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THE POTENTIAL FOR POLICY CHANGE UNDER TWO-DIMENSIONAL GOVERNMENT POLARISATION

A statistical analysis of the constraining effect of government polarisation on changes in budget allocation

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Abstract

Governments make less policy changes when there are larger ideological distances between government parties. This is a foundational claim of veto player theory which is supported by the results of several empirical studies. The relationship between government polarisation and the ability for policy change has however not been assessed with a two-dimensional measure of government polarisation, even though political competition in Europe is increasingly two-dimensional. To address this research gap, this thesis examines how government polarisation on both an economic and a cultural dimension affects the degree of change in budget allocation. Analysing governments in 25 European countries between 1999 and 2024, this study finds that there is no effect of government polarisation on changes in budget allocation. This result holds both for the separate effects of economic and cultural polarisation and changes in corresponding areas, as well as for the effect of general left-right and two-dimensional polarisation on changes in all spending categories. These findings contradict the results of previous studies, thereby calling into question whether the theoretical claims of veto player theory are still valid during the most recent decades. While two-dimensional government polarisation did not matter for changes in budget allocation, the descriptive results show that governments are differently polarised on the economic and the cultural dimension. A two-dimensional conceptualisation of political competition thus has the potential to improve our understanding of other government-related outcomes.

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1. Introduction

Governments make less policy changes when the parties in it are ideologically further away from each other. This is a foundational claim of veto player theory (Tsebelis, 1995, p. 308), which several empirical studies have subsequently confirmed (Angelova et al., 2018, p. 299; Bräuninger et al., 2017, p. 551; Cavalieri, 2026, p. 146–148; Tsebelis, 1999, p. 604; Tsebelis & Chang, 2004, p. 469–470). None of these studies, however, take into account an important development in European party politics over the past couple of decades, which is that we must consider more than one ideological dimension if we are to properly understand political conflict in Europe in the 21st century (Bakker et al., 2012, p. 220; Kriesi et al., 2008, p. 323). Instead of just a general left-right dimension, party competition is increasingly structured along two dimensions, which exist under different names but, in this thesis, are called the economic dimension and the cultural dimension. The economic dimension concerns the role of the state in the economy, while the cultural dimension primarily emphasises whether parties support or oppose immigration and European integration (Bornschier, 2010, p. 29 & 39; De Vries, 2018, p. 1551–1552; Hooghe et al., 2002, p. 966 & 976; Häusermann & Kriesi, 2015, p. 210–211; Kriesi et al., 2008, p. 11 & 13; Teney et al., 2014, p. 580).

In a majority of European countries, the economic and cultural dimensions crosscut each other to a significant extent (Koedam et al., 2025, p. 7). This means that if we know the position of a party on one dimension, we do not automatically know what the position of that party is on the other dimension. A consequence of this when it comes to governments is that we might get a completely different image of how ideologically spread out the government parties are depending on which dimension we look at. Take for example the Dutch Rutte II government between the liberal VVD and the socialist PvdA which was in office between 2012 and 2017. On the economic dimension they are around 5 points apart (on an 11-point scale), which is a substantial distance. On the cultural dimension, on the other hand, they are only separated by around 2 points. Another government with large differences between the dimensions is the Croatian Plenković II cabinet between the Christian-Democratic HDZ and the liberal HNS that governed in the years 2016-2020. Here, the coalition parties are quite close on the economic dimension with only around a 1.5-point difference. They are however around 6 points apart on the cultural dimension. For both of these governments, a completely different story is told about the ideological distances within the government depending on if one looks at the economic dimension or the cultural dimension.

If governments are differently polarised on the two dimensions, that should have implications for how we understand the constraining effect that ideological distance has on the degree of policy change. This thesis, therefore, investigates if governments with different levels of polarisation on the economic and the cultural dimension are constrained in carrying out policy changes to different degrees depending on if the changes concern economic or cultural issues. Furthermore, I explore whether the information that is lost when political competition is considered on a general left-right dimension instead of on two dimensions is important for understanding the degree of policy change. The specific type of policy change that I examine is changes in the share of government expenditure that is allocated to different budget categories. The research question that this thesis answers is the following:

How does the ideological polarisation of governments on both the economic and cultural dimension affect changes in budget allocation, both generally and in areas corresponding to the respective dimensions?

In answering this research question, I contribute both to research on government decision-making and multidimensional political conflict in Europe. My contribution to the research within both of these fields lies in that this thesis, to my knowledge, is the first research endeavour to bring insights from these separate research fields together. For the research on government decision-making, that entails bringing a two-dimensional conceptualisation of political conflict into how we think of the ideological differences within governments. An improved conceptualisation of the ideological conflicts within governments could potentially increase our understanding of the effects of the ideological characteristics of governments on their policy making. When it comes to the research on multidimensional political conflict in Europe, this thesis is one of the first (alongside Lindahl, 2024) to investigate what it means for government-related outcomes that political conflict in Europe is increasingly multidimensional. In doing so, this thesis increases our knowledge of whether multidimensionality is of relevance for understanding political dynamics beyond parties and voters. Furthermore, the two-dimensional structure of political conflict is specifically a European phenomenon. There is, for example, only one dimension in party competition in Latin America (Martínez-Gallardo et al., 2023, p. 780). Therefore, studying two-dimensionality also contributes to European studies in general by increasing our understanding of a political dynamic which is unique to Europe.

The results of this thesis also matter for voters. In countries where the economic and cultural dimensions are weakly related, voters could benefit greatly from considering past and potential coalition constellations two-dimensionally. This would improve the accuracy in voters' perceptions of the ideological distances between parties, which means that they would know better what to expect of specific government constellations and therefore make better-informed vote choices. Furthermore, if voters have knowledge of the constraining effect of large ideological distances between government parties on the government's ability to agree on policy change, they can make better judgements when evaluating the policy output of outgoing governments.

To analyse the research question presented above, I conduct a statistical analysis with OLS regressions of the effect of government polarisation on the degree of change in budget allocation in 25 European countries between 1999 and 2024. The information on party ideology comes from the Chapel Hill Expert Survey, REPDEM is the source of the data on governments and the government spending data comes from Eurostat. The effect of government polarisation is assessed both for changes in economic and cultural spending categories separately as well as for the total changes in all spending categories.

Contrary to expectations from veto player theory, the findings show that there is no effect of government polarisation on the degree of change in budget allocation. These findings call into question whether the foundational claim of veto player theory that increased distance between government parties decreases the potential for policy change is valid for changes in budget allocation in the time period under study here. Since this thesis finds no effect of government polarisation on government policy making, I find no evidence that a two-dimensional conceptualisation of government polarisation improves our understanding of government policy making. However, the analysis shows that the relationship between how polarised governments are on the economic dimension and the cultural dimension is weak, which means that governments rarely have the same level of polarisation on both dimensions. Therefore, those that want to understand the ideological characteristics of governments in Europe, should not let ideological contestation be limited to one dimension, but rather explore the richness of relevant information that examining both the economic and the cultural dimension provides.

2. Previous research and theory

2.1. The determinants of government policy making

I begin by reviewing what previous research has found to explain differences in the policy making of governments. While this thesis is mainly concerned with the effect of the ideological polarisation of governments on policy making, there are also other explanatory factors that are relevant for understanding the policy making of governments. Therefore, this section introduces research that uses government ideology, government fragmentation and economic crises to explain policy making.

Government policy making is a broad term to capture all of the different kinds of decisions that governments make which lead to changes in what the government, as well as the state more broadly, does. There are two main types of policy decisions which appear in the previous research that this thesis builds on. The first concerns how the government chooses to spend its money, either in terms of the level of expenditure or the magnitude of changes in expenditure. When studying government spending, one can be interested in the total expenditure or the allocation of spending to different categories. The second type of policy decision concerns different regulatory decisions, which are either conceived of specifically as laws or more broadly just as reforms. The measurement of this type of policy decision varies from when and if laws are introduced or adopted to how many significant laws or reforms are enacted in total.

2.1.1. Government ideology

The importance of government polarisation for government policy making hinges on the fact that the ideology of the government parties matters for what the government does. Therefore, we must begin by assessing in what ways government ideology affects government policy making.

The general expectation in previous research is that left-leaning governments spend more than right-leaning ones. This expectation is corroborated by several studies that were published in the 1980s and 1990s, which show that left-wing governments spend more than right-wing governments (Blais et al., 1993, p. 57; Blais et al., 1996, p. 517; Roubini & Sachs, 1989a, p. 118). Later studies have examined social expenditure specifically and find that, while leftist (and Christian Democrat) governments did increase social spending in the 1980s, the association between government ideology and higher levels of social spending disappeared in the 1990s (Kittel & Obinger, 2003, p. 38; Potrafke, 2009, p. 106). After the 2008 financial crisis, the relevance of the ideology of the government seems to have re-emerged, with left-wing governments once again increasing social spending more than right-wing governments (McManus, 2019, p. 1283; Savage, 2019, p. 124). The importance of government ideology for understanding levels of government spending thus seems to have varied over time.

To get a more nuanced picture of the spending of governments, we must also look at how ideology affects spending choices for different spending categories. According to some studies the effect of government ideology is quite weak, since the instances when governments reallocate spending in ways that are consistent with their ideology are rare (Epp et al., 2014, p. 864), and there are only partisan effects on spending in two out of nine spending categories (Potrafke, 2011, p. 103). In contrast, other studies do find ideological differences in government spending for different spending categories when they differentiate between favourable and unfavourable socio-economic conditions (Herwartz & Theilen, 2017, p. 76) and periods with

and without fiscal consolidation (Herwartz & Theilen, 2021, p. 377), or in situations when government parties are not too polarised (Russo & Verzichelli, 2016, p. 285).

The question that is of most interest for this thesis is if there are ideological differences when it comes to the total degree of change in budget allocation, since that is the aspect of budget allocation that I study. The support for an effect of government ideology in and of itself on the size of changes in budget allocation is not very strong. The empirical findings range from finding no effect of government ideology at all (Breunig, 2011, p. 1077), to finding the expected ideological differences for only one out of four countries (Breunig, 2006, p. 1078–1081) or only for increases but not for decreases (Cavalieri, 2026, p. 151). Another way of conceptualising government ideology, which is more relevant in regard to changes in budget allocation, is if the government has the same ideology as the previous government or not. Research shows that changes in government are associated with moderate and very large spending increases (Breunig, 2011, p. 1077), and that there is a relationship between leader replacement and greater changes in the composition of budgets over a four-year period (Brender & Drazen, 2013, p. 19). When the measurement of government change is expanded to the actual differences in ideological position (Tsebelis & Chang, 2004, p. 473) or spending preferences (Bräuninger, 2005, p. 422) between the current and previous government, significant changes in government ideology or preferences are found to lead to significant changes in budget allocation. This relationship also extends to legislative productivity, where a larger ideological alternation between governments results in more reform measures (Angelova et al., 2018, p. 283) and more significant legislations (Tsebelis, 1999, p. 605).

2.1.2. Government fragmentation

It thus seems like government ideology has an effect on government policy making, at least during some periods and under some conditions, and especially when the ideological distance to the previous government is considered. Governments are, however, not always ideologically cohesive actors, and we must therefore also consider the role of government fragmentation for understanding the policy making of governments.

The two main ways to conceptualise government fragmentation in previous research is either as the number of parties in government or as the ideological distance between the governing parties. The research on the number of government parties has mainly concerned itself with how this affects levels of government spending and debt. This research has found contradicting results with some reporting that a larger number of parties in government is associated with higher levels of government spending (Bawn & Rosenbluth, 2006, p. 261; Persson et al., 2007, p. 29) and larger budget deficits (Roubini & Sachs, 1989a, p. 122; Roubini & Sachs, 1989b, p. 931). Other studies, however, only find a relationship between minority governments and large budget deficits (Edin & Ohlsson, 1991, p. 1602) or find no association at all between the number of government parties and changes in government spending and debt (de Haan & Sturm, 1997, p. 745–746). One study even finds a reverse relationship, where it is single-party governments that are associated with larger changes in government spending (Hunnerup Dahl, 2014, p. 428). One possible explanation for the diverging findings of other studies is that single-party governments are better at responding to the fiscal context than multiparty governments. Because multiparty governments spend more than single-party governments when the government deficit in the previous year is high, but when the deficit is low or even positive multiparty governments spend less than single-party governments (Blais et al., 2010, p. 835–837).

The number of parties in government has also been used to make sense of legislative productivity, and similarly to the research on government spending and debt the results are mixed. Studies on changes in tax rates (Hallerberg & Basinger, 1998, p. 345) and on the legislative output in Italy (Kreppel, 1997, p. 342) do find that as the number of parties in government increases, the government's ability to agree on policy change decreases. The same results were, however, not recreated in regard to healthcare financing privatisations (Wiese, 2014, p. 341) or significant legislation in Ireland (Conley & Bekafigo, 2010, p. 110–111).

While the number of parties in government does say something about how fragmented the government is, it is even more important to consider how close or far the government parties stand from each other ideologically. The effect of the ideological fragmentation of governments on the policy making of governments has for the most part been studied in terms of legislative productivity. The primary conclusion of this strand of research is that as the ideological distance between government parties increases, the likelihood of policy change decreases (Bräuninger et al., 2017, p. 551; Tsebelis, 1999, p. 604). Governments with a larger ideological range adopt fewer significant legislations (Tsebelis, 1999, p. 604) and their bills are both less likely to and take longer to be passed (Bräuninger et al., 2017, p. 551). When the distance between government parties is considered in regard to the specific policy area that the bill concerns rather than on one broad left-right scale, the results are the same. Bills on topics on which the government is divided take longer to both be introduced (Martin, 2004, p. 455) and adopted (Martin & Vanberg, 2004, p. 23; Zubek & Klüver, 2015, p. 611). There do, however, seem to be ways to mitigate the constraining effect that ideological conflict within a government has on legislative productivity. Both the existence of coalition agreements (Bergman et al., 2024, p. 33) and longer bargaining time (Bäck et al., 2024, p. 1264) reduce the negative effect of ideological range on reform productivity.

There are also studies which do not as strongly support the general association between the ideological conflict within a government and the government's legislative productivity. One study on significant legislation in Ireland does identify a negative effect of the ideological range of the government on legislative productivity but found the effect size to be marginal (Conley & Bekafigo, 2010, p. 105). However, since this is a single-country study, its results do not carry that much weight when the results of all the studies on this relationship are considered together. Another study argues that it is important to differentiate minimum winning cabinets (where all coalition parties are needed for the government to have a majority in parliament) from minority cabinets (where support from parties outside the government are needed) and surplus cabinets (where not all government parties are needed to pass legislation). The reason for this is that in minority and surplus cabinets all parties are either not sufficient or not necessary for passing legislation. In minority governments, it is not only the government parties which are relevant, but also the opposition parties whose support the government uses to pass its budgets and legislations. In surplus governments, not all parties are needed to achieve a majority in parliament, which means that not all government parties are able to block legislation from passing. Therefore, for both minority and surplus governments, simply considering the positions of all parties in government is not enough to understand the effect of ideological distance on legislative productivity (Angelova et al., 2018, p. 286). The results of several studies confirms this argument (Angelova et al., 2018, p. 299; Curini & Zucchini, 2011, p. 203; Tsebelis, 1999, p. 602).

So far, the impact of the ideological fragmentation of governments has been assessed for different legislative outcomes. There are also, however, two studies which investigate

governments' ideological range and changes in budget allocation, which is the specific type of policy outcome that is the subject of this thesis. Tsebelis and Chang (2004, p. 469–470) show that there is a negative relationship between the ideological range of the government and how much the government changes the percentage of money they allocate to different budgetary categories. In other words, governments that consist of parties that are less ideologically diverse are associated with more significant changes in the budget. The argument that Tsebelis and Change (2004, p. 456) present for why this relationship appears is that when parties are located further away from each other, they have a harder time agreeing on significant changes of the status quo. I return to this argument in a later section when I present the theoretical framework of this thesis. Cavalieri's (2026, p. 146–148) findings partly confirm the findings of Tsebelis and Chang. She conducts a quantile regression analysis where she differentiates between budget increases and decreases as well as the sizes of the changes. Her results show that ideologically distanced governments are constrained in carrying out both minor and larger budget increases. This constraining effect of government ideological range on changes in budget allocation is, however, only present at specific percentiles in the quantile regression analysis and are not found in the simple OLS regression.

2.1.3. Economic crises

The research that has been presented so far has put forward determinants of government policy making that are related to the characteristics of the government. There are, however, also external factors that are of relevance for understanding the behaviour of governments. Several studies find results that support the notion that economic crises induce reform. Periods of economic crises are, for example, associated with a higher likelihood of both healthcare financing privations (Wiese, 2014, p. 333) and structural reforms (Agnello et al., 2015, p. 130). Furthermore, governments have been found to introduce more reforms during economic recessions, with around 26 per cent more reform measures in years when the annual growth of GDP is negative (Angelova et al., 2018, p. 297).

When it comes to crises and budget changes, many studies highlight the fact that changes in budget allocation are mostly incremental, but are sometimes punctuated by large changes (Breunig, 2006, p. 1070; Jones et al., 2009, p. 862; Sebők & Berki, 2018, p. 604). This strand of research argues that cognitive/organisational and institutional frictions constrain the ability of political systems to adjust to changing information signals from outside, but that these frictions are overcome when the external signals become urgent enough, often resulting in large changes in budget allocation (Jones et al., 2009, p. 867). As a consequence, studies within this tradition focus on crises as determinants of large budget changes. Cavalieri (2026, p. 149) tests this argument for the 2008 financial crisis and the COVID-19 pandemic with an analysis that examines increases and decreases of different sizes separately. She finds that the financial crisis intensified large and medium-sized budget cuts but constrained budget expansions of all sizes, while the pandemic only restrained extreme budget cuts. The hypothesis that moments of crisis produce budget punctuations could thus not be completely confirmed.

2.2. The two-dimensional structure of political competition

While the research on government policy making has examined a number of different factors, there is one important characteristic of the European political landscape that previous research has not yet taken into account and that is the two-dimensional nature of political competition. A general left-right scale is still widely used in media and research when discussing and conceptualising the ideological conflict between parties. To properly describe political

competition in Europe during the past decades, however, both an economic and a cultural dimension is needed (Bakker et al., 2012, p. 220; Kriesi et al., 2008, p. 323).

2.2.1. Why we need two dimensions

In political science, the preferences of political actors are usually described in terms of how close or far away from each other the actors are on an issue. The actors' positions on that issue can therefore be mapped out along a scale in a conceptual space. While the distance between political actors on specific issues might sometimes be interesting, the goal is often to summarise the distance between political actors on all relevant policy issues in one conceptual space. To accomplish this, issues on which the preferences of political actors are correlated are bundled together into general dimensions, like left versus right and liberal versus conservative, which communicate information about the similarities and differences between political actors in a simple and effective way (Benoit & Laver, 2012, p. 197–198).

The question which then arises is how many dimensions we need in order to "say what we want to say about similarities and differences between agents who interest us" (Benoit & Laver, 2012, p. 197). A lot of the time, the policy preferences of political actors are boiled down to a single left-right dimension, which is also the case for most of the existing research on government policy making which was introduced in the previous section.[1] However, researchers on European politics have for the past couple of decades asserted that at least two dimensions are needed in order to accurately describe the structure of political competition in Europe (Bakker et al., 2012, p. 220; Kriesi et al., 2008, p. 323).

To understand the developments that have led to a two-dimensional structure of political conflict in Europe we turn to insights from cleavage theory. The foundational claim of cleavage theory is that critical junctures in history generate cleavages between different groups in society, which in turn has shaped how party systems in different countries have developed (Lipset & Rokkan, 1967, p. 34). Lipset and Rokkan (1967, p. 14) describe Western European party systems as shaped by both the national revolution, which led to cleavages between the central culture and peripheral communities as well as between the central state and the church; and the industrial revolution, which led to cleavages between urban and rural interests as well as between workers and employers. According to Hooghe and Marks (2018, p. 109–110), a new cleavage has emerged over the past couple of decades which they term the transnational cleavage. The root of this cleavage is the political reaction to the increased immigration and international economic exchange, as well as the weakening of national sovereignty through European integration, that began in the 1990s. These developments have exacerbated both economic and cultural insecurity, by disadvantaging those that do not have mobile assets and that have to compete with immigrants for housing and jobs, and by producing an intermixing of cultures which some perceive as a threat to national values.

Because of their long-term commitments to core supporters, established political parties are constrained in the positional shifts that they are able adopt (Hooghe & Marks, 2018, p. 112;

[1] Tsebelis and Chang (2004, p.461) do measure the ideological distance between government parties two-dimensionally by using a combination of the government's left-right position and their attitude towards the Soviet Union. While this technically is a two-dimensional measure of the ideological polarisation of the government, attitude towards the Soviet Union is not a relevant measurement of the second dimension as that dimension has been conceptualised in the research that I build upon in this thesis. Furthermore, the second dimension on the Soviet Union is of limited substantive importance for budget matters and the analysis subsequently finds that this dimension does not contribute any explanatory power to the model (Tsebelis & Chang, 2004, p. 462).

Lipset & Rokkan, 1967, p. 30). Therefore, the major shift of voter preferences that generated the transnational cleavage has materialised in European party systems not through shifts in the positions of mainstream parties but through the rise of new parties, with radical right parties and green parties taking up the extreme positions on the new dimension (Hooghe & Marks, 2018, p. 123). Just like industrial workers used to be clearly overrepresented in social-democratic parties, the parties at the poles of the transnational cleavage also have clear social bases. Highly educated people are overrepresented among the supporters of green, new left, and social liberal parties, while they are underrepresented among the radical right. Industrial workers, on the other hand, are overrepresented among radical right supporters, but underrepresented among the greens, new left, and social liberals (Marks et al., 2023, p. 257).

While the importance of previous cleavages diminishes over time, they rarely disappear completely, and consequently new cleavages do not replace the already existing ones but rather interact with them. Thus, while party systems have changed because of the emergence of the transnational cleavage they are also still to some degree shaped by the territorial cleavage, the religious cleavage, and the class cleavage (Hooghe & Marks, 2018, p.127). The result is party systems that are multidimensional. The remains of these cleavages are, however, not all as prominent, since researchers assert that (at least) two dimensions are what is needed to accurately describe the structure of political competition in Europe (Bakker et al., 2012, p. 220; Kriesi et al., 2008, p. 323).

2.2.2. Two-dimensionality in practice

A variety of labels have been used to describe the two dimensions which currently shape political conflict in Europe, left-right and GAL-TAN (Hooghe et al., 2002, p. 966), economic and cultural integration-demarcation (Kriesi et al., 2008, p. 11), state-market and libertarian/universalistic-traditionalist/communitarian (Bornschier, 2010, p. 5), left-right and communitarian-cosmopolitan (Teney et al., 2014, p. 579), state-market and universalism-particularism (Häusermann & Kriesi, 2015, p. 203), and economic left-right and cosmopolitan-parochial (De Vries, 2018, p. 1550). While these studies outline different origins and developments of, especially, the second dimension, they are still broadly similar in terms of what the respective dimensions include content-wise. The first dimension is economic and concerns the role of the state in the economy (Bornschier, 2010, p. 39; De Vries, 2018, p. 1551; Hooghe et al., 2002, s. 966; Häusermann & Kriesi, 2015, p. 211; Kriesi et al., 2008, p. 11). The second dimension is cultural and is mainly centred around support for or opposition to immigration and European integration (Bornschier, 2010, p. 29 & 39; De Vries, 2018, p. 1552; Hooghe et al., 2002, p. 976; Häusermann & Kriesi, 2015, p. 210; Kriesi et al., 2008, p. 13; Teney et al., 2014, p. 580), but sometimes also includes the issue of cultural liberalism versus traditional values (Bornschier, 2010, p. 39; Hooghe et al., 2002, p. 976; Häusermann & Kriesi, 2015, p. 210).

While two separate conflict dimensions create the possibility for four combinations of positions for political parties, not all of these combinations are equally common and there are notable differences in how parties combine positions between countries. In Western Europe, most parties either combine left-wing economic positions with progressive cultural positions or right-wing economic positions with conservative cultural positions (Kriesi et al., 2008, p. 326–327; Rovny & Edwards, 2012, p. 57). Eastern European parties usually display the reverse relationship (Rovny & Edwards, 2012, p.57), which stems from the strong connection that communism created between left-wing economic positions and cultural conservatism (Vachudova & Hooghe, 2009, p. 206).

Other studies put less focus on patterns in the direction of the relationship between the two dimensions and instead concern themselves with the strength of the relationship. They show that there is a lot of variation between countries in the extent to which the dimension reinforce or cross-cut each other (Bakker et al., 2012, p. 221; Koedam et al., 2025, p. 7). To measure the degree of correlation between the two dimensions, the concept of effective dimensionality is used. This measure generates a value between 1 and 2, where party systems with values closer to 1 are more one-dimensional and party systems with values closer to 2 are more two-dimensional. For example, in Spain the positions of parties on the economic and cultural dimensions are so highly related to one another that the policy space can almost be reduced to one dimension, but there are also countries like Latvia, Estonia, and Lithuania where effective dimensionality is closer to 2. The general pattern is, however, that the two dimensions are cross-cutting to a significant extent in many countries, considering that party systems in 15 out of the 24 European countries in the study have a median effective dimensionality which is higher than 1.5 (Koedam et al., 2025, p. 6–7). An explanation for the varying degree of correlation between the economic and the cultural dimension, at least in Western European countries, lies in the religious conflicts of the past (Rovny & Polk, 2019, p. 22). In countries were Catholicism dominated, the religious cleavage was deep and economic conflicts became connected with cultural issues. In mixed or Protestant countries, on the other hand, religious conflict was less formative and cultural conflicts therefore arose independently from economic divides.

2.2.3. The importance of two-dimensionality for political outcomes

A consequence of the fact that political conflict in Europe is best described using at least two dimensions is that there is information about the distances between the preferences of parties and voters which gets lost when these preferences are aggregated into one instead of two dimensions. This loss of information matters, which becomes clear when one examines how a two-dimensional conceptualisation of political conflict helps us better understand important political outcomes. When it comes to party strategies, differentiating between two dimensions shows that parties emphasise the dimensions differently depending on how far they stand from the centre of a particular dimension (Rovny, 2012, p. 270), and that parties change their positions more on the dimension which is relatively less salient to them (Koedam, 2022, p. 694).

In regard to voter-related outcomes, using two dimensions instead of one improves vote choice models (De Vries, 2018, p. 1556–1557; Jackson & Jolly, 2021, p. 334–335) and better captures the relationship between polarisation and mass partisanship (Koedam et al., 2025, p. 14). A two-dimensional conceptualisation of political competition also highlights the fact that in Western Europe there are combinations of positions on the two dimensions that are held by a significant share of the electorate but which very few parties represent (Kurella & Rosset, 2017, p. 6; Lefkofridi et al., 2014, p. 66; Steiner & Hillen, 2021, p. 6). This lack of representation has consequences. Western European voters who combine a left-wing economic position with a conservative cultural position, which is a positional combination that is rare for parties in Western Europe, are less likely to vote (Hillen & Steiner, 2020, p. 332) and have lower levels of political trust and satisfaction with how democracy functions (Hakhverdian & Schakel, 2022, p. 502; Hillen & Steiner, 2020, p. 332).

A two-dimensional conceptualisation of political conflict has thus improved our understanding of party- and voter-related outcomes, but there is so far very little research that uses multiple dimensions to understand outcomes and dynamics which concern governments. A couple of studies use two dimensions of political conflict to predict regional government formation,

although no comparison with a one-dimensional measure is made (Bäck et al., 2013, p. 381; Debus, 2008, p. 534; Däubler & Debus, 2009, p. 79). Lindahl (2024, p. 53–54), however, does make such a comparison in a study of national government formation. He finds that, while more ideologically heterogeneous coalitions are less likely to form, a general left-right measure predicts which government forms just as well as a two-dimensional measure. There is thus no indication of a loss of relevant information when going from two dimensions to one. There are, however, indications that the cultural dimension has become more important over time, because for Western Europe from the 1990s onwards, the inclusion of the median party on the cultural dimension in the government is associated with a greater likelihood that that government is formed than the inclusion of the median party on the general left-right or economic left-right dimension.

2.3. Research question

From the review of the previous research, it is possible to identify two substantial gaps in the previous research, which this thesis aims to fill. The gaps each concern one of the two research fields which I have reported results from in the research review – the determinants of government policy making and the two-dimensional structure of political competition in Europe.

In regard to the research on the determinants of government policy making, the research highlights large ideological differences as one important determinant of policy change, although government alternation and economic crises do also seem to matter. Previous measurements of the ideological differences of governments have, however, not taken into account the fact that political competition in Europe is best described using both an economic and a cultural dimension. That is where this thesis makes its first contribution. There is potentially important information about the ideological distances between parties that is lost when two dimensions are aggregated into one. Therefore, taking both the economic and the cultural dimension into account should improve our understanding of how ideological differences within governments affects policy making.

One smaller but still important oversight of the research on government policy making is that it conceptualises the ideological differences of governments as the ideological range between the most extreme government parties. They have thus neglected to take into consideration differences in party size between the government parties as well as the positions of parties not at the extremities. To remedy this, I take inspiration from research which views the size of parties as an important part of understanding the compromises that governments reach (Grofman, 1982, p. 78; Martin & Vanberg, 2014, p. 980; Schulze, 2014, p. 135), as well as from research on the polarisation of party systems (Dalton, 2008, p. 906; Koedam et al., 2025, p. 8; Sartori, 1976, p. 126). My approach consists of considering all government parties and to take their sizes into account as well, thereby measuring the polarisation of governments rather than their ideological range. I develop this argument further in the next section.

The second substantial research gap is within the research on multidimensional party competition in Europe. There are very few studies within this research tradition which have concerned themselves with government-related outcomes, and the few studies which do all investigate government formation. That means that there, as far as I am aware, are no studies to date which examine the impact of two-dimensional government polarisation on government policy making. That is, thus, where the second contribution of this thesis comes in. So far, multidimensionality has proven to matter for outcomes related to parties and voters. If two-

dimensionality also proves to matter for government policy making, that adds even more weight to the importance of separating political conflict in Europe into an economic and a cultural dimension.

The finding that a general left-right measure predicts which government forms just as well as a two-dimensional measure (Lindahl, 2024, p. 53–54) is somewhat discouraging when it comes to the potential importance of two-dimensionality for government-related outcomes. There are, however, important differences between government formation and government policy making which might make two-dimensionality more important in the latter case than in the former. Government policy making has a much more diverse and complex set of possible outcomes than government formation, which means that there are a lot more possibilities for the distances between parties on both the economic and cultural dimension to have an influence. Furthermore, governments likely face a broader set of issues when policy making than when forming. There are therefore more opportunities for their preferences on both dimensions to affect outcomes.

There are several types of policy changes which are possible to study. Previous research has either looked at changes in government spending or changes in the form of adopted laws or reforms. This thesis uses the former as its outcome measure, as data on government spending in a comparative format is available for a lot more countries than data on adopted laws. Since the aim of this thesis is to say something about the European phenomenon of two-dimensional political conflict, it is desirable to study a broad set of European countries and that is possible only for government spending. Within government spending it is possible to both look at general changes in spending as well as changes in specific budget categories. Because the topic of this thesis is purely the amount of policy changes that occur, changes in specific budget categories is a more suitable measure as that captures many changes between categories that may not appear when looking at changes in general spending.

The research question that I attempt to answer is thus the following:

How does the ideological polarisation of governments on both the economic and cultural dimension affect changes in budget allocation, both generally and in areas corresponding to the respective dimensions?

2.4. Theoretical framework

2.4.1. Veto player theory

The main theory that is used by the previous research examining governments' abilities to implement policy is veto player theory, which originated from Tsebelis (1995). Veto player theory is concerned with how governments' capacity to produce policy change is affected by veto players. Veto players are defined as individuals or collective actors who need to be in agreement in order for a change of the status quo to be possible. There are both institutional (presidents and chambers) and partisan (parties in government coalitions) veto players, but the focus in this thesis is on partisan veto players as they are the kind of veto player that is the most relevant in the parliamentary systems of Europe. Every veto player has a number of positions on a policy which it prefers to the status quo, and the areas where the positions that are acceptable to the different veto players overlap are called the winset. When the winset is large, there are a large number of policy positions which all veto players prefer over the status quo and the possibility for policy change is thus large. When the winset is small there are few policy

positions which all veto players can agree on, and policy stability is a much more likely outcome (Tsebelis, 1995, p. 295 & 301–302).

There are three characteristics of the veto players which defines the size of the winset: the number of veto players, the difference between their political positions and the internal cohesion of each veto player. The size of the winset, and therefore the possibility for policy change, decreases when the number of veto players increases, when the distance between their political positions becomes larger, or when the internal cohesion of a veto player increases (Tsebelis, 1995, p. 293). This thesis views parties as unitary actors, which means that their internal cohesion is not considered. In regard to the number of veto players and the distance between them, Tsebelis and Chang (2004, p. 456) clarify the relationship between these two characteristics. They argue that if a political system has fewer veto players, but these veto players are far away from each other, that system has a higher degree of policy stability than a system with a larger number of veto players whose positions are closer to each other. The number of veto players is thus secondary to the distance between them and therefore it should be more important to measure the distance between the political positions of the veto players than how many of them there are. This means that the most important theoretical prediction of veto player theory for this thesis is that as the distance between the veto players increases, the potential for policy change decreases (Tsebelis, 1995, p. 308).

There is one modification which needs to be made to the original theory. This modification concerns the assumption of veto player theory that all parties in the government have the same 'bargaining power', irrespective of their relative sizes (Ganghof, 2017, p. 52). This seems like an unreasonable simplification, because while all parties in theory can choose to leave the government if a policy decision is made which it does not agree with, in practice not all issues are worth relinquishing government power for. Party size is likely to matter when it comes to the amount of policy wins a party is able to achieve. The argument that the veto power of a party is dependent on its size is inspired by theoretical arguments (Grofman, 1982, p. 78) and empirical findings (Martin & Vanberg, 2014, p. 980; Schulze, 2014, p. 135) which assert that the policy outcomes of governments are the result of a compromise between the government parties, measured as the seat-weighted average of the positions of the parties in government. If party size matters for what the outcome is, party size should also matter for how much the ideological distance between parties constrains government policy making.

The idea that the size of parties matters in the conceptualisation of the magnitude of ideological differences between a group of parties is also inspired by research on party systems. This research is interested in the degree of polarisation in a party system, which it conceives of as the spread of the ideological spectrum in a given polity (Sartori, 1976, s. 126) and measures through a combination of the ideological position and vote share of every party (eg. Dalton, 2008, p. 906; Koedam et al., 2025, p. 8). To differentiate my measurement approach from the standard version of veto player theory that relies on the ideological range of governments, I thus consider the polarisation of governments instead of their ideological ranges. The potential for policy change then decreases as the polarisation of government parties increases.

2.4.2. Hypotheses

Based on the claims of veto player theory (Tsebelis, 1995, p. 308) and on empirical studies which have confirmed these claims (Angelova et al., 2018, p. 299; Bräuninger et al., 2017, p. 551; Cavalieri, 2026, p. 146–148; Tsebelis, 1999, p. 604; Tsebelis & Chang, 2004, p. 469–470), we know that governments enact less policy changes when the ideological distance between

government parties is larger. While almost all of the previous research that applies veto player theory measures the ideological range of governments one-dimensionally, the theory is in itself not limited to ideological differences on only one dimension (Tsebelis, 1995, p. 296). Therefore, no modification of the theory is needed in order to apply it to the two-dimensional European context (Bakker et al., 2012, p. 220; Kriesi et al., 2008, p. 323).

A consequence of the fact that party competition in Europe plays out on at least two dimensions is that government parties are not necessarily equally close to each other on both dimensions. The level of government polarisation on the economic dimension can thus be different from the level of government polarisation on the cultural dimension. For example, a government might have formed around the parties' similar positions on the cultural dimension, while the economic positions of the government parties are actually not that close to each other. Following veto player theory, the potential for policy change decreases as the distance between veto players increases (Tsebelis, 1995, p. 308). Considering that the likelihood that government bills are introduced (Martin, 2004, p. 455) and adopted (Martin & Vanberg, 2004, p. 23; Zubek & Klüver, 2015, p. 611) is lower when the government is more divided on the issue the bill concerns, the constraining effect of government polarisation should vary by ideological dimension. Therefore, if government parties are differently polarised on the two dimensions, they should also be differently constrained in their ability to agree on policy change depending on which dimension the policy issue concerns. That brings us the following set of hypotheses:

H1a: As the level of government polarisation on the economic dimension increases, the degree of change in budget allocation on economic issues decreases.

H1b: As the level of government polarisation on the cultural dimension increases, the degree of change in budget allocation on cultural issues decreases.

Since I expect the effect of the dimensions to be independent of one another, the confirmation or rejection of either of these two hypotheses does not hinge on the other. They are thus neither contradicting nor reinforcing, but rather completely separate.

If party competition in Europe is best described using two dimensions rather than one, important information about the distances between parties is lost when their positions are aggregated into one dimension. Consequently, a measure of government polarisation which takes both the economic and cultural dimension into account should be better able to capture the constraining effect of government polarisation on the government's potential for policy change than a general left-right polarisation measure. The following hypothesis is thus also tested:

H2: The effect of two-dimensional government polarisation on the degree of change in budget allocation is larger than the effect of general left-right government polarisation.

3. Method and material

3.1. Operationalisations

3.1.1. The degree of change in budget allocation

For the operationalisation of the dependent variable, which is the degree of change in budget allocation per country and year, the ideal would be to have data on budgets as that would be very close to the actual policy decisions of governments. Such data is, however, only readily available for a couple of countries and the purpose of this thesis is to examine governments' potential for policy change for as broad a scope of European countries as possible. Therefore, I, similarly to previous studies (eg. Cavalieri, 2026, p. 140; Tsebelis & Chang, 2004, p. 458), instead use data on government spending as a proxy for budget allocation. Data on general government expenditure divided into different spending categories is available for all EU countries from Eurostat for the whole period of interest (Eurostat, 2026). The division into categories is based on the Classification of the Functions of Government (COFOG) from the United Nations Statistics Division. There are 10 COFOG macro categories which are further divided into 69 micro categories.[2]

To compute the degree of change in budget allocation, I use the measurement approach from Tsebelis & Chang (2004, p. 458) for measuring the average budget distance. The measure is calculated according to the following equation, where a is the percentage of total expenditure that is allotted to a certain category in a given year and n is the total number of categories:

$$Average\ budget\ change = \frac{\sqrt{\left(a_{1,t} - a_{1,t-1}\right)^2 + \left(a_{2,t} - a_{2,t-1}\right)^2 + \cdots + \left(a_{n,t} - a_{n,t-1}\right)^2}}{n}$$

The measure thus consists of taking the square root of the sum of the squared differences of this and last year's percentages and then dividing that by the number of categories. By looking at the average change in budget allocation rather than the total, the measure takes into account that there are missing values for some categories in some years.

Based on the approach described above, three different kinds of average change in budget allocation are calculated for both macro and micro categories: average change in all categories, average change in economic categories and average change in cultural categories. The macro categories that are considered economic are "General public services", "Economic affairs", "Housing and community amenities", "Health", "Education" and "Social protection". The macro categories that are considered cultural are "Defence", "Public order and safety", "Environmental protection" and "Recreation, culture and religion". For the division of the categories into economic and cultural categories, and especially for which spending areas to consider as cultural, inspiration is taken from Rovny (2012, Appendix). His division of issues into an economic and a non-economic dimension gives support for considering "Defence", "Public order and safety" and "Environmental protection" as cultural spending categories.

[2] Following information from the appendix of Cavalieri (2026), which uses the same data and almost the same time frame, certain categories have been removed and certain observations have been adjusted in order to take into account residual categories, incomplete data and potentially erroneous observations. See the appendix for detailed information.

When it comes to the micro categories, the categories are divided according to which macro category they fall under.

3.1.2. Government polarisation

The operationalisation of the independent variables requires data both on government composition and on the ideological position of parties on different dimensions. For information on the composition of governments, the yearly basic dataset from REPDEM is used (Hellström et al., 2026). Since there are years when more than one government was in office, the analysis is limited to the government that was in office the longest every year.

There are different sources for information on the ideological positions of parties over time. The ones that are most frequently used in the previous research that is presented in this thesis are expert surveys and party manifestos, but other sources like voter perceptions and political elite perceptions also exist, and all of these sources have their own benefits and disadvantages. Since the focus of this thesis is on the two-dimensional structure of political competition in Europe, the priority is to use a source which is able to capture the different dimensions as well as possible. Therefore, the choice of data source falls on the Chapel Hill Expert Survey (CHES) (Rovny et al., 2025), as an expert survey is able to provide "direct, dimensional estimates of party ideology" (Koedam et al., 2025, p. 9) in a way that party manifestos cannot. Furthermore, experts' assessments of party positions have been found to correlate strongly with alternative sources of party placements, especially the perceptions of the public and political elites (Dalton & McAllister, 2015, p. 766; Steenbergen & Marks, 2007, p. 360).

The CHES data is available in seven different waves from 1999 to 2024 with between two and four years in between. As I am interested in the parties' positions in every year, the positional estimates are interpolated for the years in between the waves.[3] In the cases where there is a government in which at least one party lacks data on their ideological positions in a certain year, that government is excluded from the analysis. Based on party position estimates from the CHES, four different polarisation measures are calculated. First, the economic and cultural polarisation measures correspond to the level of government polarisation on the two dimensions and are calculated using question items from the CHES on the party's ideological stance on economic issues and on GAL-TAN issues[4] respectively. Second, there are two general polarisation measures, where the general left-right polarisation is based on a question about the party's general left-right ideology, and two-dimensional polarisation is made up of a combination of the economic and cultural polarisation as well as the effective dimensionality.

As is laid out in a previous section, I am making a modification to veto player theory where I consider the size of parties as well as their ideological position when conceptualising how spread out the parties in a government are. Therefore, the range between the two most extreme

[3] For parties which were not included in all of the waves, the closest value in time to the missing years was inserted for the past and/or following four years (which corresponds to the longest time stretch between CHES waves).

[4] This item concerns the parties' positions on democratic freedoms and rights. As such it is well-suited to capture the aspect of the cultural dimension which concerns cultural liberalism versus traditional values. What it does not explicitly capture though is parties' positions on immigration and European integration, which are arguably more central aspects of the cultural dimension. However, this CHES item is very commonly used in the measurement of the cultural dimension (e.g. Bakker et al. 2012; Koedam et al. 2025). Furthermore, the correlation between parties' position on GAL-TAN issues and their position on immigration policy are highly correlated (0.85), and as the GAL-TAN question has been asked for longer it is preferable to use that one.

government parties, which is the way that the ideological distance of government parties has been measured in previous applications of veto player theory, is not a suitable operationalisation. Instead, I require a measure which takes all parties into consideration, and which includes their share of the seats in the government. The choice then falls on the weighted variance approach of Koedam et al. (2025, p. 8).[5]

For the two-dimensional polarisation measure, it is somewhat more complicated since the measure needs to take into account the degree to which the dimensions are correlated. Hence, I first need to calculate the effective dimensionality of every government, which consists of "the eigenvalues of the correlation matrix over the potential dimensions" (Koedam et al., 2025, p. 6). This gives a value between 1 and 2, where 1 signifies perfect correlation between the two dimensions and 2 signifies that the dimensions are completely unrelated to one another. To compute the two-dimensional polarisation, the sum of the economic and cultural polarisation is then multiplied by the ratio of the effective dimensionality to the number of dimensions (which is 2) (Koedam et al., 2025, p. 9). This leaves us with four different polarisation measures which are more or less related to one another, as can be seen in Table 1.

Table 1. Correlation matrix of polarisation variables

	Economic polarisation	Cultural polarisation	General left-right polarisation	Two-dim polarisation
Economic polarisation	1.00			
Cultural polarisation	0.29***	1.00		
General left-right polarisation	0.67***	0.59***	1.00	
Two-dimensional polarisation	0.69***	0.77***	0.67***	1.00

Notes: The unit of analysis is every government, which means that the polarisation measures consist of the mean of every year that the government has been in office. Single-party governments are excluded. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

3.1.3. Control variables

From the review of the previous research, we know that the ideological distance between government parties is not the only determinant of government outcomes. Therefore, I have controlled for a handful of other variables, in order to limit the risk that the relationship that is found is actually caused by omitted variables.

The first control variable is ideological alternation, since a larger ideological range between the current and previous government has been shown to lead to more policy changes (Angelova et al., 2018, p. 283; Bräuninger, 2005, p. 422; Tsebelis, 1999, p. 605; Tsebelis & Chang, 2004, p. 473). There are four versions of the ideological alternation variable, to match the four polarisation measures, and the operationalisations utilises the same CHES items as the

[5] One detail of this approach is that it uses $\sigma^{\sim 2}$ rather than σ^2. This entails dividing the covariance matrix by one minus the sum of squares of the weights.

corresponding polarisation variables. The way that they are calculated largely follows Tsebelis and Chang (2004, p. 462). However, the weighted mean is used instead of the middle of the ideological range to define the ideological position of a government, since this thesis modifies veto player theory to also take the relative size of government parties into account. Furthermore, inspiration is taken from Koedam et al. (2025, p. 9) for the two-dimensional measure. For the three one-dimensional measures, economic alternation, cultural alternation and general left-right alternation, ideological alternation is calculated by taking the absolute distance between the weighted means of the current and previous government. For the two-dimensional alternation measure, a similar procedure as for the polarisation measure is used, in order to take the party system's effective dimensionality into account when combining the two dimensions. The sum of the economic and cultural alternation is, therefore, multiplied by the ratio of the party system effective dimensionality to the number of dimensions. Unlike the polarisation measure the alternation variable is calculated at the cabinet level, not the cabinet/year level. That means that for the weighted means of the ideological positions of the cabinet, as well was the effective dimensionality of the party system, the mean is taken of all the years that the cabinet has been in office.

The next set of control variables are intended to capture the effect that economic crises have on budget changes, as research has found that economic crises induce policy changes (Agnello et al., 2015, p. 130; Angelova et al., 2018, p. 297; Wiese, 2014, p. 333; Cavalieri, 2026, p. 149). The operationalisation of the economic crisis variables follows Angelova et al. (2018, p. 294) and consists of constructing two dummy variables for recessions and unemployment crises respectively. A year is coded as a recession when the annual growth in GDP is negative, and a year is counted as an unemployment crisis if the unemployment rate is larger than 12.7 percent (which is the sample mean plus one standard deviation). There is, however, also another purpose of the unemployment crisis control. From the way that this study is constructed I am unable to say whether larger budget changes in tandem with unemployment crises are a result of government policy decisions or automatic increases in spending on unemployment benefits because more people are unemployed (Tsebelis & Chang, 2004, p. 450).

Additionally, I control for the type of government, since veto player theory is expected only to apply to minimal winning cabinets but not to minority and surplus governments (Angelova et al., 2018, p. 286). This is done by introducing two separate dummy variables for minority and surplus governments. To ensure that the estimated effects is a result of government polarisation and not the number of parties in government, I also control for the effective number of government parties, for which there exists a variable in the REPDEM data. Finally, changes in expenditure composition are larger in election years than in non-election years in established democracies (Brender & Drazen, 2013, p. 28). Therefore, I use a dummy variable for election year to control for such an effect.

3.2. Case selection

As the phenomenon of interest, two-dimensional political competition, is something that has so far only been observed in a European context, the analysis is limited to governments of European countries. The cultural dimension has only emerged over the past couple of decades (Hooghe & Marks, 2018, p. 110), and it is therefore reasonable to limit the time frame to the period when the cultural dimension has been relevant for the structure of political competition. Given this line of reasoning together with limitations in terms of data availability, the case

selection consists of 25 European countries (14 Western European and 11 Eastern European) from 1999 (or the year in which CHES data is first available) until 2024.

3.3. Statistical analysis

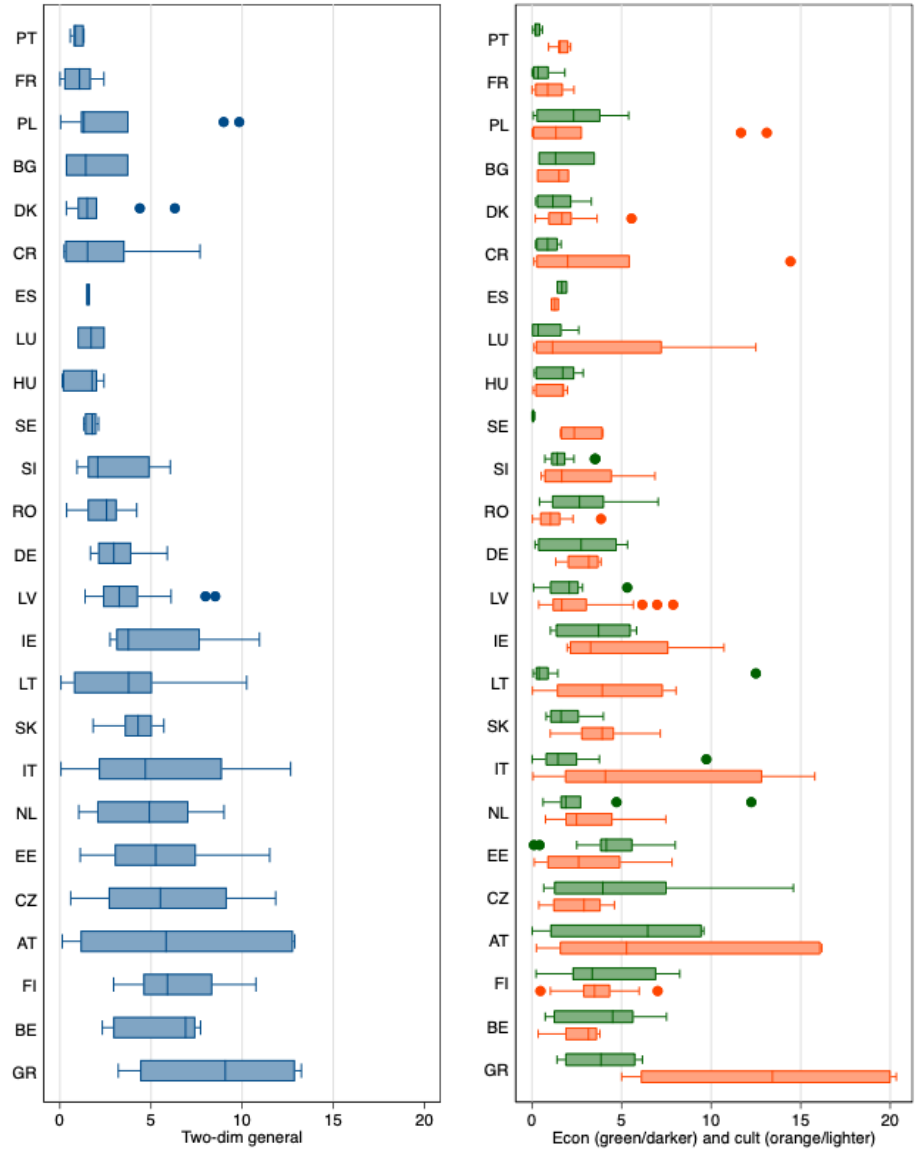
The statistical method that is used in this thesis is an OLS regression. To account for the fact that standard errors might be heteroskedastic when there are observations of the same government in different years, I use clustered standard errors at the cabinet level. I also use two-way fixed effects by controlling both for country and year. Country fixed effects are used to control for potential country-specific characteristics which might affect government's ability for policy change. The year fixed effects, on the other hand, mean that I control for the effect of external shocks which all countries in the sample are exposed to (unlike the recession and unemployment crisis variables which capture country specific economic conditions).

4. Results

4.1. Two-dimensionally polarised governments

Before diving into the hypotheses, I first present some descriptive results of what the two-dimensional polarisation of European governments looks like. While the unit of analysis in the rest of the thesis is cabinet/year, the unit here is every cabinet, which means that the polarisation values that are presented consist of the mean of all years in which that government was in office during the analysed period. Furthermore, I only present results for governments with more than one party, as the level of polarisation in single-party governments by definition is always zero. Unlike what one might expect, there are no substantial trends over time in the levels of either of the four polarisation measures (see Figure A1 to A4 in the appendix). Therefore, this section focuses first on patterns in the polarisation measures between countries and then report on the relationship between the variables.

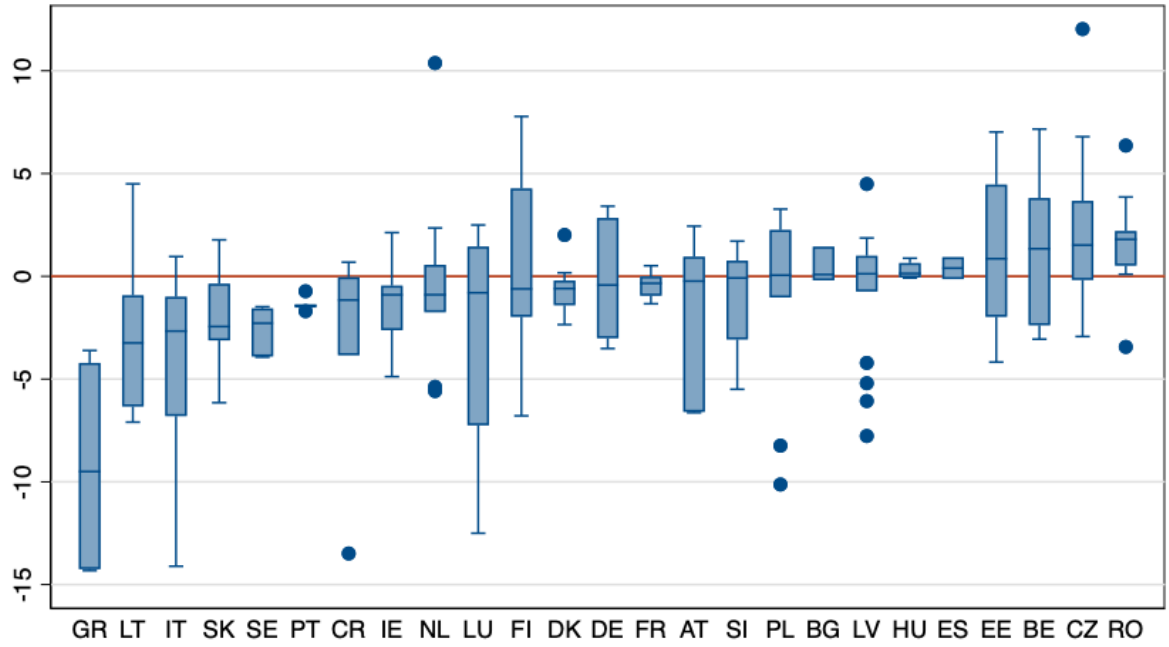
Figure 1. Two-dimensional, economic and cultural government polarisation by country



Note: Single-party governments are excluded.

Figure 1 shows the variation in government polarisation across countries for both the two-dimensional measure and the separate economic and cultural measures. From this figure it is apparent that there is a lot of variation both between and within countries in how polarised coalition governments are, although the variance is actually larger within countries than between them for all three measures.[6] Some countries, like Portugal, France and Spain, display systematically low levels of polarisation across all measures. Other countries, like Czech Republic, Austria and Greece, have much broader ranges in how polarised their governments have been. The highest polarisation levels are found on the cultural dimension in Italy, Austria and Greece. But there are some high peaks on the economic dimension as well in Lithuania, the Netherlands and Czech Republic.

Figure 2. Difference between economic and cultural polarisation by country



Notes: Positive values signify larger economic polarisation than cultural polarisation and negative values signify larger cultural polarisation than economic polarisation. Single-party governments are excluded.

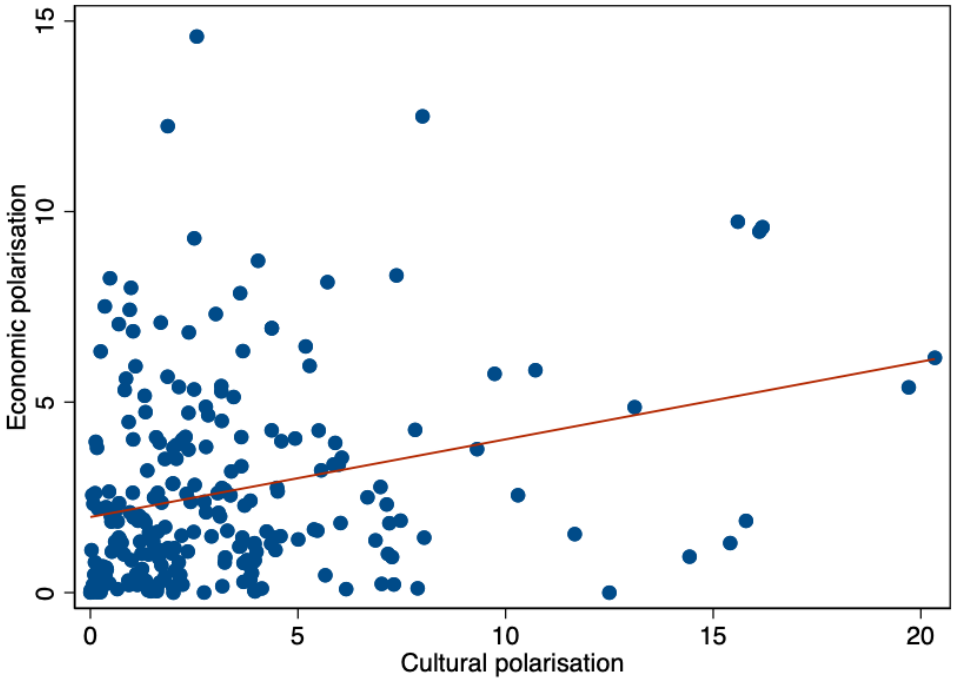
There are also differences between countries in whether economic or cultural polarisation is generally higher (see Figure 2). In most countries it is more common that polarisation is higher on the cultural than on the economic dimension (which is the case when values are negative). The differences are especially in favour of higher cultural than economic polarisation in Greece, Lithuania and Italy. There are, however, some countries where polarisation is usually larger on the economic than on the cultural dimension. The countries with the clearest trend in this direction are Romania and Czech Republic.

It is also of interest what the relationship between the variables looks like generally. If we begin with how government polarisation on the economic and the cultural dimensions are related, the expectation would be that they are not strongly related to each other since there is no strong correlation between the two dimensions in a majority of European party systems (Koedam et

[6] 69.5% of variance in economic polarisation and 57.9% of variance in cultural polarisation is within countries. For two-dimensional polarisation, 60.3% of variance is within countries.

al., 2025, p. 7). Figure 2 shows a scatterplot of government polarisation on the economic and cultural dimensions. Most values fall on the lower part of both scales, which is in accordance with the idea that parties want to form governments with parties that they are ideologically close with. The relationship shows no clear pattern, which is further expressed in the fact that the correlation between the dimensions is low, only 0.29. The results are thus as expected and make it clear that the economic and cultural dimensions do indeed contain different information about the relative ideological positions of parties.

Figure 3. Relationship between level of government polarisation on the economic and cultural dimensions



Note: Single-party governments are excluded (n = 239).

Considering that there is a difference between the economic and cultural polarisations of governments, there should not be a perfect relationship between general left-right government polarisation and two-dimensional government polarisation. That is also not the case. The correlation between the two polarisation measures is still substantial at 0.67, which is reasonable since both measures are intended to tap into the same concept of government polarisation. However, given that the correlation is far from perfect, there does seem to be information about the ideological distances between parties that is lost when two dimensions are aggregated into one. The question then becomes whether the information that is lost is important, which is what is explored in the next section where the effect of government polarisation on changes in budget allocation is assessed.

4.2. The constraining effect of government polarisation

4.2.1. Separating the effects of economic and cultural polarisation

The first kind of effect of government polarisation on the degree of change in budget allocation that is examined is the separate effect of the economic and cultural dimensions on budget changes in corresponding areas. The expectation based on veto player theory is that there is a

negative effect of economic polarisation on changes in economic budget categories and likewise a negative effect of cultural polarisation on changes in cultural budget categories. Table 2 shows the results for the two dimensions in separate models, with the outcome variable being changes in either macro or micro categories corresponding to the respective dimensions. The effect of economic polarisation is positive for changes in both macro and micro changes and does thus not go in the expected direction. The same is true for cultural polarisation and changes in micro categories. The effect of cultural polarisation on changes in macro categories does however go in the hypothesized direction, but the effect size is negligible (see Table A1 in the appendix for summary statistics). Furthermore, none of the polarisation coefficients are statistically significant. Therefore, neither hypothesis 1a nor 1b can be confirmed.

Table 2. The effect of economic and cultural polarisation on changes in budget allocation

	Economic – Macro	Economic – Micro	Cultural – Macro	Cultural – Micro
Polarisation	0.0156	0.00237	-0.0000354	0.000215
	(0.0107)	(0.00183)	(0.00173)	(0.000306)
Alternation	-0.00641	-0.00127	-0.000551	0.0000150
	(0.0141)	(0.00223)	(0.00307)	(0.000706)
Recession	-0.0239	-0.00402	0.00504	-0.000955
	(0.0748)	(0.0129)	(0.0164)	(0.00464)
Unemployment crisis	0.432**	0.0703**	0.0338	0.00871
	(0.145)	(0.0243)	(0.0236)	(0.00565)
Minority government	-0.110	-0.0208	-0.0122	0.00460
	(0.0606)	(0.0111)	(0.0176)	(0.00420)
Surplus government	-0.00177	-0.00616	-0.00774	0.00136
	(0.0737)	(0.0146)	(0.0155)	(0.00370)
Effective number of government parties	-0.00784	-0.00411	0.00184	-0.0000696
	(0.0405)	(0.00731)	(0.0117)	(0.00248)
Election year	0.00857	0.00347	-0.00164	-0.00352
	(0.0730)	(0.0126)	(0.0140)	(0.00383)
Observations	463	446	463	446

Standard errors in parentheses. Fixed effects at the country and year level and country-clustered standard errors.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The ideological alternation variable, which also varies by dimension, mostly does not behave as expected either. Veto player theory and results from previous studies would lead us to believe that this coefficient should be positive and statistically significant for all four models. It is, however, only positive in the model with changes in cultural micro categories and statistically significant in none of the models. Of the two economic control variables, only the unemployment crisis dummy consistently displays effects in the expected direction, since there

are more budget changes when there is an unemployment crisis. The effect, however, only reaches statistical significance for the economic budget categories. As unemployment related budget changes are likely to fall within the economic spending categories, this is unsurprising. The effect of unemployment crises on changes in economic spending categories could mean that governments make more changes in times of economic crises. It could, however, also mean that the spending on unemployment benefits increases when unemployment rises. The fact that there is no positive and statistically significant effect of recessions does somewhat disprove the crisis induces reforms theory and might indicate that this is a question of automatic budget changes as a consequence of increased unemployment.

In Table A2 and A3 in the appendix the same analyses are conducted but with different fixed effects specifications to investigate whether the two-way fixed effects have removed too much of the variation and thereby hidden the hypothesised effect. This does, however, not appear to be the case because the results are similarly insignificant when it comes to government polarisation. The only notable difference is that the cultural alternation variable reaches statistical significance in the simple OLS model and the model with only year-fixed effects, although the effect is negative (which is contrary to expectation) and only for the macro categories. The economic alternation variable is still not statistically significant across the board. The recession dummy remains insignificant, and unemployment crises are now significant in some of the cultural models too.

4.2.2. Comparing general left-right and two-dimensional polarisation

While the results did not confirm the first hypotheses it might still be the case that there is an effect of the general polarisation measures on the changes in all budget categories. According to the second hypothesis this effect should be larger with two-dimensional polarisation than with general left-right polarisation, as there is less information that is lost about the ideological distances between parties when both dimensions are accounted for. Two-dimensional polarisation has been operationalised in two different ways in this analysis. The first way is with the two-dimensional polarisation measure that was described in the methodology section and the second way is with both the economic and cultural polarisation in the same model. As can be seen from the results in Table 3, the effects of polarisation on changes in all budget categories are, contrary to expectation, positive and not statistically significant in all models. The results are therefore unable to confirm the second hypothesis. However, this is not because the effect size is similar in the one-dimensional and two-dimensional models, but rather because there is no statistically significant effect of government polarisation on changes in budget allocation in any of the models.

The other variables of interest follow the same pattern as the model for the economic dimension in the previous section. Ideological alternation and recession have non-significant effects in another direction than expected, while unemployment crisis show the expected sign and is statistically significant.

The same analysis but with different fixed effects specifications confirms the conclusions of this section, except that cultural alternation is statistically significant but with an effect in the unexpected direction in the OLS and year-fixed effects models for macro categories (see Table A4 and A5 in the appendix). The statistically significant effect of cultural alternation occurs under the same conditions as in the cultural models in the section above. There is thus a negative effect of cultural alternation on changes in both cultural and all macro categories when country-specific characteristics are not controlled for. This implies that there might be systematic

country differences in both the size of cultural alternation and degree of change in cultural and all budget categories.

Table 3. The effect of general left-right and two-dimensional polarisation on changes in budget allocation

	General left-right – Macro	General left-right – Micro	Two-dim – Macro	Two-dim – Micro	Econ and cult – Macro	Econ and cult – Micro
General polarisation	0.00297	0.00107	0.0105	0.00256		
	(0.00712)	(0.00125)	(0.00713)	(0.00146)		
Economic polarisation					0.00652	0.000810
					(0.00588)	(0.00109)
Cultural polarisation					0.00603	0.00178
					(0.00552)	(0.00107)
General alternation	-0.00781	-0.000984	-0.00490	-0.000968		
	(0.00928)	(0.00171)	(0.00730)	(0.00140)		
Economic alternation					-0.00275	-0.000571
					(0.00909)	(0.00146)
Cultural alternation					-0.000925	0.0000440
					(0.0100)	(0.00192)
Recession	-0.0113	-0.00339	-0.0264	-0.00595	-0.0215	-0.00530
	(0.0473)	(0.00902)	(0.0502)	(0.00990)	(0.0474)	(0.00931)
Unemployment crisis	0.255**	0.0461**	0.260**	0.0462**	0.249**	0.0449**
	(0.0869)	(0.0164)	(0.0891)	(0.0161)	(0.0858)	(0.0159)
Minority government	-0.0785*	-0.0144	-0.0627	-0.0130	-0.0664	-0.0130
	(0.0391)	(0.00772)	(0.0360)	(0.00710)	(0.0361)	(0.00721)
Surplus government	-0.00247	-0.00423	-0.00617	-0.00547	-0.00633	-0.00525
	(0.0447)	(0.00978)	(0.0419)	(0.00921)	(0.0415)	(0.00906)
Effective number of government parties	-0.00439	-0.00305	-0.0128	-0.00476	-0.00593	-0.00331
	(0.0253)	(0.00513)	(0.0264)	(0.00549)	(0.0243)	(0.00487)
Election year	0.00738	0.00190	0.00403	0.00147	0.00465	0.00141
	(0.0444)	(0.00859)	(0.0446)	(0.00871)	(0.0439)	(0.00859)
Observations	463	446	459	445	463	446

Standard errors in parentheses. Fixed effects at the country and year level and country-clustered standard errors.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4.2.3. Robustness tests

Angelova et al. (2018, p. 299) only found an effect of the ideological range of the government on reform productivity for minimal winning cabinets, but not for minority and surplus cabinets. To investigate whether this might be the reason that the expected results are not found the approach of Angelova et al. was replicated by including an interaction between the ideological polarisation of the government and a dummy variable for minimal winning cabinets. This version of the analysis was conducted with all models which have been presented in the two previous sections (although without the minority and surplus government dummy controls). Unlike for Angelova et al., adding the minimal winning cabinet interaction did not yield any different results as the interaction term is not significant in any of the models (see Table A6 and A7 in the appendix).

Most of the studies which found a constraining effect of larger distances between government parties were done on only Western European countries. Therefore, to check whether the effect only exists in Western Europe, all of the analyses have been carried out with an interaction between government polarisation and a dummy variable for Western Europe. Since the interaction term is not significant in any of the models (see Table A8 and A9 in the appendix), there is no difference between Eastern and Western Europe in the relationship between government polarisation and the degree of change in budget allocation.

The ideological polarisation measure that this thesis uses differs from the ideological range measure that is used by other studies investigating the effect of the ideological distance between governments parties on the degree of changes in budget allocation (Cavalieri, 2026; Tsebelis & Chang, 2004). To test whether this measurement difference is decisive, the analyses were also conducted using government ideological range instead of government ideological polarisation (as well as an alternation measure based on the centre of the ideological range rather than the weighted government mean). All results remain the same, with the exception of the economic range variable which has a positive and statistically significant effect on changes in economic macro and micro categories and on changes in all macro categories (see Table A10 and A11 in the appendix). A positive effect means that governments enact more changes in budget categories when the distance between government parties is larger, which is contrary to expectation. Using government ideological range did thus not generate the hypothesised effects either. Hence, the different measure of ideological distance between government parties compared to previous articles does not seem to be the reason that the same results were not obtained.

5. Conclusions

The purpose of this thesis has been to examine how government polarisation on both the economic and the cultural dimension affects changes in budget allocation. Since political competition in Europe is increasingly structured along two dimensions, it is important to investigate what the impact of this is on different political outcomes. Furthermore, it is also highly relevant for research on government policy making to utilise a measure of government polarisation which does not ignore potentially relevant information about the ideological distances between government parties. This thesis contributes to both of these aims by being the first, to my knowledge, to apply a two-dimensional conceptualisation of political conflict to the study of government policy making.

Guided by the claims of veto player theory, I expect higher levels of government polarisation to lead to less changes in budget allocation. To assess this from a two-dimensional perspective of ideological conflict, I first examine the separate effects of economic and cultural government polarisation on budget changes in corresponding areas. Thereafter, I test whether a two-dimensional measure of government polarisation explains all changes in budget allocation better than general left-right polarisation. From the analyses in this thesis, it can be concluded that there is no constraining effect at all of government polarisation on the degree of change in budget allocation in Europe between 1999 and 2024. The only variable that had a consistent effect on the size of changes in budget allocation was unemployment crises, which led to larger changes in budget allocation in economic categories as well as in all categories. There are thus no separate effects of economic and cultural polarisation on changes in budget allocation in corresponding areas, nor does two-dimensional polarisation explain budget changes better than general left-right polarisation. This is not, however, because I have been able to show that two-dimensionality does not matter, but rather because government polarisation turned out to not have the expected effect on the degree of policy change.

There are two implications of these results. The first one is that the lack of effect of government polarisation on the degree of change in budget allocation calls into question the validity of veto player theory in the studied time period. The strongest support for veto player theory in the realm of budget changes comes from Tsebelis and Chang (2004), whose results are based on data from the 1970s to 1990s. It might thus be possible that the claims of veto player theory were valid in an earlier time period, but that they no longer hold in more recent decades. To assess whether that is the case, future studies should recreate the analyses in this thesis with a different source of data on parties' ideological positions in order to be able to cover a longer time period. If it turns out to be true that the ideas of veto player theory held in the late 20th century but do not hold in the early 21st, that would indicate some very interesting things. Most importantly, it would mean that parties in recent decades have become better at collaborating with other parties whose ideological positions they are far away from. Potential explanations for such a development could be coalition agreements and longer bargaining time, which are factors that have already been found to mitigate the constraining effect of large ideological distances within governments on the ability for policy change (Bergman et al., 2024, p. 33; Bäck et al., 2024, p. 1264).

The second implication of my results concerns the potential of two-dimensionality for understanding outcomes related to governments. Because while considering both the economic and the cultural dimension did not matter for understanding the degree of change in budget allocation, it could still matter for other outcomes. The descriptive results indicate that

considering both the economic and the cultural dimension does lead to a different view of how polarised a government is than if one just looks at polarisation on a general left-right dimension. Therefore, incorporating a two-dimensional conceptualisation of party competition into measures of the ideological characteristics of governments has the potential to be important for better understanding other government-related outcomes. They just have to be outcomes that are affected by the ideological characteristics of governments.

Something that did not fit into this thesis, but which I believe has the potential to be important in future studies of two-dimensionality, is the relative salience which parties attribute to different issues and dimensions. The area of acceptable policy positions should be bigger for issues that parties care less about, and therefore an extreme ideal position could become way less influential if relative issue salience is taken into account. In that way, issue salience could help bring clarity into how large the positional disagreements between parties actually are.

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Appendix

Adjustments of Eurostat data

In accordance with the information given by Cavalieri (2026), the following adjustments were made to the Eurostat data. Two types of residual categories were removed as these contain missing values and often have erratic fluctuations which do not reflect actual policy changes. These were the micro categories that ended with n.e.c. (not elsewhere classified) and R&D (research and development). The category "Public debt transactions" was excluded since it is not entirely controlled by government policy and "Transfers of a general character between different levels of government" has been removed because it is either missing or zero for all countries except Austria. Additionally, there were a small number of observations that displayed negative values. These values have been converted into positive values, as they are like the result of data entry errors.

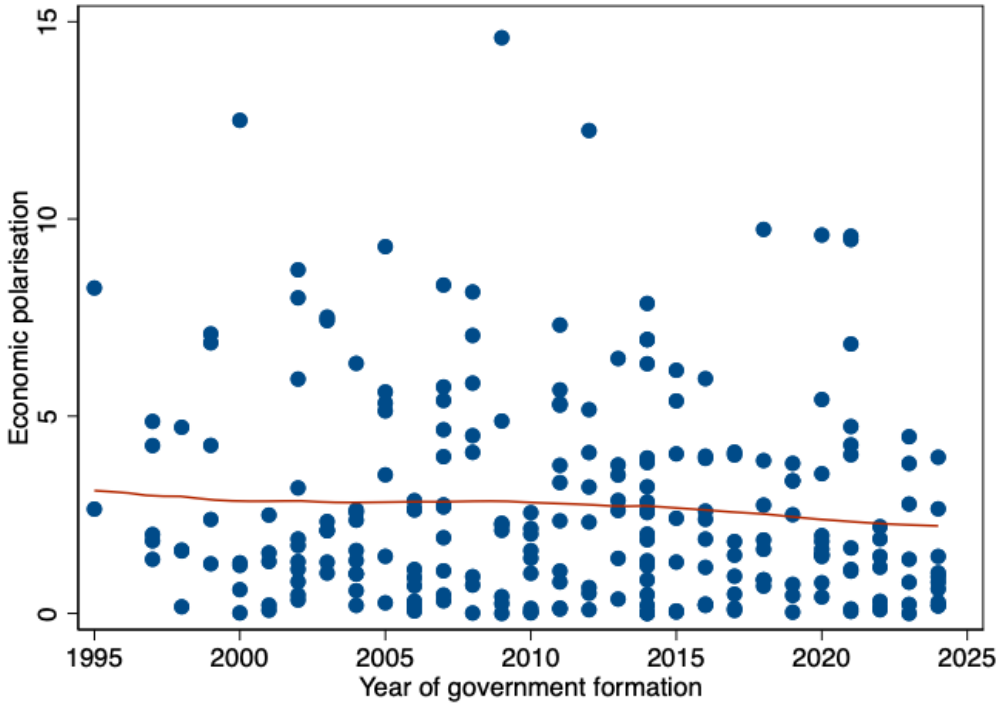
A number of changes were also made in regard to specific categories and observations that had suspicious values for only one country. In the case that a micro category had excessive variability and significant missing values for a certain country, that micro category was removed from the dataset for that country, which included all micro categories for Bulgaria. When it comes to specific suspicious observations, Cavalieri (2026) reviewed all observations were the annual percentage change in inflation-adjusted million euros exceeded 300%. With the help of detailed information from Eurostat about national reforms that may have impacted expenditure allocation, observations were kept if the extreme fluctuations were the result of the sudden implementation of reforms, when expenditure levels remained stable after, or if they stemmed from temporary necessities which required extraordinary increases in spending. There were, however, cases where fluctuations were abrupt and seemingly random and therefore appeared to be potential data entry errors. These cases often consisted of sharp expenditure reductions, followed by large spikes which were offset in the following year. In such cases, a smoothing approach was used by calculating the average value of the preceding and subsequent year. Following the same procedure, I examined and corrected fluctuations exceeding 300% for the 2023-2024 period, which can be seen in the list below.

- Denmark, "Communication", 2024 – No change
- Denmark, "Foreign military aid", 2023 – No change
- Finland, "Communication", 2023 – Mean 2022-2024
- Finland, "Foreign military aid", 2023 – No change
- Finland, "Housing development", 2023 – No change
- Greece, "Protection of biodiversity and landscape", 2024 – No change
- Hungary, "Housing development", 2023 – Mean 2022-2024
- Poland, "Foreign military aid", 2023 – No change
- Slovakia, "Foreign military aid", 2023 – No change
- Slovakia, "Fuel and energy" 2023 – No change

For the other adjusted observations and removed categories, see the appendix in Cavalieri (2026).

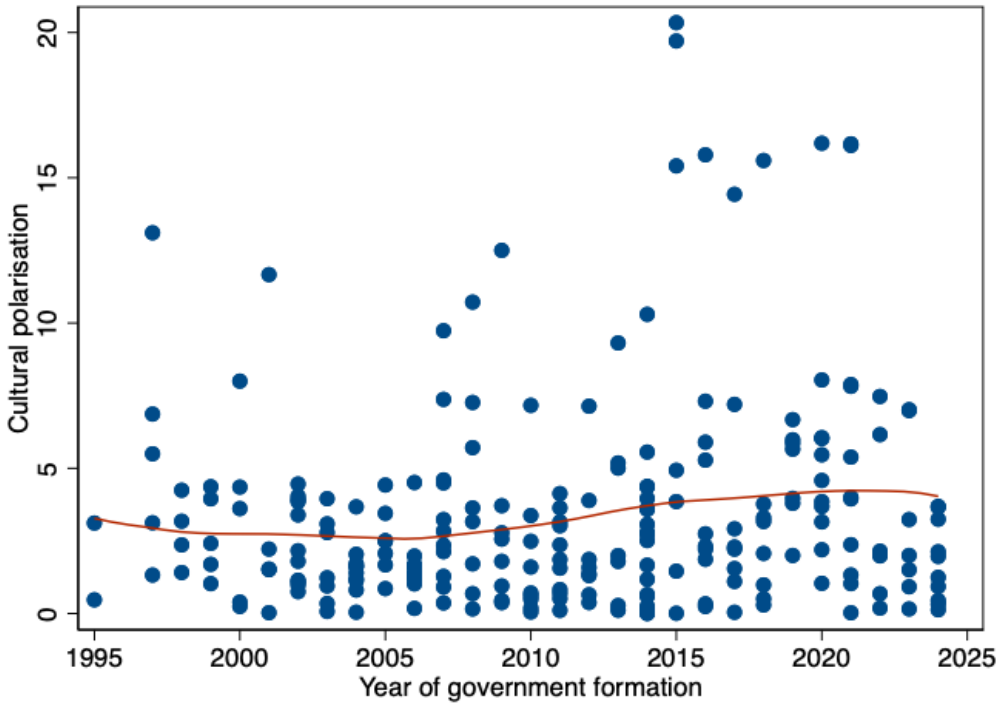
Additional figures and tables

Figure A1. Economic polarisation of governments over time



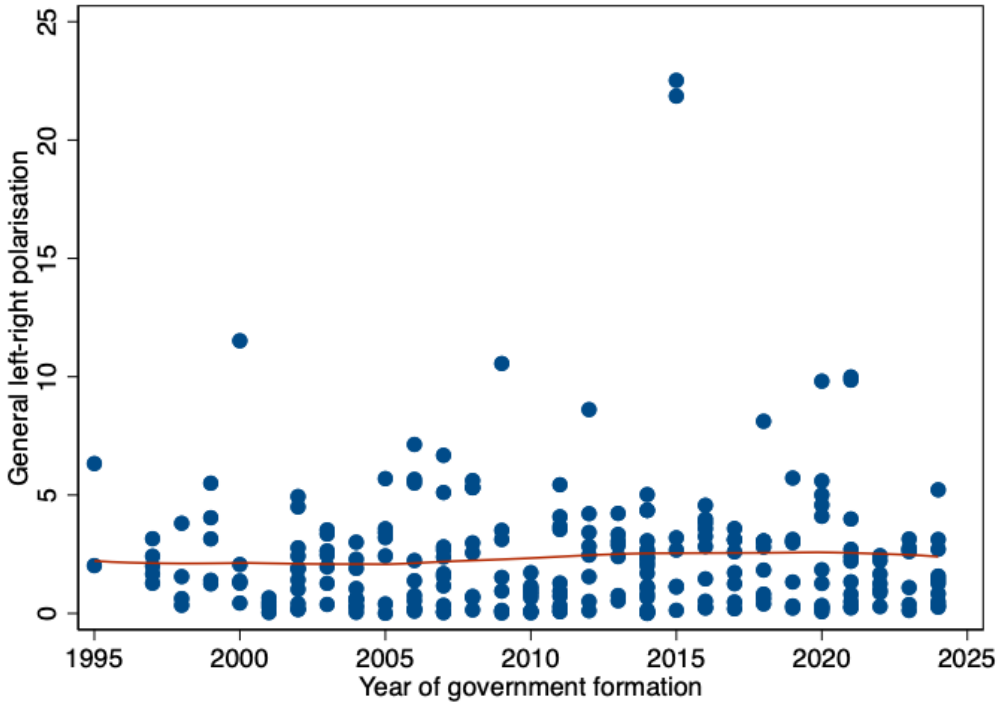
Note: Single-party governments are excluded.

Figure A2. Cultural polarisation of governments over time



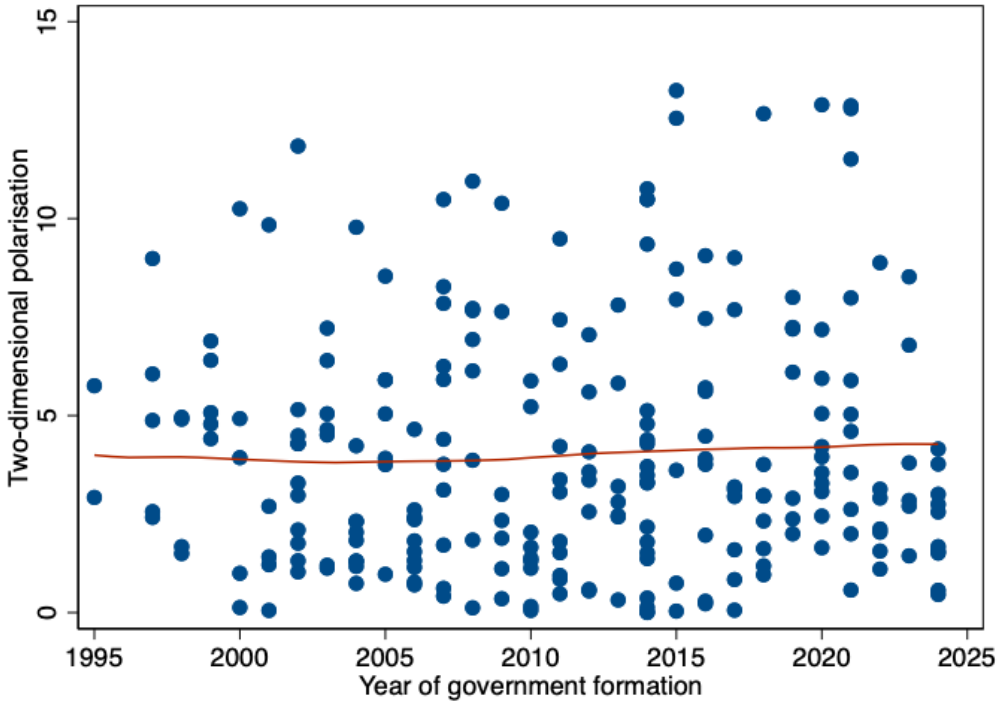
Note: Single-party governments are excluded.

Figure A3. General left-right polarisation of governments over time



Note: Single-party governments are excluded.

Figure 4. Two-dimensional polarisation of governments over time



Note: Single-party governments are excluded.

Table A1. Summary statistics

	Observations	Mean	Standard deviation	Min	Max
Changes in economic macro categories	550	0.35	0.40	0.02	4.64
Changes in cultural macro categories	550	0.12	0.11	0	0.65
Changes in macro categories	550	0.22	0.24	0.02	2.79
Changes in economic micro categories	517	0.07	0.07	0.01	0.80
Changes in cultural micro categories	517	0.03	0.03	0	0.21
Changes in micro categories	517	0.05	0.05	0.01	0.54
Economic polarisation	541	2.23	2.61	0	13.93
Cultural polarisation	541	2.84	3.53	0	20.34
General left-right polarisation	541	1.93	2.68	0	22.52
Two-dimensional polarisation	536	3.33	3.12	0	13.30
Economic alternation	470	1.39	1.37	0	5.16
Cultural alternation	470	1.30	1.48	0	7.47
General left-right alternation	470	1.29	1.29	0	4.42
Two-dimensional alternation	466	2.10	1.86	0.01	7.60
Recession (0/1)	553	0.17	0.38	0	1
Unemployment crisis (0/1)	553	0.13	0.34	0	1
Minority government (0/1)	553	0.26	0.44	0	1
Surplus government (0/1)	553	0.24	0.42	0	1
Effective number of government parties	547	2.03	1.01	1	6.46
Election year (0/1)	553	0.12	0.32	0	1

Table A2. The effect of economic and cultural polarisation on changes in budget allocation for different fixed effects-specifications (macro categories)

	Economic – OLS	Economic – Country	Economic – Year	Cultural – OLS	Cultural – Country	Cultural – Year
Polarisation	0.0131	0.0136	0.0145	-0.00222	-0.000784	-0.00188
	(0.0124)	(0.00966)	(0.0131)	(0.00180)	(0.00203)	(0.00186)
Alternation	-0.00975	-0.00548	-0.0118	-0.00955*	-0.00170	-0.00949*
	(0.0149)	(0.0132)	(0.0158)	(0.00452)	(0.00323)	(0.00442)
Recession	0.0966	0.0812	-0.0186	0.0168	0.0144	0.00119
	(0.0510)	(0.0596)	(0.0641)	(0.0142)	(0.0109)	(0.0203)
Unemployment crisis	0.441**	0.430**	0.439**	0.0723**	0.0300	0.0719**
	(0.150)	(0.158)	(0.143)	(0.0228)	(0.0235)	(0.0241)
Minority government	-0.0670	-0.0900	-0.0808	-0.0147	-0.00384	-0.0198
	(0.0479)	(0.0480)	(0.0479)	(0.0187)	(0.0153)	(0.0201)
Surplus government	0.0344	0.0183	0.0138	0.0112	-0.00240	0.00604
	(0.0825)	(0.0739)	(0.0819)	(0.0196)	(0.0153)	(0.0201)
Effective number of government parties	-0.0313	0.00121	-0.0380	0.000600	0.00516	0.000309
	(0.0236)	(0.0340)	(0.0268)	(0.00851)	(0.0106)	(0.00904)
Election year	0.0423	0.0137	0.0439	0.00982	-0.00132	0.0128
	(0.0704)	(0.0743)	(0.0683)	(0.0146)	(0.0147)	(0.0136)
Observations	463	463	463	463	463	463

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A3. The effect of economic and cultural polarisation on changes in budget allocation for different fixed effects-specifications (micro categories)

	Economic – OLS	Economic – Country	Economic – Year	Cultural – OLS	Cultural – Country	Cultural – Year
Polarisation	0.00188	0.00193	0.00241	-0.000319	-0.000115	-0.000192
	(0.00220)	(0.00159)	(0.00234)	(0.000335)	(0.000282)	(0.000412)
Alternation	-0.00320	-0.00137	-0.00314	-0.00190	-0.000359	-0.00169
	(0.00271)	(0.00224)	(0.00268)	(0.00102)	(0.000725)	(0.00100)
Recession	0.0178*	0.0161	-0.00380	0.00442	0.00325	-0.000390
	(0.00856)	(0.00977)	(0.0119)	(0.00370)	(0.00265)	(0.00632)
Unemployment crisis	0.0816**	0.0707**	0.0818**	0.0185**	0.00837	0.0187**
	(0.0258)	(0.0270)	(0.0246)	(0.00610)	(0.00567)	(0.00635)
Minority government	-0.0150	-0.0155	-0.0187*	-0.00140	0.00397	-0.00149
	(0.00845)	(0.00978)	(0.00821)	(0.00431)	(0.00380)	(0.00466)
Surplus government	-0.00277	-0.00102	-0.00581	0.00288	0.00343	0.00200
	(0.0143)	(0.0143)	(0.0143)	(0.00458)	(0.00366)	(0.00467)
Effective number of government parties	-0.00418	0.000602	-0.00671	0.00136	0.000643	0.000872
	(0.00482)	(0.00624)	(0.00535)	(0.00200)	(0.00212)	(0.00220)
Election year	0.00720	0.00306	0.00812	0.00164	-0.00177	0.000727
	(0.0129)	(0.0134)	(0.0122)	(0.00355)	(0.00357)	(0.00365)
Observations	446	446	446	446	446	446

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A4. The effect of general left-right and two-dimensional polarisation on changes in budget allocation for different fixed effects-specifications (macro categories)

	Gen left-right – OLS	Gen left-right – Country	Gen left-right – Year	Two-dim – OLS	Two-dim – Country	Two-dim – Year	Econ and cult – OLS	Econ and cult – Country	Econ and cult – Year
General polarisation	0.00435	-0.000475	0.00775	0.00716	0.00753	0.0102			
	(0.00557)	(0.00668)	(0.00582)	(0.00650)	(0.00695)	(0.00680)			
Economic polarisation							0.00395	0.00621	0.00354
							(0.00720)	(0.00525)	(0.00753)
Cultural polarisation							0.00400	0.00370	0.00662
							(0.00445)	(0.00568)	(0.00446)
General alternation	-0.0137	-0.00973	-0.0125	-0.0103	-0.00553	-0.0100			
	(0.00988)	(0.00918)	(0.00972)	(0.00761)	(0.00725)	(0.00798)			
Economic alternation							0.00796	-0.000433	0.00581
							(0.00836)	(0.00831)	(0.00854)
Cultural alternation							-0.0231*	-0.00439	-0.0207*
							(0.00988)	(0.0102)	(0.00919)
Recession	0.0593	0.0539	-0.0162	0.0534	0.0455	-0.0258	0.0570	0.0468	-0.0151
	(0.0305)	(0.0358)	(0.0388)	(0.0333)	(0.0385)	(0.0431)	(0.0318)	(0.0375)	(0.0394)
Unemployment crisis	0.260**	0.261**	0.252**	0.279**	0.265**	0.275**	0.273**	0.252**	0.268**
	(0.0873)	(0.0961)	(0.0823)	(0.0937)	(0.0984)	(0.0889)	(0.0909)	(0.0947)	(0.0861)
Minority government	-0.0489	-0.0702*	-0.0527	-0.0441	-0.0547	-0.0490	-0.0564	-0.0566	-0.0625*
	(0.0291)	(0.0323)	(0.0291)	(0.0299)	(0.0299)	(0.0294)	(0.0311)	(0.0301)	(0.0305)
Surplus government	0.0241	0.0108	0.00943	0.0185	0.00911	0.00124	0.0249	0.00986	0.00625
	(0.0508)	(0.0456)	(0.0496)	(0.0475)	(0.0435)	(0.0455)	(0.0492)	(0.0432)	(0.0482)
Effective number of government parties	-0.0167	0.00229	-0.0205	-0.0232	-0.00524	-0.0290	-0.0231	-0.000244	-0.0249
	(0.0137)	(0.0212)	(0.0153)	(0.0172)	(0.0227)	(0.0185)	(0.0149)	(0.0208)	(0.0161)
Election year	0.0274	0.0104	0.0271	0.0258	0.00882	0.0253	0.0263	0.00832	0.0264
	(0.0422)	(0.0448)	(0.0407)	(0.0426)	(0.0451)	(0.0413)	(0.0425)	(0.0445)	(0.0413)
Observations	463	463	463	459	459	459	463	463	463

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A5. The effect of general left-right and two-dimensional polarisation on changes in budget allocation for different fixed effects-specifications (micro categories)

	General left-right – OLS	General left-right – Country	General left-right – Year	Two-dim – OLS	Two-dim – Country	Two-dim – Year	Econ and cult – OLS	Econ and cult – Country	Econ and cult – Year
General polarisation	0.00117	0.000271	0.00188	0.00181	0.00201	0.00240			
	(0.000990)	(0.00119)	(0.00105)	(0.00131)	(0.00139)	(0.00143)			
Economic polarisation							0.000350	0.000701	0.000497
							(0.00138)	(0.000937)	(0.00146)
Cultural polarisation							0.00122	0.00127	0.00165
							(0.000856)	(0.00113)	(0.000889)
General alternation	-0.00312	-0.00181	-0.00258	-0.00233	-0.00132	-0.00206			
	(0.00207)	(0.00179)	(0.00191)	(0.00155)	(0.00144)	(0.00152)			
Economic alternation							-0.0000424	-0.0000229	-0.000353
							(0.00158)	(0.00147)	(0.00148)
Cultural alternation							-0.00319	-0.00112	-0.00253
							(0.00192)	(0.00203)	(0.00168)
Recession	0.0118*	0.0113	-0.00424	0.0109	0.00969	-0.00598	0.0115	0.0101	-0.00449
	(0.00572)	(0.00656)	(0.00801)	(0.00621)	(0.00715)	(0.00902)	(0.00599)	(0.00691)	(0.00826)
Unemployment crisis	0.0537**	0.0481**	0.0522**	0.0561**	0.0476**	0.0555***	0.0557**	0.0465*	0.0549**
	(0.0169)	(0.0184)	(0.0159)	(0.0174)	(0.0182)	(0.0165)	(0.0176)	(0.0180)	(0.0165)
Minority government	-0.0105	-0.0119	-0.0122*	-0.0105	-0.0103	-0.0124*	-0.0120	-0.0107	-0.0137*
	(0.00568)	(0.00696)	(0.00555)	(0.00592)	(0.00664)	(0.00562)	(0.00615)	(0.00666)	(0.00587)
Surplus government	-0.000380	-0.000186	-0.00315	-0.00237	-0.00128	-0.00552	-0.00159	-0.000591	-0.00523
	(0.00986)	(0.00986)	(0.00966)	(0.00890)	(0.00927)	(0.00852)	(0.00937)	(0.00928)	(0.00910)
Effective number of government parties	-0.00246	0.000482	-0.00404	-0.00408	-0.00115	-0.00603	-0.00301	-0.000159	-0.00418
	(0.00304)	(0.00433)	(0.00336)	(0.00369)	(0.00462)	(0.00408)	(0.00336)	(0.00423)	(0.00360)
Election year	0.00492	0.00214	0.00495	0.00468	0.00169	0.00485	0.00498	0.00172	0.00529
	(0.00863)	(0.00901)	(0.00818)	(0.00877)	(0.00912)	(0.00833)	(0.00868)	(0.00904)	(0.00823)
Observations	446	446	446	445	445	445	446	446	446

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.00$

Table A6. The effect of government polarisation on changes in budget allocation with minimal winning cabinet-interaction (macro categories)

	Economic	Cultural	General left-right	Two-dim	Econ and cult
Economic polarisation	0.0196				0.00780
	(0.0269)				(0.0127)
Cultural polarisation		-0.00229			0.0158
		(0.00251)			(0.00939)
General polarisation			0.0204	0.0174	
			(0.0224)	(0.0141)	
Minimal winning cabinet	0.0602	0.000126	0.0677	0.0638	0.0690
	(0.0502)	(0.0124)	(0.0352)	(0.0425)	(0.0420)
Economic polarisation * Minimal winning cabinet	-0.00353				0.00236
	(0.0270)				(0.0128)
Cultural polarisation * Minimal winning cabinet		0.00356			-0.0151
		(0.00296)			(0.0114)
General polarisation * Minimal winning cabinet			-0.0191	-0.00904	
			(0.0229)	(0.0133)	
Economic alternation	-0.00454				-0.00411
	(0.0138)				(0.00978)
Cultural alternation		-0.000228			0.00179
		(0.00297)			(0.0107)
General alternation			-0.00464	-0.00438	
			(0.00921)	(0.00721)	
Recession	-0.0271	0.00431	-0.0127	-0.0280	-0.0237
	(0.0758)	(0.0163)	(0.0480)	(0.0509)	(0.0494)
Unemployment crisis	0.426**	0.0306	0.257**	0.262**	0.257**
	(0.144)	(0.0239)	(0.0893)	(0.0909)	(0.0882)
Effective number of government parties	0.00862	0.00241	0.00222	-0.00837	0.00496
	(0.0357)	(0.00998)	(0.0223)	(0.0240)	(0.0206)
Election year	0.0112	-0.00239	0.00963	0.00745	0.00780
	(0.0705)	(0.0140)	(0.0437)	(0.0435)	(0.0423)
Observations	463	463	463	459	463

Standard errors in parentheses. Fixed effects at the country and year level and country-clustered standard errors.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A7. The effect of government polarisation on changes in budget allocation with minimal winning cabinet-interaction (micro categories)

	Economic	Cultural	General left-right	Two-dim	Econ and cult
Economic polarisation	0.00365				0.00146
	(0.00495)				(0.00257)
Cultural polarisation		0.000366			0.00372
		(0.000497)			(0.00209)
General polarisation			0.00457	0.00426	
			(0.00471)	(0.00302)	
Minimal winning cabinet	0.0161	-0.00211	0.0150*	0.0173*	0.0171*
	(0.00889)	(0.00288)	(0.00666)	(0.00807)	(0.00826)
Economic polarisation * Minimal winning cabinet	-0.00148				-0.0000708
	(0.00489)				(0.00251)
Cultural polarisation * Minimal winning cabinet		-0.000283			-0.00309
		(0.000518)			(0.00227)
General polarisation * Minimal winning cabinet			-0.00391	-0.00241	
			(0.00469)	(0.00269)	
Economic alternation	-0.00106				-0.000854
	(0.00223)				(0.00161)
Cultural alternation		-0.000114			0.000414
		(0.000672)			(0.00206)
General alternation			-0.000540	-0.00100	
			(0.00172)	(0.00139)	
Recession	-0.00443	-0.000752	-0.00339	-0.00595	-0.00547
	(0.0131)	(0.00457)	(0.00913)	(0.0100)	(0.00968)
Unemployment crisis	0.0700**	0.00908	0.0470**	0.0472**	0.0470**
	(0.0242)	(0.00571)	(0.0170)	(0.0166)	(0.0166)
Effective number of government parties	-0.00245	-0.000525	-0.00252	-0.00471	-0.00206
	(0.00607)	(0.00215)	(0.00432)	(0.00486)	(0.00389)
Election year	0.00403	-0.00350	0.00228	0.00222	0.00199
	(0.0121)	(0.00385)	(0.00838)	(0.00843)	(0.00827)
Observations	463	463	463	459	463

Standard errors in parentheses. Fixed effects at the country and year level and country-clustered standard errors.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A8. The effect of government polarisation on changes in budget allocation with Western Europe-interaction (macro categories)

	Economic	Cultural	General left-right	Two-dim	Econ and cult
Economic polarisation	0.0173				0.00625
	(0.0173)				(0.0101)
Cultural polarisation		-0.00313			0.0136
		(0.00586)			(0.00910)
General polarisation			0.000324	0.00748	
			(0.00929)	(0.00812)	
Western Europe	-0.266*	-0.127*	-0.207**	-0.202*	-0.121
	(0.130)	(0.0585)	(0.0780)	(0.0907)	(0.0988)
Economic polarisation * Western Europe	-0.00234				0.00217
	(0.0207)				(0.0127)
Cultural polarisation * Western Europe		0.00458			
		(0.00603)			
General polarisation * Western Europe			0.00864	0.00805	
			(0.0113)	(0.0112)	
Economic alternation	-0.00646				-0.000382
	(0.0142)				(0.00881)
Cultural alternation		0.000204			0.00375
		(0.00293)			(0.00954)
General alternation			0.0000590	0.000210	
			(0.00802)	(0.00640)	
Recession	-0.0233	0.00913	0.0290	0.0145	0.0216
	(0.0755)	(0.0155)	(0.0404)	(0.0447)	(0.0398)
Unemployment crisis	0.432**	0.0308	0.256**	0.260**	0.259**
	(0.145)	(0.0234)	(0.0895)	(0.0888)	(0.0892)
Minority government	-0.109	-0.00967	-0.0540	-0.0416	-0.0243
	(0.0617)	(0.0179)	(0.0389)	(0.0372)	(0.0472)
Surplus government	-0.00201	-0.00943	-0.000259	-0.00178	0
	(0.0742)	(0.0147)	(0.0478)	(0.0430)	(.)
Effective number of government parties	-0.00738	0.00516	0.000209	-0.00548	0.00265
	(0.0413)	(0.0119)	(0.0253)	(0.0257)	(0.0227)
Election year	0.00847	-0.000838	0.0168	0.0143	0.0167
	(0.0733)	(0.0140)	(0.0445)	(0.0449)	(0.0439)
Observations	463	463	463	459	463

Standard errors in parentheses. Fixed effects at the country and year level and country-clustered standard errors.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A9. The effect of government polarisation on changes in budget allocation with Western Europe-interaction (micro categories)

	Economic	Cultural	General left-right	Two-dim	Econ and cult
Economic polarisation	0.00221				0.00130
	(0.00280)				(0.00183)
Cultural polarisation		-0.000439			0.00365
		(0.000899)			(0.00203)
General polarisation			0.000758	0.00235	
			(0.00182)	(0.00160)	
Western Europe	-0.0425*	-0.0207	-0.0264	-0.0258	-0.00565
	(0.0204)	(0.0117)	(0.0151)	(0.0167)	(0.0195)
Economic polarisation * Western Europe	0.000227				0.000116
	(0.00357)				(0.00225)
Cultural polarisation * Western Europe		0.000862			
		(0.000939)			
General polarisation * Western Europe			0.000380	0.000310	
			(0.00232)	(0.00224)	
Economic alternation	-0.00126				-0.000821
	(0.00225)				(0.00160)
Cultural alternation		0.0000270			0.000307
		(0.000705)			(0.00199)
General alternation			-0.000958	-0.000963	
			(0.00177)	(0.00141)	
Recession	-0.00408	-0.00116	-0.00341	-0.00608	-0.00538
	(0.0131)	(0.00460)	(0.00904)	(0.0103)	(0.00947)
Unemployment crisis	0.0703**	0.00806	0.0459**	0.0460**	0.0470**
	(0.0243)	(0.00570)	(0.0169)	(0.0160)	(0.0167)
Minority government	-0.0209	0.00456	-0.0145	-0.0130	-0.00227
	(0.0113)	(0.00421)	(0.00765)	(0.00719)	(0.0103)
Surplus government	-0.00614	0.000954	-0.00438	-0.00556	0
	(0.0147)	(0.00365)	(0.00986)	(0.00889)	(.)
Effective number of government parties	-0.00417	0.000367	-0.00306	-0.00470	-0.00238
	(0.00765)	(0.00254)	(0.00514)	(0.00533)	(0.00440)
Election year	0.00347	-0.00369	0.00190	0.00145	0.00194
	(0.0127)	(0.00383)	(0.00860)	(0.00874)	(0.00852)
Observations	463	463	463	459	463

Standard errors in parentheses. Fixed effects at the country and year level and country-clustered standard errors.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A10. The effect of government ideological range on changes in budget allocation (macro categories)

	Economic	Cultural	General left-right	Two-dim	Econ and cult
Economic range	0.0521*				0.0254*
	(0.0224)				(0.0118)
Cultural range		-0.00249			0.00927
		(0.00389)			(0.0108)
General range			0.0219	0.0151	
			(0.0154)	(0.00936)	
Economic alternation	0.0105				0.00925
	(0.0121)				(0.00932)
Cultural alternation		0.00116			-0.00520
		(0.00257)			(0.00883)
General alternation			0.00242	-0.00382	
			(0.00696)	(0.00631)	
Recession	-0.0416	0.00655	-0.0254	-0.0267	-0.0264
	(0.0816)	(0.0168)	(0.0507)	(0.0502)	(0.0508)
Unemployment crisis	0.418**	0.0331	0.237**	0.268**	0.246**
	(0.146)	(0.0233)	(0.0828)	(0.0909)	(0.0873)
Effective number of government parties	-0.0315	0.00491	-0.0141	-0.0341	-0.0260
	(0.0466)	(0.0113)	(0.0284)	(0.0354)	(0.0309)
Election year	-0.00159	-0.00213	0.00181	0.00591	-0.00134
	(0.0736)	(0.0139)	(0.0443)	(0.0445)	(0.0441)
Observations	467	467	467	459	467

Standard errors in parentheses. Fixed effects at the country and year level and country-clustered standard errors.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A11. The effect of government ideological range on changes in budget allocation (micro categories)

	Economic	Cultural	General left-right	Two-dim	Econ and cult
Economic range	0.00857*				0.00398
	(0.00413)				(0.00244)
Cultural range		0.000557			0.00343
		(0.000810)			(0.00207)
General range			0.00494	0.00334	
			(0.00288)	(0.00200)	
Economic alternation	0.00149				0.00156
	(0.00180)				(0.00139)
Cultural alternation		0.000366			-0.000657
		(0.000586)			(0.00157)
General alternation			0.000503	-0.000725	
			(0.00124)	(0.00113)	
Recession	-0.00709	-0.00113	-0.00594	-0.00569	-0.00642
	(0.0141)	(0.00476)	(0.00981)	(0.00989)	(0.01000)
Unemployment crisis	0.0685**	0.00895	0.0438**	0.0482**	0.0451**
	(0.0243)	(0.00553)	(0.0154)	(0.0167)	(0.0162)
Effective number of government parties	-0.00826	-0.000847	-0.00564	-0.00911	-0.00858
	(0.00862)	(0.00258)	(0.00580)	(0.00758)	(0.00641)
Election year	0.00169	-0.00346	0.000973	0.00195	0.000360
	(0.0127)	(0.00379)	(0.00858)	(0.00867)	(0.00864)
Observations	450	450	450	445	450

Standard errors in parentheses. Fixed effects at the country and year level and country-clustered standard errors.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$