | 0.7967             | 0.3841                       |
| Ideology (leftwing)                             | 0.0058                    | 0.0833              | 0.2140               | 0.0343                     | 0.4710                           | 0.4091            | 0.0026             | 0.2820            | 0.1795             | 0.5054                       |
| Election  | 0.9449                    | 0.1361              | 0.1967               | 0.7986                     | 0.3134                           | 0.6185            | 0.3585             | 0.3506            | 0.2659             | 0.1734                       |
| Observations                                    | 404                       | 404                 | 404                  | 404                        | 404                              | 404               | 404                | 404               | 404                | 404                          |
| Countries                                       | 20                        | 20                  | 20                   | 20                         | 20                               | 20                | 20                 | 20                | 20                 | 20                           |

Standard errors in parentheses, \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , control variables: Unemployment rate, Globalization, Young share, Elderly share, Prices public consumption, overall government expenditure, ICT capital (not shown). Fixed country and fixed year effects included.

Table 9. Regression Results. Dependent variables: individual expenditure categories (measured as a share of total expenditure).

**Country-cabinet observations.** SUR estimator with 20 equations.

|   | (1)<br>Public<br>services | (2)<br>Defense    | (3)<br>Public Safety | (4)<br>Economic<br>Affairs | (5)<br>Environment<br>protection | (6)<br>Housing    | (7)<br>Health       | (8)<br>Culture    | (9)<br>Education  | (10)<br>Social<br>protection |
|---|---------------------------|-------------------|----------------------|----------------------------|----------------------------------|-------------------|---------------------|-------------------|-------------------|------------------------------|
| <b>General gov.</b>                             |                           |                   |                      |                            |                                  |                   |                     |                   |                   |                              |
| Ideology (center)                               | -0.258<br>(0.279)         | 0.079<br>(0.083)  | -0.042<br>(0.045)    | 0.528<br>(0.368)           | 0.043<br>(0.061)                 | -0.014<br>(0.086) | -0.047<br>(0.148)   | 0.027<br>(0.050)  | 0.112<br>(0.129)  | -0.420<br>(0.269)            |
| Ideology (leftwing)                             | 0.186<br>(0.216)          | -0.052<br>(0.065) | -0.036<br>(0.035)    | 0.052<br>(0.286)           | -0.048<br>(0.047)                | -0.019<br>(0.067) | -0.104<br>(0.115)   | 0.039<br>(0.039)  | 0.094<br>(0.101)  | -0.074<br>(0.209)            |
| <b>Central gov.</b>                             |                           |                   |                      |                            |                                  |                   |                     |                   |                   |                              |
| Ideology (center)                               | -0.399<br>(0.556)         | 0.159<br>(0.127)  | -0.136**<br>(0.060)  | 0.775*<br>(0.468)          | 0.079<br>(0.058)                 | -0.175<br>(0.113) | -0.844**<br>(0.397) | -0.026<br>(0.056) | 0.224<br>(0.207)  | 0.337<br>(0.441)             |
| Ideology (leftwing)                             | -0.650<br>(0.431)         | -0.132<br>(0.099) | -0.047<br>(0.046)    | 0.139<br>(0.364)           | 0.004<br>(0.045)                 | -0.056<br>(0.088) | 0.180<br>(0.309)    | 0.013<br>(0.044)  | 0.316*<br>(0.162) | 0.198<br>(0.342)             |
| <b>P-values of Wald tests general = central</b> |                           |                   |                      |                            |                                  |                   |                     |                   |                   |                              |
| Ideology (center)                               | 0.7758                    | 0.1985            | 0.0197               | 0.2182                     | 0.4124                           | 0.1725            | 0.0326              | 0.2359            | 0.4946            | 0.0368                       |
| Ideology (leftwing)                             | 0.0298                    | 0.0975            | 0.7127               | 0.5781                     | 0.1219                           | 0.6840            | 0.3288              | 0.4559            | 0.0847            | 0.3343                       |
| Observations                                    | 142                       | 142               | 142                  | 142                        | 142                              | 142               | 142                 | 142               | 142               | 142                          |
| Countries                                       | 20                        | 20                | 20                   | 20                         | 20                               | 20                | 20                  | 20                | 20                | 20                           |

Standard errors in parentheses, \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , control variables: Unemployment rate, Globalization, Young share, Elderly share, Prices public consumption, overall government expenditure, ICT capital (not shown). Fixed country and fixed cabinet effects included.

Table 10. Regression Results. Dependent variables: individual expenditure categories (measured as a share of total expenditure).

**Political ideology of the chief executive in period t.** SUR estimator with 20 equations.

|   | (1)<br>Public<br>services | (2)<br>Defense      | (3)<br>Public Safety | (4)<br>Economic<br>Affairs | (5)<br>Environment<br>protection | (6)<br>Housing     | (7)<br>Health       | (8)<br>Culture    | (9)<br>Education   | (10)<br>Social<br>protection |
|---|---------------------------|---------------------|----------------------|----------------------------|----------------------------------|--------------------|---------------------|-------------------|--------------------|------------------------------|
| <b>General gov.</b>                             |                           |                     |                      |                            |                                  |                    |                     |                   |                    |                              |
| Ideology (center)                               | -0.412*<br>(0.239)        | -0.112<br>(0.087)   | -0.042<br>(0.049)    | 0.481<br>(0.609)           | 0.020<br>(0.055)                 | 0.172*<br>(0.101)  | 0.001<br>(0.172)    | -0.019<br>(0.049) | 0.031<br>(0.126)   | 0.102<br>(0.361)             |
| Ideology (leftwing)                             | 0.004<br>(0.096)          | -0.057<br>(0.035)   | -0.003<br>(0.019)    | 0.040<br>(0.244)           | 0.028<br>(0.022)                 | 0.086**<br>(0.041) | -0.061<br>(0.069)   | 0.020<br>(0.020)  | 0.117**<br>(0.051) | 0.014<br>(0.145)             |
| Election  | 0.194**<br>(0.092)        | -0.063*<br>(0.033)  | -0.017<br>(0.019)    | -0.098<br>(0.234)          | -0.010<br>(0.021)                | -0.004<br>(0.039)  | 0.079<br>(0.066)    | -0.008<br>(0.019) | 0.029<br>(0.049)   | -0.063<br>(0.139)            |
| <b>Central gov.</b>                             |                           |                     |                      |                            |                                  |                    |                     |                   |                    |                              |
| Ideology (center)                               | -0.987<br>(0.603)         | -0.150<br>(0.135)   | -0.049<br>(0.071)    | 0.475<br>(0.768)           | 0.030<br>(0.057)                 | 0.019<br>(0.145)   | 0.940***<br>(0.364) | -0.003<br>(0.051) | 0.117<br>(0.192)   | -0.374<br>(0.499)            |
| Ideology (leftwing)                             | -0.316<br>(0.242)         | -0.122**<br>(0.054) | 0.001<br>(0.028)     | 0.254<br>(0.308)           | 0.027<br>(0.023)                 | -0.025<br>(0.058)  | 0.168<br>(0.145)    | 0.015<br>(0.021)  | 0.197**<br>(0.077) | -0.098<br>(0.200)            |
| Election  | 0.267<br>(0.232)          | -0.093*<br>(0.052)  | -0.034<br>(0.027)    | -0.066<br>(0.296)          | 0.023<br>(0.022)                 | 0.023<br>(0.056)   | -0.045<br>(0.140)   | -0.024<br>(0.020) | -0.044<br>(0.074)  | 0.020<br>(0.192)             |
| <b>P-values of Wald tests general = central</b> |                           |                     |                      |                            |                                  |                    |                     |                   |                    |                              |
| Ideology (center)                               | 0.2601                    | 0.5821              | 0.8536               | 0.9830                     | 0.7932                           | 0.2379             | 0.0058              | 0.7073            | 0.5362             | 0.2415                       |
| Ideology (leftwing)                             | 0.1185                    | 0.0182              | 0.7635               | 0.0718                     | 0.9218                           | 0.0323             | 0.0920              | 0.7511            | 0.1468             | 0.4933                       |
| Election  | 0.7122                    | 0.2589              | 0.2704               | 0.7767                     | 0.0315                           | 0.5996             | 0.3457              | 0.3442            | 0.1684             | 0.5983                       |
| Observations                                    | 368                       | 368                 | 368                  | 368                        | 368                              | 368                | 368                 | 368               | 368                | 368                          |
| Countries                                       | 19                        | 19                  | 19                   | 19                         | 19                               | 19                 | 19                  | 19                | 19                 | 19                           |

Standard errors in parentheses, \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , control variables: Unemployment rate, Globalization, Young share, Elderly share, Prices public consumption, overall government expenditure, ICT capital (not shown). Fixed country and fixed year effects included.

Table 11. Regression Results. Dependent variables: individual expenditure categories (measured as a share of total expenditure).

**Federal states (Australia, Austria, Belgium, Germany, Switzerland, United States).** SUR estimator with 20 equations.

|   | (1)<br>Public<br>services | (2)<br>Defense       | (3)<br>Public Safety | (4)<br>Economic<br>Affairs | (5)<br>Environment<br>protection | (6)<br>Housing      | (7)<br>Health     | (8)<br>Culture      | (9)<br>Education   | (10)<br>Social<br>protection |
|---|---------------------------|----------------------|----------------------|----------------------------|----------------------------------|---------------------|-------------------|---------------------|--------------------|------------------------------|
| <b>General gov.</b>                             |                           |                      |                      |                            |                                  |                     |                   |                     |                    |                              |
| Ideology (center)                               | -0.416*<br>(0.229)        | -0.096<br>(0.059)    | 0.010<br>(0.029)     | -0.178<br>(0.317)          | 0.086*<br>(0.046)                | 0.060<br>(0.058)    | 0.182<br>(0.111)  | -0.007<br>(0.032)   | -0.001<br>(0.088)  | 0.442*<br>(0.238)            |
| Ideology (leftwing)                             | -0.096<br>(0.185)         | -0.311***<br>(0.048) | 0.002<br>(0.023)     | -0.161<br>(0.257)          | 0.077**<br>(0.038)               | 0.123**<br>(0.049)  | 0.127<br>(0.090)  | 0.024<br>(0.026)    | -0.042<br>(0.072)  | 0.328*<br>(0.193)            |
| Election  | -0.117<br>(0.138)         | 0.005<br>(0.035)     | 0.025<br>(0.017)     | -0.056<br>(0.190)          | 0.013<br>(0.027)                 | -0.030<br>(0.034)   | 0.087<br>(0.067)  | -0.002<br>(0.019)   | 0.026<br>(0.053)   | 0.035<br>(0.142)             |
| <b>Central gov.</b>                             |                           |                      |                      |                            |                                  |                     |                   |                     |                    |                              |
| Ideology (center)                               | -0.441<br>(0.572)         | -0.252*<br>(0.138)   | -0.015<br>(0.035)    | -0.785<br>(0.657)          | 0.181***<br>(0.058)              | -0.008<br>(0.090)   | 0.086<br>(0.150)  | 0.057***<br>(0.021) | 0.489**<br>(0.200) | 0.544<br>(0.509)             |
| Ideology (leftwing)                             | -0.403<br>(0.457)         | -0.700***<br>(0.112) | 0.027<br>(0.028)     | -0.324<br>(0.525)          | 0.058<br>(0.046)                 | 0.294***<br>(0.074) | 0.028<br>(0.120)  | 0.019<br>(0.017)    | 0.384**<br>(0.161) | 0.666<br>(0.407)             |
| Election  | 0.026<br>(0.344)          | -0.041<br>(0.083)    | 0.003<br>(0.021)     | -0.243<br>(0.393)          | 0.038<br>(0.035)                 | -0.018<br>(0.054)   | -0.013<br>(0.090) | 0.000<br>(0.013)    | -0.005<br>(0.120)  | 0.178<br>(0.305)             |
| <b>P-values of Wald tests general = central</b> |                           |                      |                      |                            |                                  |                     |                   |                     |                    |                              |
| Ideology (center)                               | 0.9566                    | 0.1396               | 0.3544               | 0.1558                     | 0.0829                           | 0.3848              | 0.3365            | 0.0219              | 0.0073             | 0.8020                       |
| Ideology (leftwing)                             | 0.4028                    | 0.0000               | 0.2711               | 0.6325                     | 0.6838                           | 0.0096              | 0.2194            | 0.8130              | 0.0041             | 0.2995                       |
| Election  | 0.6054                    | 0.4664               | 0.1796               | 0.4641                     | 0.4466                           | 0.8025              | 0.0936            | 0.8824              | 0.7791             | 0.5590                       |
| Observations                                    | 122                       | 122                  | 122                  | 122                        | 122                              | 122                 | 122               | 122                 | 122                | 122                          |
| Countries                                       | 6                         | 6                    | 6                    | 6                          | 6                                | 6                   | 6                 | 6                   | 6                  | 6                            |

Standard errors in parentheses, \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , control variables: Unemployment rate, Globalization, Young share, Elderly share, Prices public consumption, overall government expenditure, ICT capital (not shown). Fixed country and fixed year effects included.

Table 12. Regression Results. Dependent variables: individual expenditure categories (measured as a share of total expenditure).  
**Non-federal states. Excluding: Australia, Austria, Belgium, Germany, Switzerland, United States.** SUR estimator with 20 equations.

|   | (1)<br>Public<br>services | (2)<br>Defense     | (3)<br>Public Safety | (4)<br>Economic<br>Affairs | (5)<br>Environment<br>protection | (6)<br>Housing      | (7)<br>Health      | (8)<br>Culture    | (9)<br>Education  | (10)<br>Social<br>protection |
|---|---------------------------|--------------------|----------------------|----------------------------|----------------------------------|---------------------|--------------------|-------------------|-------------------|------------------------------|
| <b>General gov.</b>                             |                           |                    |                      |                            |                                  |                     |                    |                   |                   |                              |
| Ideology (center)                               | -0.400*<br>(0.213)        | 0.096<br>(0.067)   | -0.017<br>(0.041)    | 0.521<br>(0.509)           | -0.026<br>(0.043)                | 0.109<br>(0.082)    | -0.061<br>(0.141)  | 0.030<br>(0.041)  | 0.129<br>(0.104)  | -0.250<br>(0.291)            |
| Ideology (leftwing)                             | -0.128<br>(0.133)         | 0.019<br>(0.042)   | -0.003<br>(0.026)    | 0.114<br>(0.321)           | -0.011<br>(0.027)                | -0.014<br>(0.052)   | -0.169*<br>(0.089) | 0.045*<br>(0.026) | 0.112*<br>(0.066) | 0.195<br>(0.184)             |
| Election  | 0.179<br>(0.120)          | -0.074*<br>(0.038) | -0.020<br>(0.024)    | -0.022<br>(0.290)          | -0.011<br>(0.024)                | 0.017<br>(0.047)    | 0.055<br>(0.080)   | -0.005<br>(0.023) | 0.039<br>(0.059)  | -0.128<br>(0.166)            |
| <b>Central gov.</b>                             |                           |                    |                      |                            |                                  |                     |                    |                   |                   |                              |
| Ideology (center)                               | -1.096**<br>(0.504)       | 0.125<br>(0.097)   | -0.080<br>(0.061)    | 0.613<br>(0.605)           | 0.006<br>(0.046)                 | -0.018<br>(0.117)   | -0.351<br>(0.316)  | -0.014<br>(0.044) | 0.066<br>(0.157)  | 0.695*<br>(0.379)            |
| Ideology (leftwing)                             | -0.442<br>(0.317)         | 0.069<br>(0.061)   | 0.007<br>(0.038)     | 0.189<br>(0.382)           | 0.010<br>(0.029)                 | -0.180**<br>(0.074) | 0.087<br>(0.200)   | 0.034<br>(0.028)  | 0.157<br>(0.100)  | 0.132<br>(0.239)             |
| Election  | 0.144<br>(0.286)          | -0.101*<br>(0.055) | -0.040<br>(0.034)    | 0.033<br>(0.345)           | 0.007<br>(0.026)                 | 0.034<br>(0.067)    | -0.036<br>(0.180)  | -0.026<br>(0.025) | -0.035<br>(0.090) | 0.017<br>(0.215)             |
| <b>P-values of Wald tests general = central</b> |                           |                    |                      |                            |                                  |                     |                    |                   |                   |                              |
| Ideology (center)                               | 0.0975                    | 0.4839             | 0.0547               | 0.5980                     | 0.2620                           | 0.2507              | 0.3345             | 0.2213            | 0.5732            | 0.0030                       |
| Ideology (leftwing)                             | 0.2349                    | 0.0571             | 0.6404               | 0.4970                     | 0.2341                           | 0.0176              | 0.1783             | 0.6152            | 0.5205            | 0.7541                       |
| Election  | 0.8816                    | 0.2627             | 0.2662               | 0.5795                     | 0.2741                           | 0.7899              | 0.5944             | 0.2974            | 0.2504            | 0.4207                       |
| Observations                                    | 282                       | 282                | 282                  | 282                        | 282                              | 282                 | 282                | 282               | 282               | 282                          |
| Countries                                       | 14                        | 14                 | 14                   | 14                         | 14                               | 14                  | 14                 | 14                | 14                | 14                           |

Standard errors in parentheses, \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , control variables: Unemployment rate, Globalization, Young share, Elderly share, Prices public consumption, overall government expenditure, ICT capital (not shown). Fixed country and fixed year effects included.

Table 13. Regression Results. Dependent variables: individual expenditure categories (measured as a share of total expenditure).

**Financial crisis excluded; period 1995-2007.** SUR estimator with 20 equations.

|   | (1)<br>Public<br>services | (2)<br>Defense       | (3)<br>Public Safety | (4)<br>Economic<br>Affairs | (5)<br>Environment<br>protection | (6)<br>Housing    | (7)<br>Health      | (8)<br>Culture      | (9)<br>Education   | (10)<br>Social<br>protection |
|---|---------------------------|----------------------|----------------------|----------------------------|----------------------------------|-------------------|--------------------|---------------------|--------------------|------------------------------|
| <b>General gov.</b>                             |                           |                      |                      |                            |                                  |                   |                    |                     |                    |                              |
| Ideology (center)                               | 0.003<br>(0.248)          | -0.099<br>(0.084)    | -0.020<br>(0.041)    | -0.263<br>(0.298)          | -0.263<br>(0.298)                | 0.161<br>(0.104)  | (0.038)<br>0.045   | -0.004<br>(0.052)   | 0.233**<br>(0.099) | -0.207<br>(0.273)            |
| Ideology (leftwing)                             | -0.032<br>(0.154)         | -0.021<br>(0.052)    | -0.030<br>(0.026)    | 0.334*<br>(0.184)          | 0.334*<br>(0.184)                | 0.058<br>(0.065)  | (0.133)<br>-0.153* | 0.047<br>(0.032)    | 0.015<br>(0.062)   | -0.106<br>(0.171)            |
| Election  | 0.100<br>(0.116)          | -0.105***<br>(0.039) | -0.028<br>(0.019)    | 0.131<br>(0.140)           | 0.131<br>(0.140)                 | 0.027<br>(0.049)  | (0.083)<br>0.014   | -0.037<br>(0.025)   | 0.027<br>(0.046)   | -0.131<br>(0.129)            |
| <b>Central gov.</b>                             |                           |                      |                      |                            |                                  |                   |                    |                     |                    |                              |
| Ideology (center)                               | -0.839<br>(0.574)         | -0.279**<br>(0.142)  | -0.049<br>(0.059)    | -0.313<br>(0.542)          | 0.019<br>(0.048)                 | -0.104<br>(0.106) | -0.015<br>(0.337)  | 0.042<br>(0.053)    | 0.207<br>(0.149)   | (0.024)<br>0.819*            |
| Ideology (leftwing)                             | -0.885**<br>(0.355)       | -0.125<br>(0.087)    | 0.012<br>(0.036)     | 0.643*<br>(0.334)          | 0.000<br>(0.029)                 | 0.114*<br>(0.065) | 0.114<br>(0.208)   | 0.016<br>(0.033)    | 0.145<br>(0.093)   | (0.445)<br>0.058             |
| Election  | 0.267<br>(0.270)          | -0.187***<br>(0.066) | -0.044<br>(0.028)    | 0.082<br>(0.254)           | 0.009<br>(0.022)                 | 0.001<br>(0.050)  | -0.203<br>(0.158)  | -0.050**<br>(0.025) | -0.035<br>(0.070)  | (0.272)<br>0.107             |
| <b>P-values of Wald tests general = central</b> |                           |                      |                      |                            |                                  |                   |                    |                     |                    |                              |
| Ideology (center)                               | 0.0695                    | 0.0472               | 0.3930               | 0.8786                     | 0.0178                           | 0.0029            | 0.8610             | 0.2986              | 0.8252             | 0.0043                       |
| Ideology (leftwing)                             | 0.0030                    | 0.0613               | 0.0457               | 0.1235                     | 0.0239                           | 0.3191            | 0.2122             | 0.2674              | 0.0782             | 0.4584                       |
| Election  | 0.4449                    | 0.0526               | 0.3058               | 0.7485                     | 0.5318                           | 0.5295            | 0.1807             | 0.5115              | 0.2614             | 0.1543                       |
| Observations                                    | 227                       | 227                  | 227                  | 227                        | 227                              | 227               | 227                | 227                 | 227                | 227                          |
| Countries                                       | 20                        | 20                   | 20                   | 20                         | 20                               | 20                | 20                 | 20                  | 20                 | 20                           |

Standard errors in parentheses, \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , control variables: Unemployment rate, Globalization, Young share, Elderly share, Prices public consumption, overall government expenditure, ICT capital (not shown). Fixed country and fixed year effects included.

Table 14. Regression Results. Dependent variables: individual expenditure categories (measured as a share of total expenditure).

**Addressing the sovereign debt crisis: Greece, Ireland and Portugal excluded.** SUR estimator with 20 equations.

|   | (1)<br>Public<br>services | (2)<br>Defense      | (3)<br>Public Safety | (4)<br>Economic<br>Affairs | (5)<br>Environment<br>protection | (6)<br>Housing    | (7)<br>Health      | (8)<br>Culture    | (9)<br>Education    | (10)<br>Social<br>protection |
|---|---------------------------|---------------------|----------------------|----------------------------|----------------------------------|-------------------|--------------------|-------------------|---------------------|------------------------------|
| <b>General gov.</b>                             |                           |                     |                      |                            |                                  |                   |                    |                   |                     |                              |
| Ideology (center)                               | -0.227<br>(0.140)         | 0.009<br>(0.035)    | -0.002<br>(0.022)    | -0.050<br>(0.192)          | 0.041<br>(0.033)                 | 0.084<br>(0.063)  | 0.049<br>(0.080)   | -0.015<br>(0.032) | 0.032<br>(0.059)    | -0.017<br>(0.155)            |
| Ideology (leftwing)                             | -0.049<br>(0.091)         | -0.054**<br>(0.023) | 0.000<br>(0.014)     | 0.089<br>(0.125)           | 0.017<br>(0.022)                 | 0.033<br>(0.041)  | -0.090*<br>(0.052) | 0.024<br>(0.021)  | 0.055<br>(0.038)    | 0.064<br>(0.101)             |
| Election  | 0.057<br>(0.081)          | -0.025<br>(0.021)   | -0.013<br>(0.013)    | 0.049<br>(0.112)           | -0.001<br>(0.019)                | -0.008<br>(0.037) | 0.065<br>(0.046)   | -0.012<br>(0.018) | 0.006<br>(0.034)    | -0.150*<br>(0.090)           |
| <b>Central gov.</b>                             |                           |                     |                      |                            |                                  |                   |                    |                   |                     |                              |
| Ideology (center)                               | -0.638<br>(0.412)         | -0.027<br>(0.076)   | -0.060*<br>(0.034)   | -0.081<br>(0.358)          | 0.073*<br>(0.039)                | -0.071<br>(0.103) | -0.210<br>(0.235)  | -0.017<br>(0.035) | 0.164<br>(0.119)    | 0.540<br>(0.350)             |
| Ideology (leftwing)                             | -0.554**<br>(0.269)       | -0.111**<br>(0.049) | 0.012<br>(0.023)     | 0.276<br>(0.234)           | 0.014<br>(0.026)                 | -0.072<br>(0.067) | 0.130<br>(0.154)   | 0.016<br>(0.023)  | 0.205***<br>(0.078) | 0.066<br>(0.228)             |
| Election  | 0.135<br>(0.241)          | -0.059<br>(0.044)   | -0.036*<br>(0.020)   | -0.025<br>(0.209)          | 0.033<br>(0.023)                 | 0.033<br>(0.060)  | -0.119<br>(0.138)  | -0.022<br>(0.020) | -0.082<br>(0.069)   | 0.085<br>(0.204)             |
| <b>P-values of Wald tests general = central</b> |                           |                     |                      |                            |                                  |                   |                    |                   |                     |                              |
| Ideology (center)                               | 0.2546                    | 0.5069              | 0.0268               | 0.8845                     | 0.2821                           | 0.0731            | 0.2800             | 0.9374            | 0.2263              | 0.0598                       |
| Ideology (leftwing)                             | 0.0321                    | 0.1006              | 0.5073               | 0.1880                     | 0.8915                           | 0.0631            | 0.1608             | 0.6559            | 0.0349              | 0.9893                       |
| Election  | 0.7095                    | 0.2699              | 0.1277               | 0.5643                     | 0.0507                           | 0.4163            | 0.1894             | 0.5437            | 0.1656              | 0.1716                       |
| Observations                                    | 343                       | 343                 | 343                  | 343                        | 343                              | 343               | 343                | 343               | 343                 | 343                          |
| Countries                                       | 17                        | 17                  | 17                   | 17                         | 17                               | 17                | 17                 | 17                | 17                  | 17                           |

Standard errors in parentheses, \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01, control variables: Unemployment rate, Globalization, Young share, Elderly share, Prices public consumption, overall government expenditure, ICT capital (not shown). Fixed country and fixed year effects included.