Designing a regional cabinet: How the economic context, political fragmentation and polarization shape cabinet size

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ABSTRACT This article aims at studying the effect of the state of the economy and the characteristics of the party supply in Parliament on regional cabinet size. We complement previous literature on the characteristics of governments and analyse whether the magnitude of the cabinet varies as a function of the state of the economy, the number of opposition parties and the level of party polarization for the opposition parties. Results show that better economic conditions and a larger number of opposition political parties in parliament are associated with a larger number of portfolios. Ideological polarization of the parties in the legislature does not seem to have an influence when designing the cabinet structure. Findings also show that the effect of the economic conditions is not equal for all cabinets: cabinets with less political constraints (majority status or fewer opposition parties) will be more sensitive to economic vicissitudes. This article, therefore, highlights how the parliamentary scenario and the economic context significantly influence the decisions on how to form or reshuffle a cabinet.

KEYWORDS cabinet size; recession; fragmentation; polarization; regional cabinets.

1. Introduction

After the outbreak of the 2008 world financial crisis, we have witnessed a heated debate around the size of the public administration. Some prime ministers have decided to reduce the size of public bodies, a decision that normally came in parallel with the reduction of the number of ministerial posts. Although merging ministries has a small marginal effect on overall spending, reducing the executive size has normally been employed as a tool for political propaganda. During bad economic times, some governments

decide to present themselves as *role models*: cabinets are eager to show that they are also able to tighten their belts — like the citizens they govern — and do the same (or even more) with less.

Besides the importance of the economy for the size of the administration, cabinets do change in size even when there is no economic crisis in the agenda. Thus, an alternative argument can be made relating the role of the legislature in shaping the size of the cabinet. In parliamentary systems, cabinets ultimately rely on parliaments in order to put forward their legislative and executive agendas. Governments are constrained by the political competition (the number of parties in Parliament) and by how polarized the existing parties are. When the number of parties in the chamber is high, executives need to navigate through more political complexity. In a public sphere crowded by a great variety of political parties, governments need to devote more energy to be visible and to make their public policies clearer. A large number of parties in the legislature is likely to make cabinet size reduction plans less attractive. In a fragmented political landscape, each minister, and the public policies she promotes, is an important selling point. In fact, polarization and the number of parties may even provide more incentives to increase the number of cabinet positions.

Although the importance of the economy and the role of party fragmentation and party polarization have been pinpointed by previous research, we lack a clear understanding of how these two factors affect the size of the cabinet. In short, the jury is still undecided as to whether the economy, the party composition of the legislature, and, especially, the interaction between both factors affect the size of the executive.

Thus, this article complements recent contributions on the determinants of the size of the cabinet[1] by focusing on the role played by the economy and the partisan composition of the legislature — both in terms of the number of parties and ideological polarization.

Our hypotheses are put to the test in the context of the Spanish regions (*Comunidades Autónomas*). To do so, we make use of a novel dataset that includes

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1. Verzichelli, "Portfolio"; Indriðason and Bowler, "Determinants"; Vall-Prat and Rodon, "Decentralisation".

the size of the seventeen regional cabinets over the time period 1979 to 2015. The Spanish regions are a suitable case for testing the effect of the economy and the composition of the legislature, as there is substantial heterogeneity both across regions and over time. In other words, fragmentation and polarization differs across regional parliaments and the economic recession did not hit all regions with the same intensity.

Findings show that economic conditions do matter when analysing cabinet size at the subnational level in Spain. Worse (better) economic conditions are associated with a lower (larger) number of ministerial positions in a regional cabinet. This finding contradicts previous analyses at the national level, which point out the different dynamics of cabinet formation at distinct layers of government. Partisan fragmentation of the opposition is also linked to larger cabinets, while there is no sufficient evidence to relate ideological polarization to the size of a cabinet. A fragmented parliament implies more parties fighting for the attention of the public, thus the executive will try to maximize the attention of the media to its action by increasing the number of high-rank positions.

Finally, our results also present an interaction between the economic and political context the cabinet faces; the state of the economy is only associated with variations in cabinet size when the cabinet has a relatively free reign over its decisions. That is, economic conditions are more influential when there is less fragmentation and/or the cabinet has a majority status in the legislature. This finding reminds us that, when it comes to the size of the cabinet (or even the administration), neither the economy nor the political conditions can be considered separately and it is important to consider both at once.

The rest of the article is organized as follows. In the next section we discuss previous literature on cabinet formation and we develop the expectations that will guide this paper. In Section 3 we present the methods and data. In Section 4 we display the main results. The last section concludes our findings and suggests avenues for future research.

2. Theoretical expectations

Although Aristotle highlighted the relevance of the number of people in charge of government, few efforts have been devoted to cabinet size in political science studies. While government formation processes have been widely studied, specifically by scholars interested in coalition governments, cabinet size variations have rarely attracted such attention.

Only recently more efforts are being devoted to understand the determinants of the variation in the size of executives. In this respect, Indriðason and Bowler provided a few years ago a valuable starting point in order to understand why some countries have a bigger executives than others.[2] They showed that ideological cohesiveness among cabinet members, the size of the legislature and coalition governments are significant factors associated with larger national cabinets — see also Verzichelli.[3] Another recent contribution comes from Vall-Prat and Rodon,[4] who analysed under what conditions decentralization leads to larger or smaller cabinets. They found that regions with more welfare state policies, especially when the region's economic capacity is high, as well as nationally distinct regions, tend to have bigger executives. In contrast, decentralisation in the form of basic state functions and partisan congruence (i.e. whether the same party holds power at both the national and subnational level) do not have a statistically significant effect.

Despite the promising avenues opened up by recent contributions, it remains unclear whether bad economic times and whether the number of parties, and their ideological dispersion, influence the size of the regional cabinet. This is an important void in the literature insofar as the ramifications of the effect of the economy and the legislature's party composition (and the interaction between both) are not clear-cut.

Next, we review the previous literature on the topic — which has only indirectly tackled the relationship we aim at studying — and develop our

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2. Indriðason and Bowler, "Determinants".
3. Verzichelli, "Portofolio".
4. Vall-Prat and Rodon, "Decentralisation".

theoretical expectations regarding the relationship between the economic situation, the parliament's composition and cabinet size.

2.1. Cabinet size and the effect of the economy

Conventional wisdom states that the economy has an effect on the size of the public administration, as well as the number of portfolios in the executive. In other words, government size and GDP variability are strongly related.[5] This idea is based on the (plausible) assumption that, in difficult economic periods, cabinets will reduce their current spending, which may affect some ministries more than others. When the economy slides into recession, governments are likely to implement cuts, which may affect basic provisions of the welfare state system, such as pensions, unemployment benefits or childcare. Under this situation, the party (or parties) in government also adapt their political rhetoric in order to justify these difficult measures. Economic cuts are very unpopular measures and governments try to ameliorate their negative effects with a variety of political strategies. Indeed, these measures are often complemented with a political discourse of scapegoating by blaming the international forces, the opposition, or the previous government. Most importantly for our argument, during bad economic times, governments very often attempt to set an example with symbolic policy measures such as reducing the size of the cabinet. Although the relative effect of removing one or two ministries on the overall budget is rather low,[6] governing parties want to signal that everyone is suffering from the cuts, even politicians, and that they are the first to implement restrictions on public spending.

This process is likely to be especially intense among regional cabinets of decentralized countries, such as Spain. There are at least two reasons to expect this. Firstly, in difficult economic periods, both national and regional cabinets will reduce their current spending. However, a region's budget is more likely to be affected. Regions, even when the country's level of federalism is high, are likely

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5. Galí, "Government Size"; Afonso and Furceri, "Government Size, Composition".

6. Eliminating a ministry does not usually imply removing all secretaries, sub-secretaries or other public bodies below the ministry rank. These are normally merged with other ministries or, on a few occasions, eliminated. In the Spanish administration, it is fairly easy to eliminate public bodies, but it is difficult to fire public servants. Therefore, while saving may often be notable, the effect of removing ministries on the overall spending is rather low.

to benefit from transfers from the central government. In bad economic times, regional governments have to reduce their budget and cope with the lower level of transfers from the central cabinet. This is clearly the case in Spain, as regional governments are normally relatively dependent on the State's fiscal transfers to the regions.[7] As the region's capacity to raise taxes or to change economic policies is relatively limited, regional public finances are more likely to be affected. Secondly, recession outbursts can trigger political debates over the responsibility of the economic crisis. In many countries, national governments use the regions as a scapegoat to justify the overall economic problems.[8]

Despite the prominence of the previous narrative in the public debate, we do not have strong empirical evidence that supports this claim. The only existing evidence comes from Verzichelli,[9] who found a negative relationship, namely that the cabinet expands during recessions. Indriðason and Bowler's work, however, does not include any economic measure as a control variable in their research. In fact, most of the academic literature dealing with the relationship between cabinet size and the state of the economy has primarily focused on the inverse relationship, that is, on the effect the size of the government has on different outcomes. For example, scholars have looked at how the magnitude of the cabinet influences the economic performance of both public institutions and the economy in general, showing that cabinet size is a good predictor of governments' budget variation or public deficits.[10]

Here we reverse the order of causality from the traditional approach and expect regional cabinet size to change according to the economic circumstances. Despite Verzichelli's findings, we expect a different logic for regional cabinets. In line with the theoretical argument developed before, we expect that regional cabinets will be more sensitive to GDP variations than national cabinets. More specifically, we hypothesize that economic recessions will decrease the size of regional cabinets.

> *H1: Increases (decreases) in GDP are associated with larger (smaller) cabinets.*

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7. Simon-Cosano, Lago-Peñas, and Vaquero "On the Political Determinants".

8. Muro, "When Do Countries Recentralize".

9. Verzichelli, "Portofolio".

10. Haan and Volkerink, "Fragmented Government"; Woo, "Economic, Political and Institutional".

2.2. Cabinet size, fragmentation and polarization

Parliamentary political systems are characterized by the influence of parliaments over cabinets. Parties need to be elected to parliament to be able to influence, not only the legislative process, but also the executive power. More fragmented and complex parliaments increase the hurdles for government formation, a complexity that has been a major topic of interest for political science scholars.[11]

In some parliamentary political systems, coalitions are not common and minority governments are sometimes an alternative.[12] Fragmented parliaments make the formation of single-party majority cabinets less likely. Even if the cabinet is formed by a single party, often this party does not have an absolute majority in the chamber, which encourages multilateral agreements between different political parties. In short, in parliamentary systems parties that hold executive power very often need to reach agreements with opposition parties. Spain is not an exception.[13]
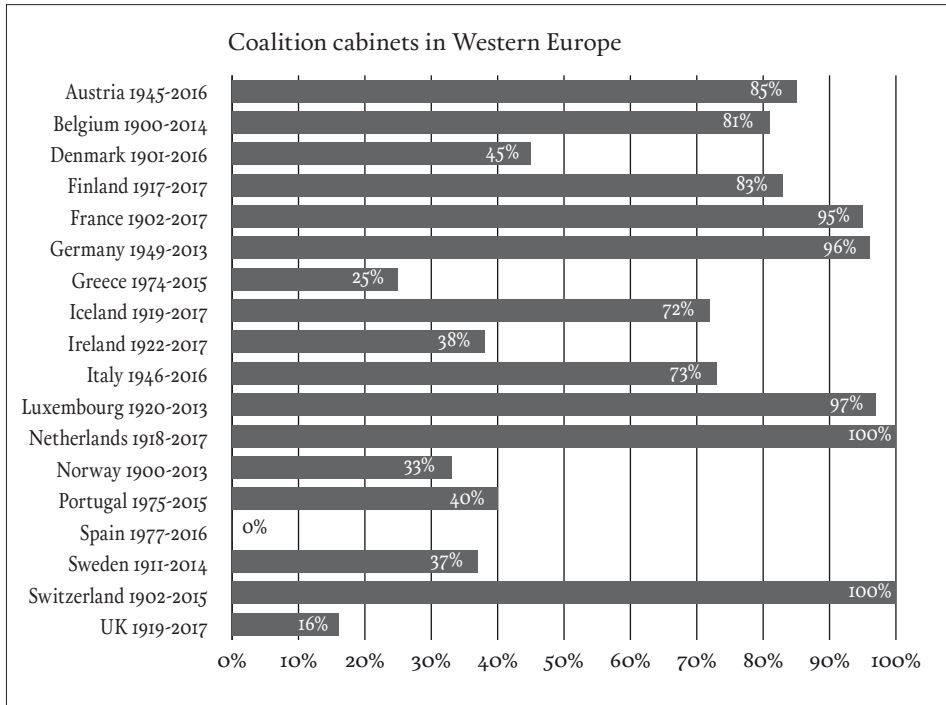
Figure 1 shows the percentage of cabinets for each Western European country that have relied on coalition agreements. The figure shows that coalitions are the most common governmental agreement. Single-party governments are more likely in places where the electoral system creates larger majorities (UK would be the paradigmatic case, but also Spain and Greece would fit) or where there is a large ideologically central party that makes alternative majorities unfeasible (as in Sweden or Norway).

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11. E.g. Budge and Laver, "Office Seeking"; Shepsle, "Positive Theory"; Laver and Shepsle, *Making and Breaking Governments*.

12. See Bergman, "Sweden", for the Swedish case.

13. Reniu, "*Gobiernos de coalición*".

Figure 1. Percentage of coalition cabinets in West European countries

Coalition cabinets in Western Europe

| Country	Percentage
Austria 1945-2016	85%
Belgium 1900-2014	81%
Denmark 1901-2016	45%
Finland 1917-2017	83%
France 1902-2017	95%
Germany 1949-2013	96%
Greece 1974-2015	25%
Iceland 1919-2017	72%
Ireland 1922-2017	38%
Italy 1946-2016	73%
Luxembourg 1920-2013	97%
Netherlands 1918-2017	100%
Norway 1900-2013	33%
Portugal 1975-2015	40%
Spain 1977-2016	0%
Sweden 1911-2014	37%
Switzerland 1902-2015	100%
UK 1919-2017	16%

Source: ParlGov (Döring and Manow 2016)

This pattern is not only true for national cabinets but also for subnational layers of government. Figure 2 shows the same graph as in Figure 1 applied to the Spanish Autonomous Communities (ACs). Although in Figure 2 the number of coalitions is not as high as in the previous graph, we should make two considerations. First, subnational coalitions are frequent even in a country where there has not been any coalition at the national level.[14] Second, ACs with a distinct regional party system — i.e. those where there are regional parties, beyond the two large Spanish parties (PSOE and PP) — tend to be governed by coalitions.

14. *Ibid.*

Figure 2. Coalitions in Spanish ACs (1979-2014)
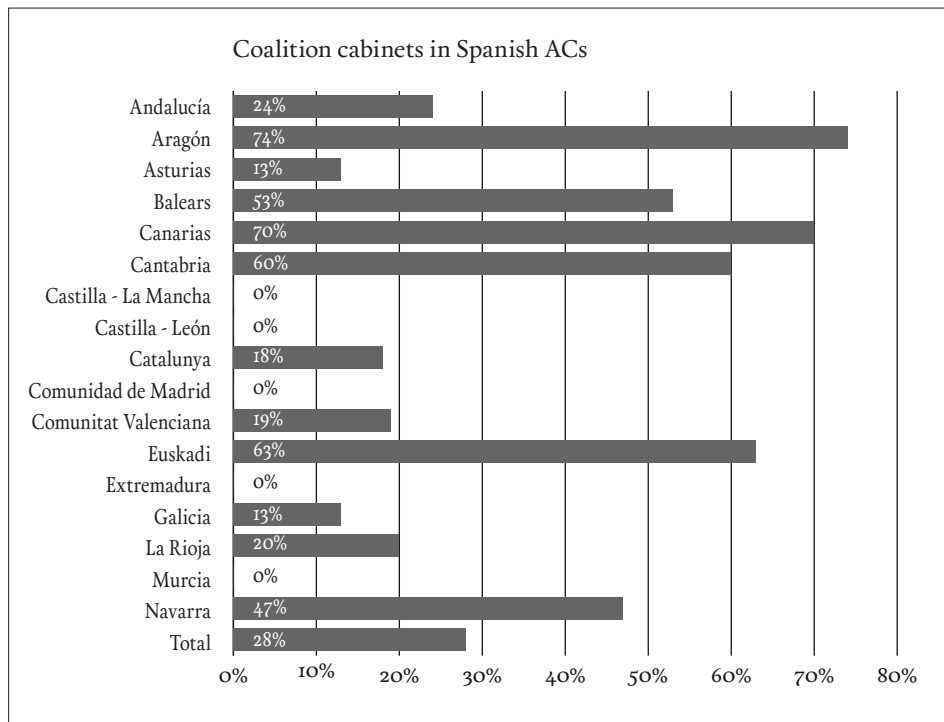
Source: Observatorio de los Gobiernos de Coalición (Reniu 2017)

We know from the existing literature that the number of parties in the cabinet is an important factor that explains portfolio distributions.[15] In addition, the number of parties in the legislative chamber affects stability, public policies or the representation of public preferences, among others.[16] Notwithstanding these valuable contributions, we still do not have a clear

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15. One of the most widespread political science *scientific laws* precisely relates to the number of parties in a coalition with the number of portfolios each party will get. According to Gamson's law — named after Gamson ("A Theory of Coalition Formation") — each party will be in charge of a proportional share of portfolios, according to the number of MPs each party contributes to the coalition. Thus, in a two party coalition, a party that doubles the number of MPs of its partner will also be in charge of twice the number of portfolios the smaller party controls.

16. See e.g. Persson and Tabellini, "Economic Effects"; Chhibber and Nooruddin, "Do Party Systems Count".

understanding of how the legislature's fragmentation and polarization affect (regional) cabinet size.

A priori we should expect that fragmented and/or polarized parliaments create stronger incentives for cabinets to highlight the role of the executive vis-à-vis the parliament. In a fragmented or polarized chamber, parties in control of the executive might use their preponderant position in order to strengthen their message and increase their public visibility. Hitherto, we only have anecdotal evidence that this process may be taking place: for instance, Verzichelli suggests that the size of the legislature and the ideological cohesiveness among cabinet members are significant factors associated with larger national cabinets.[17]

We also know from Maeda[18] that there is a relationship between the fragmentation of the opposition and the electoral fortunes of governing parties. Maeda's research shows that governing parties tend to obtain better electoral results when they face a fragmented opposition — i.e. when there are more parties not holding cabinet seats. The reason is because the division among the opposition parties makes it difficult for the opposition to have a unified discourse against the actions of the cabinet. The government, in turn, benefits from the disunion of the opposition. Accordingly, a higher opposition fragmentation may provide positive opportunities for cabinet parties. Among the political tools at their disposal, governing parties can try to make themselves visible over the opposition by creating a larger number of cabinet posts. If this is true, we should expect that, under a fragmented chamber, the cabinet has incentives to increase the number of ministries. By doing so, the government forces the opposition to focus on many different aspects, increasing the number of fronts to cover. This is likely to blur the critiques towards the government, as the message sent by the opposition becomes diverse and complex.

In fact, it is common that the number of portfolios becomes one of the political tools in the hands of the cabinet used to send a political message. For instance, the Spanish government under Zapatero created a ministry on equality. Also, in the regional arena, the Catalan pro-secessionist cabinet of Carles Puigdemont, created in 2015 a new portfolio on Foreign Affairs;

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17. Verzichelli, "Portfolio".
18. Maeda, "Divided We Fall".

although the attributions for a regional cabinet in the diplomatic field are very small, this was a way to signal that the Catalan cabinet wanted to act as a national-state cabinet. Creating new cabinet positions is a way the executive has to point out that a specific issue will be one of their priorities. When this happens, the opposition might be caught off guard. Opposition parties will need time to adapt and learn how to target more of these ministries.

However, we should not only take into account the number of opposition parties in the parliament, but also their ideology. If the opposition parties in Parliament were to be very similar to each other, their interests would also be very similar, as well as their critiques towards the government. In contrast, if there were many opposition parties and their ideologies also diverged, then it would be reasonable for the cabinet to diversify the number of cabinet posts. In other words, the expectation is that, in ideologically-fragmented chambers, the cabinet needs to confront a wide number of ideologically-diverse issues, which may bring about incentives to increase the number of ministerial posts.

Following the two previous theoretical expectations, we formulate the next two hypotheses as follows:

> *H2a: A larger effective number of opposition parties in parliament should increase the number of ministerial positions in the cabinet*

> *H2b: Greater levels of polarization among opposition parties in parliament should increase cabinet size*

2.3. The conditional role of the economy in different political scenarios

As we discussed in the previous sections, the first theoretical expectation is that economic crises have a negative effect on the size of the cabinet. In contrast, however, the number of parties or the polarization of the party system may provide incentives to increase the number of portfolios. These two theoretical expectations not only contradict each other, but, depending on the direction of the effect, they may also reinforce each other, or even

vanish when both are present. In other words, there might be a conditional effect such that the positive or the negative effect of both the economy and the number of parties is only present at high or low economic values.

During bad economic times, we do not know whether the economy logic (the size of the cabinet decreases) or the party logic (the cabinet's magnitude increases) will be more relevant. In fact, if both are present at the same time, it may very well be that the effects are cancelled out and we do not observe any variation in cabinet's sizes. Thus, we take an agnostic approach and we hypothesize that there will be an interactive effect between the state of the economy and the number (or ideology) of the parties in the opposition.

> H3a: The effect of the state of the economy on the size of the cabinet will be different across different numbers of political parties
>
> H3b: The effect of the state of the economy on the size of the cabinet will be different depending on the polarization of the opposition parties.

This is not the only conditional effect that can be hypothesized, as the state of the economy might not have the same effect on all types of cabinets. Several factors, including economic shocks, can lead to electoral volatility, early termination of cabinets and the call for snap elections.[19] However, when dealing with party cabinet duration, it is usually argued that one of the main factors leading to stable cabinets is the majority status of the cabinet.[20] Holding a majority is important for cabinets, as it affects their stability and their political calculus when deciding, for example, whether to increase or reduce the number of ministerial posts.

We expect economic conditions to influence cabinet decisions on the distribution of portfolios. Yet, we argue that this influence will depend on the cabinet majority status. While good economic conditions might lead the cabinet to expand the number of ministries — there is money available and it is a good way to publicize the executive's decisions —, the absence of a majority and a closer scrutiny by the opposition parties might counterbalance this effect. Thus, we expect the effect of the economic conditions to be clearer

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19. Remmer, "Political Impact".
20. King *et al.* "A Unified Model"; Laver, "Government Termination".

when the cabinet has fewer restraints from the Parliament. A cabinet less constrained by the political fights in parliament will have more freeway to arrange the cabinet at its will and will be more sensitive to variations in economic conditions.

> *H3c: Increases in GDP are associated with larger cabinet size only when the cabinet has a majority in parliament.*

3.   Data and Research Design

We employ a dataset that includes the size of the cabinet in all Spanish regions between 1979 and 2015. Cabinet size is defined as the number of ministers in the regional government, with or without a portfolio.[21] It is noteworthy that, following Indriðason and Kam,[22] cabinets included in the dataset are both postelectoral cabinets and any reshuffle made during the legislative term which involved more than two ministries or ministers.

To study the effects of the economic context and of party fragmentation and polarization on cabinet size we will exploit the regional variation on cabinet sizes in Spain. The Spanish subnational arena is a suitable case for our analysis, as ACs have enough variation in cabinet sizes both across regions and over time. Moreover, by moving away from a cross-country analysis we are also able to exclude some confounders present in cross-country analyses, as the same national institutional setting influences all Spanish regions equally. In other words, a subnational level analysis allows us to keep a larger number of institutional and contextual characteristics constant.

The Spanish Constitution was approved in 1978 but it was not until 1982-1983 that most of the regions passed a statute (or regional basic law) and held elections — except for the regional governments that complied with the 'fast-track' requirements plus Andalusia. According to all regional statutes, the regional prime minister has the legal authority to designate the regional ministers, who in turn may or may not necessarily be members of the regional chamber (only the Prime Minister needs to have a seat in the

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21. For more details see Vall-Prat and Rodon, "Decentralisation", 725.

22. Indriðason and Kam, "Cabinet Reshuffles", 329.

parliament). The regions have had a fair amount of flexibility to design the region's institutional and administrative structure, and have been legally able to change or adapt it according to their political preferences.[23]

During a certain period, in four ACs there was a legal limit of 10 ministerial posts (Comunitat Valenciana and Madrid) or 11 (Canary Islands and Asturias). Only the Canary Islands region still retains this legal requirement. There is no legal impediment in the remainder to creating as many ministerial positions as they deem necessary. In addition, in some of the new regional statutes approved in the 2000s, a 40% gender quota in the cabinet was introduced. Overall, Spanish ACs have developed asymmetrically regarding some of the variables of interest, which results in enough variation across regions and over time. Crucially, there is substantial variation in cabinet size, party systems and economic conditions across the regions.

There are major differences among regions regarding cabinet size. Most of the cabinets have between 9 and 14 ministers. Figure 3 plots the distribution of cabinet sizes across the different regions. The region of Catalonia leads the ranking, while Cantabria and La Rioja have the lowest mean cabinet size.

23. Keating and Wilson, "Renegotiating".

Figure 3. Variation of regional cabinet size by AC
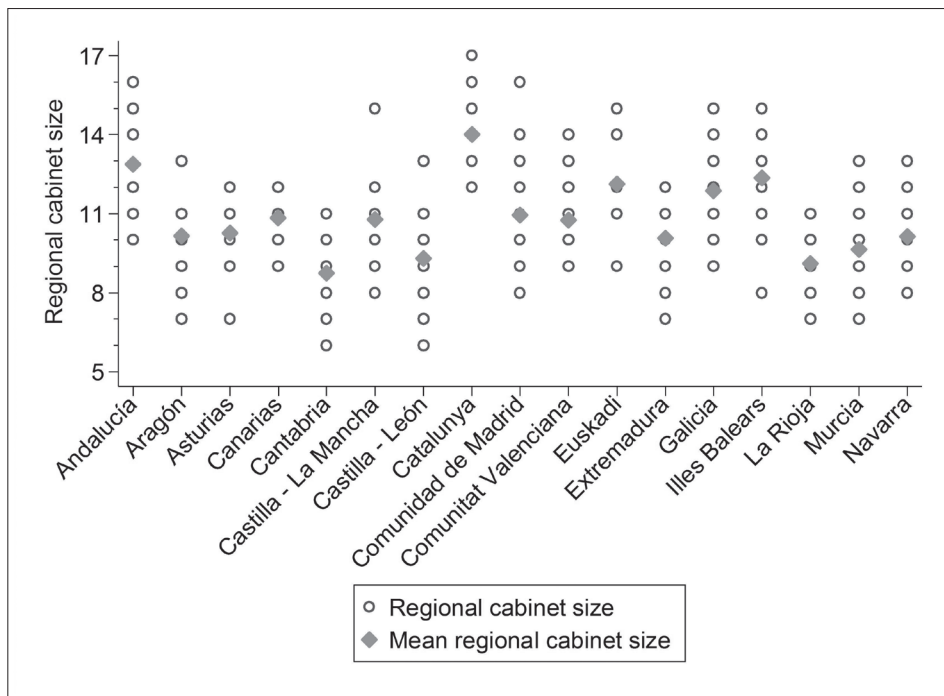
Source: Vall-Prat and Rodon (2017)

From a longitudinal perspective, we do not observe a trend towards larger cabinets. Since their inception in the 1980's, regional cabinets grew in magnitude first, but the evolution has not always been consistently positive. As Figure 4 shows, in the later period, at the time when the economic crises began, the magnitude of regional executives started to decrease.

Figure 4. Evolution of regional cabinet size by AC
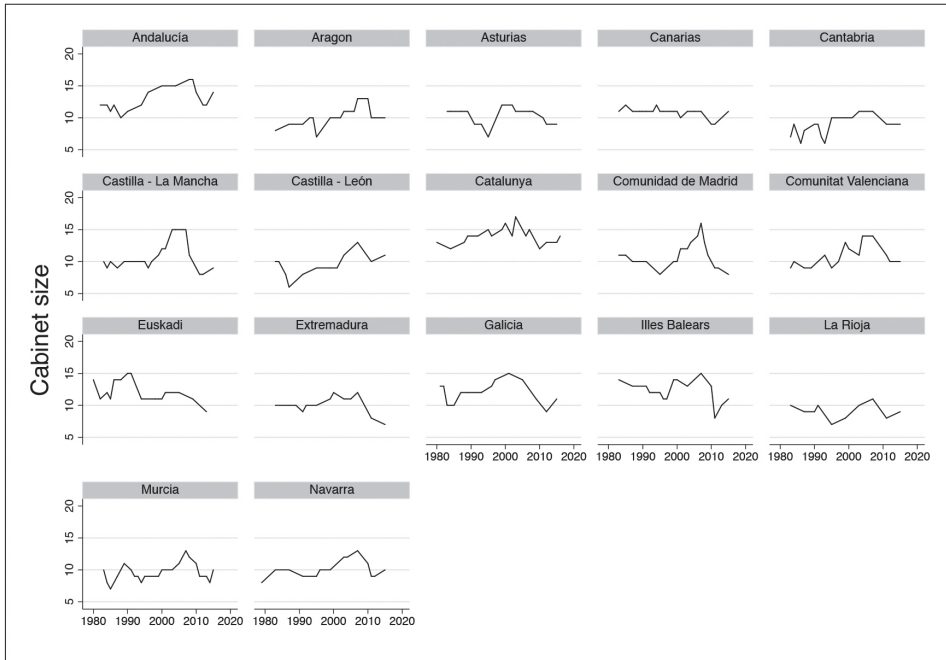

Source: Vall-Prat and Rodon (2017)

Following our theoretical expectations, our first explanatory variable aims at capturing the state of the regional economy. We employ the most usual macro indicator to evaluate the state of the economy, that is, the annual growth of the Gross Domestic Product (GDP).

Figure 5 shows the evolution of GDP growth between 1980 and 2015. During most of the period, GDP growth has been positive, although we can clearly identify three periods of recession or economic downturn. The first one occurred during the early 1980s, coinciding with the last effects of the oil crisis of the 1970s. The second was in the early 1990s and the third, the *Great Recession*, started in 2009. We also observe a period of consistent growth during the late nineties and at the beginning of the 2000's.

Most importantly for our analyses, we observe substantial variation in what concerns GDP growth across regions. This variation will eventually be employed to study the effect of the economy on regional cabinet sizes.

By observing the graphs, it becomes clear that not all the periods of economic crisis equally affected all ACs. For instance, in the Great Recession period (2009-2014) not all ACs had the same yearly reduction in their GDP. Also, among those that experienced negative growth, the number of years in which GDP decreased diverged substantially. For instance, if we consider Castilla-La Mancha and Catalonia, we can see that both regions experienced negative economic growth from 2008 onwards. However, while Castilla-La Mancha suffered a long recession period — GDP variation was negative from 2009 to 2014 —, Catalonia went back to positive growth much sooner than Castilla-La Mancha. Both the GDP variation throughout the whole period under scrutiny and the timing of the recovery from the recession differs substantially across regions.

**Figure 5. Evolution of the GDP growth in the AC's between 1980 and 2015**
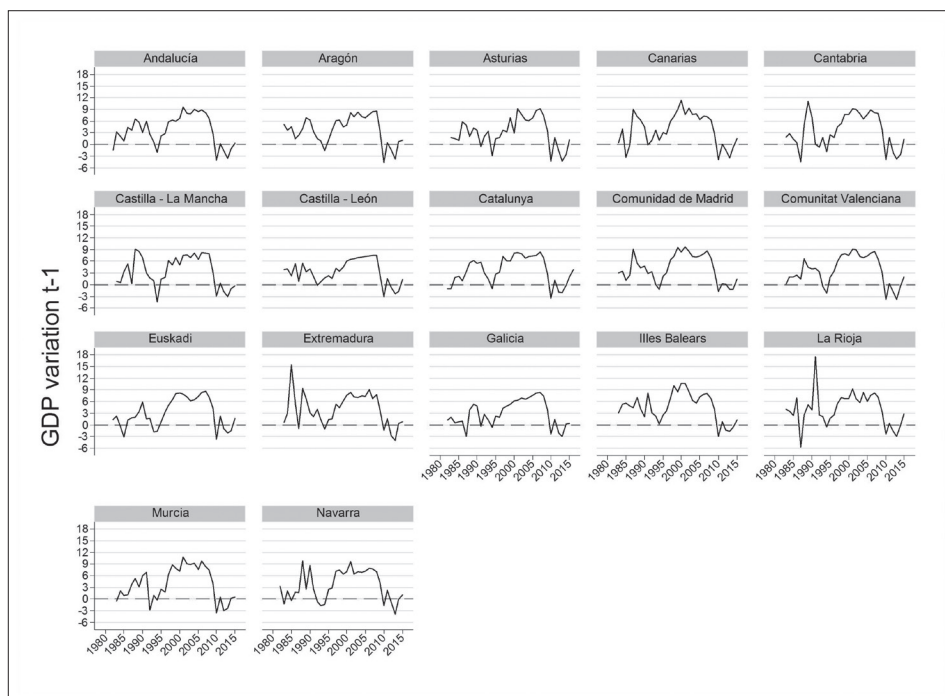
Source: Instituto Nacional de Estadística (INE)

As we pointed out in the theoretical part, expectations regarding the influence of economic conditions on cabinet size are not ungrounded. It has been common in recent years in the public sphere to justify the reduction in the number of ministerial positions. For instance, the president of Castilla-La Mancha, José María Barreda, reduced the cabinet in 2008 from 14 to 10 ministerial posts as

a way to "overcome the difficult economic situation".[24] Despite the difficulty finding qualitative evidence or statements that justify larger cabinets due to good economic conditions, we descriptively observe in the data that the larger cabinets mostly occurred during the years of the economic boom (2000s).

A simple correlation analysis shows a positive relationship between cabinet size and GDP growth (Figure 6). When we regress regional cabinet size on GDP growth we obtain a slope of 0.2, which means that a 5% increase in GDP will result in an increase of the cabinet size by one new member.

Figure 6. Relationship between regional cabinet size and regional GDP growth (t-1)
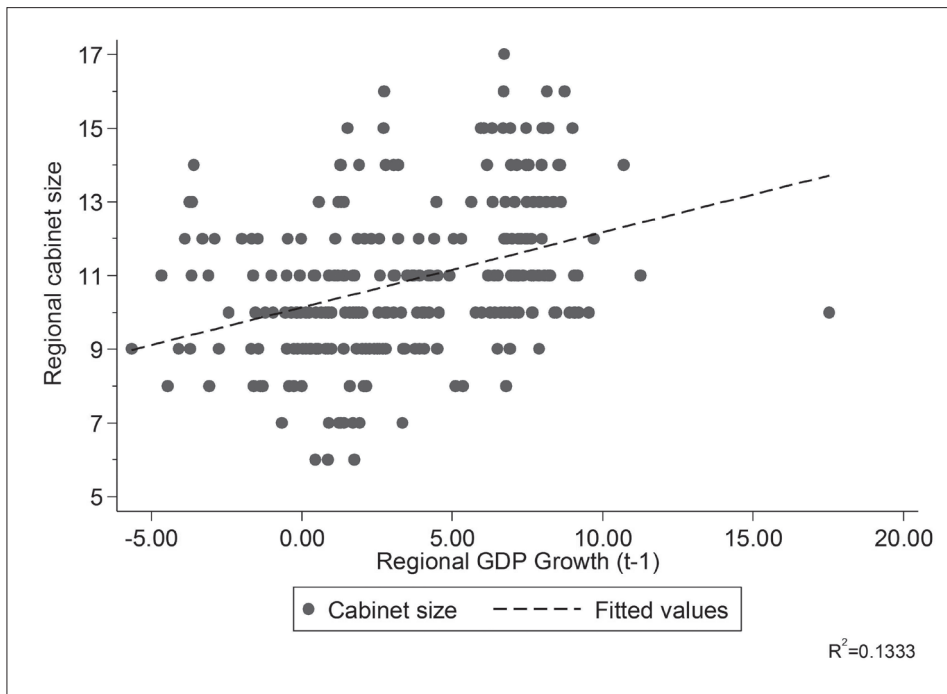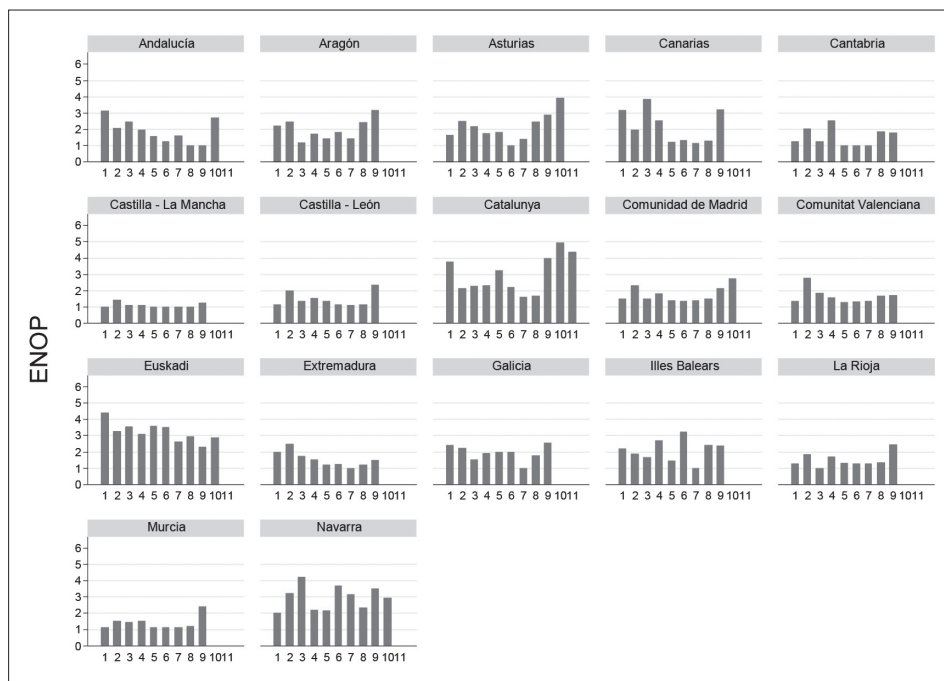

Source: Own elaboration

Our second theoretical expectation relates to the role played by the number of parties and their polarization levels. Accordingly, we first employ a measure of fragmentation of the opposition by computing the Number of Effective

24. Retrieved form the online newspaper *Público*, http://especiales.publico.es/hemero-teca/147384/barreda-elimina-cuatro-consejerias-del-gobierno-de-castilla-la-mancha-pa-ra-afrontar-la-crisis-economica

Opposition Parties (ENOP), based on Maeda.[25] The ENOP follows the same formula Laakso and Taagepera developed to calculate the Number of Effective Parliamentary Parties (ENPP), which calculates fragmentation for the whole party system.[26] In our case, however, we excluded the governing parties — parties that have ministerial posts — and applied the same calculation.

This indicator weighs the number of political parties by their strength (number of seats over the total number of opposition seats). Thus, if the opposition is composed of 3 parties with an equal share of seats, the ENOP will get a score of 3. An opposition composed of 3 parties, one of them getting half the opposition seats and the other 2 with one-quarter each would get a score of 2.67. By weighting the number of seats for each party, it is possible to visualize a more realistic view of the fragmentation. Parties holding just minor shares of seats are less influential. Figure 7 shows the evolution of ENOP in each AC and displays the differences among ACs.

Figure 7. ENOP per Autonomous Community and legislature

Source: Own elaboration

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25. Maeda, "Divided We Fall".

26. Laakso and Taagepera, "Effective Number".

Second, we also consider an indicator tackling the level of political polarization. A party system is completely polarized if, for instance, there are only two parties and each of them stands on completely opposite ideological sides. In a party system with two parties (ENPP=2), one extreme-left and one extreme-right, polarization would also be extreme. On the other hand, a two-party system with two parties, one centre-left and one centre-right, whose ideological differences are minimal, would be non-polarized. We follow the measure of polarization introduced by Dalton,[27] who considered both the ideology of political parties and their vote share.[28] However, we slightly modify Dalton's index by just considering those parties in the opposition and their seat share over the total number of opposition seats. We therefore employ the following formula to compute a Polarization Index for the Opposition (PIO):

$$PIO = \sqrt{\sum Op.\ seat\ share\ party_i \cdot \frac{(party_i\ ideology\ score - op.\ avg\ ideology)^2}{5}}$$

In order to apply the PIO to the Spanish case we have used survey data from the *Centro de Investigaciones Sociológicas* (CIS).[29] The CIS has regularly asked in preelectoral or postelectoral surveys a question capturing the perceived ideological position of political parties on a 0 to 10 scale, where 0 is extreme-left and 10 extreme-right. Therefore, each party's ideological position reflects people's perceived average ideological position on the left-right scale.[30]

Unfortunately, some postelectoral surveys did not include a party ideology question. Thus, for some legislatures we have relied on surveys carried out

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27. Dalton, "Quantity and Quality".

28. Although both indicators take vote share for each party into account correlation is very low (.102) and statistically insignificant.

29. Surveys are freely available at www.cis.es.

30. In only one election we took a 0 to 10 scale indicator on territorial preferences (0 meaning no decentralization should be granted to the AC and 10 meaning full autonomy, i.e. independence). This was the case for the Catalan elections in 2015, since these elections were considered to be a plebiscite regarding independence. The indicator on territorial preferences is not as frequently asked by the CIS and, in order to maintain comparability, we stick to the classical Left-Right ideology indicator although in some ACs and/or time-periods territorial preferences might have been more relevant than the classic left-right ideology to understand political competition in the regional arena.

during the legislative period. In a few cases (mainly in the early 80s), there were no data on parties' ideology for the entire legislature. We consider these cases as missing values. Another problematic issue has been with those ACs where very small parties were elected and the survey did not ask respondents to place them on the ideological scale. In the cases for which no data were available for all parties in parliament, the PIO was computed by assigning a centrist ideology (5 on a 0-10 scale) to these parties. Generally speaking, these parties represented a small minority of MPs in each regional parliament — ranging from 2-10%. Given the fact that parties for which no ideology value was available were small, this allocation should not distort the values of the overall PIO very much. Figure 8 displays the results of the PIO for each AC and legislative term. The PIO ranges from 0, when there was just one opposition party, to 6.42. As the figure shows, there is substantial variation in the level of polarization, both across regions and over time.

Figure 8. Polarization Index for the Opposition
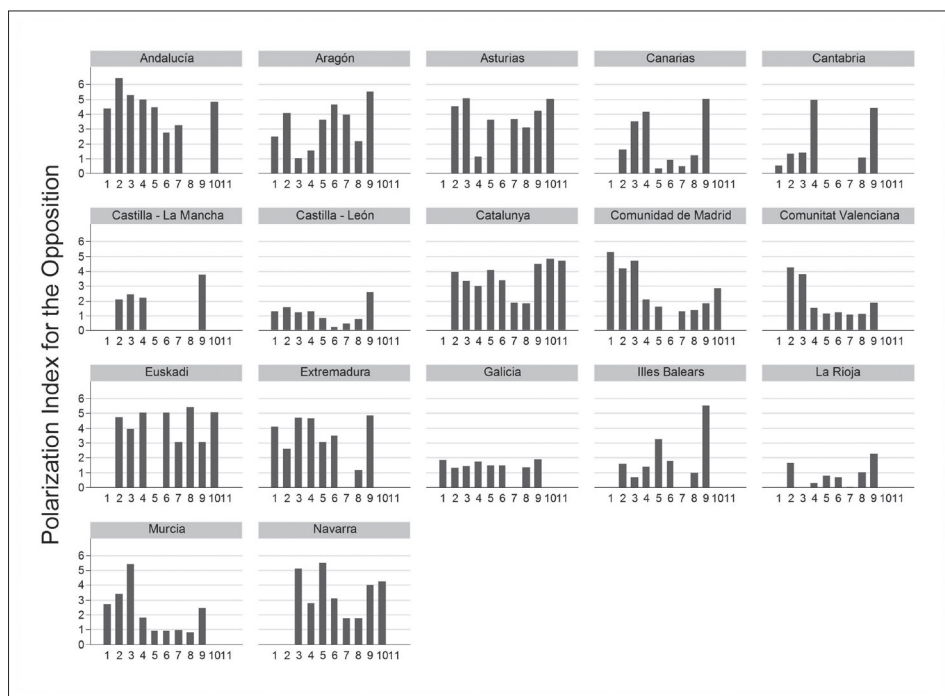
Source: Own elaboration

As we did before, we show the correlation between both indicators (ENOP and PIO) and regional cabinet size. The correlation between ENOP and GDP is positive, while the correlation between PIO and GDP is flat. Although the correlations are weaker than the correlation with GDP growth, there are reasons to believe, as we hypothesized, that all these factors influence the size of the cabinet. In fact, as we elaborated previously, it is also relevant to know what happens when both factors are considered at the same time, since the hypotheses for each term separately pull the effect towards different directions.

Figure 9. Relationship between regional cabinet size and the a) ENOP, and b) PIO
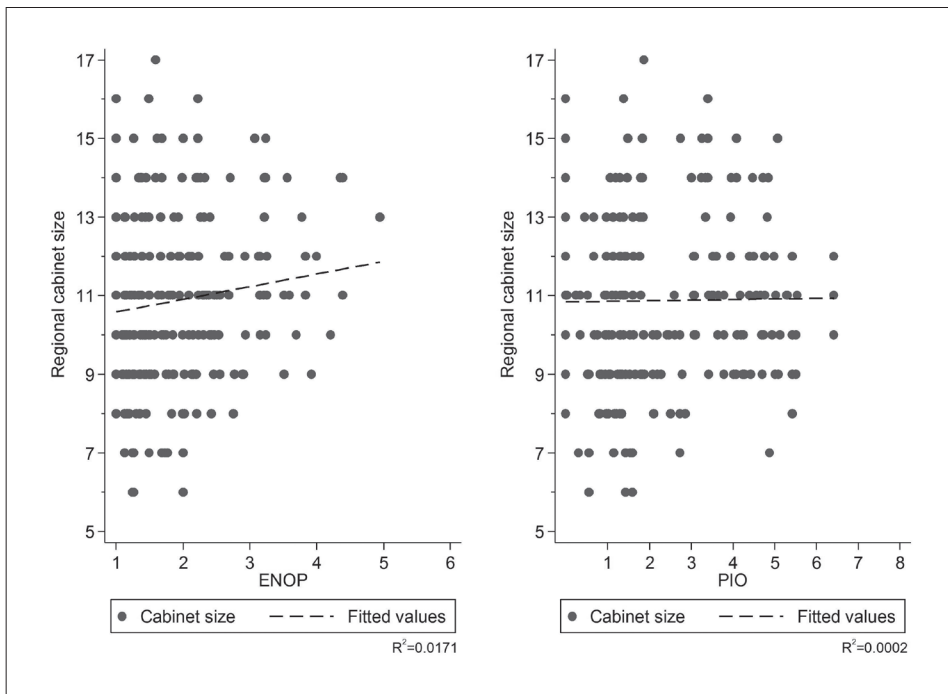
Source: Own elaboration

In order to test H3c we include the variable majority status in our analyses. The relevance of controlling for whether the government holds a majority of MPs in Parliament lies in the fact that majority cabinets can pass legislation on their own and they do not have to engage in an intense negotiation process with other parties. This measure, therefore, distinguishes majority cabinets from those that need to rely on parliamentary agreements with other parties.

Those cabinets that possess a majority of seats in Parliament will have more freedom to develop and execute policies. In other words, they will have more flexibility to design cabinet structures at their will and to their benefit.

Finally, following Verzichelli,[31] Indriðason and Bowler,[32] and Vall-Prat and Rodon[33] the empirical analysis also takes into account other possible confounders that can explain variation in regional cabinet size. Variables regarding parliamentary and executive characteristics are necessary if we want to make the comparison as neat as possible.

One the one hand, we consider the specific characteristics of the executive power in the AC. First, we consider the type of cabinet by including a variable indicating the number of parties in the cabinet. This allows us to distinguish between single-party cabinets and coalitions, but also among different types of coalitions, according to the number of party members of the cabinet. Second, we consider the ideology of the parties in cabinet by using the ideology (in the left-right dimension) of the party or parties in cabinet. For those cabinets in which there was more than one political party, the ideology of the cabinet corresponds to the ideology of each party weighted by the share of seats the party has in the coalition government. To compute parties' ideological position, we employ the CIS surveys. Third, the analyses include a variable that measures the absolute value of the mean ideology of the cabinet and the mean ideology of the opposition. This is a way to take into account how ideologically distant the government and the opposition are. Fourth, we control for the fact that some cabinets are formed during the legislative term using a dummy for reshuffled cabinets. Finally, we control for path dependence using the past tenure of the president of the AC by counting the number of years she has held this position.

On the other hand, we control for the characteristics of each AC that are unrelated to the parties in government. First, we include the population (standardized and presented in millions of inhabitants) of each AC for the year the cabinet was formed. Second, decentralization dynamics are taken

31. Verzichelli, "Portfolio".

32. Indriðason and Bowler, "Determinants".

33. Vall-Prat and Rodon, "Decentralisation".

into account following Vall-Prat and Rodon,[34] that is, by introducing variables regarding the transfer of competences in different areas and also the economic capacity of the regions by considering their budget. Finally, we include a variable controlling for the congruence of the regional and central cabinet following the categorization made by Ştefuriuc.[35]

To avoid autocorrelation in the data, it is important to include the lagged value of cabinet size in the analyses. Cabinets are not formed in a vacuum and there is a tendency to build over existing structures. In other words, it is important to control for previous values of cabinet size.

Summary statistics for the dependent, explanatory and control variables are presented in Table 1.

Table 1. Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Cabinet size	281	10.89	2.09	6.00	17.00
Δ GDP$_{t-1}$	276	3.54	3.72	-5.66	17.54
ENOP	281	1.93	0.85	1.00	4.95
PIO	265	2.41	1.74	0.00	6.42
Majority	281	0.67	0.47	0.00	1.00
# parties	281	1.37	0.66	1.00	4.00
L-R Ideology (Gov)	265	5.88	1.79	1.60	8.67
Ideology Gov-Op	265	3.05	1.10	0.01	6.04
Reshuffle	281	0.43	0.50	0.00	1.00
Years as PM	281	4.09	5.13	0.00	22.00
Population (sd)	277	2.07	0.62	0.32	3.43
Congruence	281	1.02	0.94	0.00	2.00
Economic decentralization	281	4.10	2.70	0.00	11.90
Welfare competences	281	5.96	1.35	0.00	7.70
State competences	281	3.94	1.38	0.00	6.08

34. *Ibid.*
35. Ştefuriuc, "Government Formation", *Government Formation.*

4. Results

The focus of this article is on the cabinets created in all 17 Spanish ACs during the period 1979, when the first cabinet was formed in Navarra, until 2015 when elections were held in several ACs — the last one taking place in Catalonia in September. The structure of the data, one observation per AC and year every time the cabinet changes, is a time-series cross-section. Data of this type imply a multiplicity of observations for the same entity (AC), and also multiple observations at the same time-point for several ACs. This structure requires a specific approach to ensure the analyses are not contaminated either across entities or over-time.

Accordingly, the methodology used here relies on conventional OLS regressions with legislature and regional fixed effects. The distribution of our dependent variables by region and over time displays an intra-class correlation coefficient of 0.40, meaning that 40% of the variance is due to differences across panels.

Table 2 shows the main results. It includes 7 different models that allow us to put to the test the different hypotheses previously presented. Models 1 and 2 present the effects of the three main explanatory variables. Models 3 and 4 include the two blocks of controls. Models 5 to 7 show the effects of the different interactions. All models incorporate legislature and AC fixed effects.

Table 2. Regression models using ENOP and PIO

	M1	M2	M3	M4	M5	M6	M7
Δ GDP$_{t\text{-}1}$	0.140***	0.148***	0.108***	0.118***	0.209***	0.175***	0.030
	(0.028)	(0.028)	(0.026)	(0.026)	(0.056)	(0.035)	(0.042)
ENOP		0.137	0.371*	0.508**	0.652***	0.478**	0.512**
		(0.185)	(0.175)	(0.180)	(0.195)	(0.178)	(0.177)
PIO		−0.021	−0.129	−0.091	−0.061	0.041	−0.058
		(0.076)	(0.088)	(0.092)	(0.093)	(0.105)	(0.091)
Majority			0.077	0.210	0.165	0.176	−0.221
			(0.197)	(0.241)	(0.241)	(0.239)	(0.290)
Cabinet Size (lag)			0.443***	0.435***	0.415***	0.405***	0.423***
			(0.056)	(0.057)	(0.057)	(0.057)	(0.056)
Δ GDP$_{t\text{-}1}$ x ENOP					−0.056+		
					(0.030)		

	M1	M2	M3	M4	M5	M6	M7
Δ GDP (t-1) x PIO						−0.032*	
						(0.013)	
Δ GDPt-1 x Majority							0.122**
							(0.047)
# parties			0.163	0.151	0.206	0.228	0.243
			(0.152)	(0.153)	(0.155)	(0.155)	(0.155)
L-R Ideology (Gov)			−0.187**	−0.221**	−0.207**	−0.203**	−0.227**
			(0.069)	(0.070)	(0.070)	(0.070)	(0.069)
Ideology Gov-Op			−0.057	0.054	0.092	0.079	0.074
			(0.141)	(0.150)	(0.151)	(0.149)	(0.149)
Reshuffle			−0.096	0.007	0.059	0.065	0.062
			(0.158)	(0.192)	(0.193)	(0.191)	(0.190)
Years as PM			0.041*	0.039*	0.042*	0.047**	0.044**
			(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
Population (sd)				0.195	0.171	0.192	0.159
				(0.152)	(0.151)	(0.150)	(0.150)
Congruence (no congruence ref. cat.)							
Partial congruence				0.078	0.073	0.089	0.061
				(0.298)	(0.296)	(0.294)	(0.294)
Full congruence				−0.386*	−0.379*	−0.362+	−0.352+
				(0.189)	(0.188)	(0.187)	(0.187)
Constant	10.01***	9.324***	5.234***	7.108**	6.495**	6.888**	7.189**
	(0.247)	(0.466)	(1.148)	(2.415)	(2.425)	(2.388)	(2.383)
Decentralization controls	No	No	No	Yes	Yes	Yes	Yes
AC FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Legislature FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	276	263	255	254	254	254	254
R^2	0.376	0.402	0.596	0.615	0.621	0.626	0.627

Standard errors in parentheses
+ $p<0.1$, * $p<0.05$, ** $p<0.01$, *** $p<0.001$

The results in Table 2 verify our previous expectations regarding the role of the economy on cabinet size (H1). Increases in GDP are linked to a larger number of ministerial positions across all specifications. The coefficients are positive and the statistical significance is high. These results confirm H1: the size of the cabinet is very sensitive to economic conditions. Cabinet-designers seem to be aware of the positive or negative image associated with larger or smaller cabinets during

bad economic times. Growths (or decreases) in GDP crucially shape the size of the executive. In substantive terms, an AC in a -2% GDP reduction will have one portfolio less than the same AC in a +3% GDP growth, *ceteris paribus*.

Following our hypotheses, in Models 5 to 7 we include the different interactions. The results indicate that economic conditions are moderated by other political factors. The coefficient and level of statistical significance for the GDP indicator change when the interactions are included. This indicates that the effect of the economy is conditional on cabinet size and other moderating factors. We will address the interactive effects of political and economic variables in more detail later.

It is interesting to note that our results contradict Verzichelli's[36] findings regarding the effect of economic conditions. Using a sample of Western European countries, his analyses indicated that "cabinets are smaller under favourable economic conditions than under unfavourable ones".[37] In his research the GDP growth variable has a negative coefficient and it is statistically significant. However, our results show a robust positive sign.

There are two possible explanations for these contradicting results. On one hand, it might be the case that, by comparing different countries, each one with diverse and peculiar institutional settings, different types (and timings) of economic shocks, etc. Verzichelli's model is affected by unobserved confounders. This explanation, nevertheless, is alleviated given the large amount of control variables he includes in his analyses. On the other hand, results might be contradicting each other because of the different dynamics that affect regional cabinets compared to national ones. As we hypothesized, regional cabinets tend to shrink when economic conditions deteriorate because they are more dependent on economic transfers and are subject to more political and economic constraints than national cabinets.[38] The results of Verzichelli and the findings presented here do not necessarily contradict each other. In our view, they appear to be complementary and point to different dynamics when forming cabinets at different layers of government. These different dynamics should

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36. Verzichelli, "Portfolio".

37. *Ibid.*, 259.

38. A preliminary test (not shown in this paper and available upon request) confirms that cabinet size in foral ACs is not influenced by economic conditions, while it is in the other ACs.

encourage future scholars to challenge existing findings taking into account how different factors interact with each other in different institutional arenas.

Next, we explore the effect of the parliamentary environment (H2) in which the cabinet has to navigate in order to succeed in its executive role. Recall that we are interested in two different indicators of political division. On the one hand, we included the ENOP (H2a) as an indicator of partisan fragmentation. On the other hand, we measured regional parliaments' ideological fragmentation represented by the Polarization Index for the Opposition (PIO).

The above results consistently show that a larger fragmentation of the opposition parties is associated with more ministerial positions. The effect is always positive and, generally, statistically significant. In substantive terms, an increase in two ENOP — *ceteris paribus* — is approximately associated with the creation of a new cabinet position. This is in line with our expectation that a larger competitiveness in the legislature — the place where all cabinets are born or die — has an effect on the magnitude of the cabinet. If the number of actors that control the cabinet increases, the number of new cabinet positions also increases.[39]

The decision of parties in cabinet to modify portfolios might rely on two different factors: voting perspectives and political/parliamentary audits. On the one hand, a larger supply of political parties is dangerous for the future electoral perspectives of the party (parties) in cabinet. If the executive misbehaves, the electorate has more viable parties to support. Also, by creating more posts, the government might be interested in making the supervision of the executive by the opposition increasingly difficult. Parties in cabinet try to reduce the amount of media coverage for the opposition by increasing

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39. One could also hypothesize that the effect of parliamentary fragmentation and polarization on cabinet size might go through the characteristics of the government being formed. In other words, the characteristics of the cabinet might mediate the effect of the legislature composition on the size of the cabinet. We explored this possibility by carrying out a mediation analysis (Tingley et al. 2014). Across different model specifications, the estimated average causal mediation effect (ACME) of government characteristics (number of parties, status of the government...) is not significant, while the average direct effect (ADE) of the effective number of opposition parties is always significant at the 99% level (As in Table 2, models with the level of polarization of the opposition show non-significant effects). These results essentially mean that the effect of the legislature characteristics have a direct impact on cabinet size and that this impact is not mediated by the characteristics of the government being formed.

the number of political figures in the executive, whose authority and formal prestige is granted by law. Also, since the number of political entrepreneurs and agents increases, there will be more competition among ministers for media coverage.[40] Increasing the cabinet allows the government to increase media awareness towards the executive vis-à-vis the legislative.

In a similar vein, we were interested in how ideologically fragmented parliaments affect regional cabinet size. According to the models in Table 2, polarization of the opposition parties — i.e. the greater divergence in policy stances — does not have a statistically significant impact on cabinet size. In fact, if anything, the results seem to contradict our expectations in H2b since the coefficients are all negative.

Thus, the analysis shows that cabinet size is only affected when the number of parties is greater, rather than when policy positions are more distant. Cabinet structures seem to react to the threat posed by other parties rather than disagreements over courses of action. This finding points to the idea that cabinet positions are used by the executive to counterbalance the parliamentary opposition, especially when the opposition is numerous, but not when the opposition is more diverse ideologically.

Notwithstanding the previous finding, as we explained before, we cannot consider economic and political conditions separately, since they are not independent from each other. We know that political competition is influenced by economic factors, and vice versa. There is a large literature on economic voting[41] and we know from Dassonneville and Hooghe[42] that higher economic growth leads to less electoral volatility. Thus, economic conditions are likely to influence political conditions. Also, we hypothesized that different political structures of competition can lead to different reactions when facing economic shocks. There are situations in which economic conditions and political competition should lead to different cabinet sizes. It is, therefore, relevant to study which of the different competing forces (if any) prevails.

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40. Indriðason and Kam, "Cabinet Reshuffles", in fact, show that agency loss is one of the main reasons Prime Ministers reshuffle their cabinets. It is logical to think that larger cabinets will have higher chances suffering from agency loss.

41. Lewis-Beck, *Economics and Elections*; Lewis-Beck and Stegmaier, "Economic Determinants".

42. Dassonneville and Hooghe, "Economic Indicators and Electoral Volatility".

In order to do this, Model 5 in Table 2 includes an interaction of GDP variation and ENOP. The effect of this interaction is shown in Figure 10. In the model, GDP variation and ENOP maintain their sign and statistical significance and the interactive term is negative and significant at the 90% level. This means that the effect of one variable is conditional on the values of the other variable.

Interestingly, the effect of economic conditions is moderated by the number of parties. A larger number of political parties in parliament makes cabinets less sensitive to economic conditions. According to the results, when the number of parties in the opposition is greater than 2.5, the effect of the economy loses its statistical significance. This result means that only when the political opposition is circumscribed to a low number of political parties, the size of the cabinet is positively associated with the economic conditions. In substantive terms, we see that in those ACs where political competition is more plural, an economic negative shock does not necessarily lead to smaller cabinets —provided the remaining cabinet characteristics remain constant—. In contrast, in ACs with less fragmentation, economic downturns lead to reductions in the number of ministers. Thus, we can confirm H3a.

Figure 10. Interactive effect of economic conditions and ENPP (Model 5)
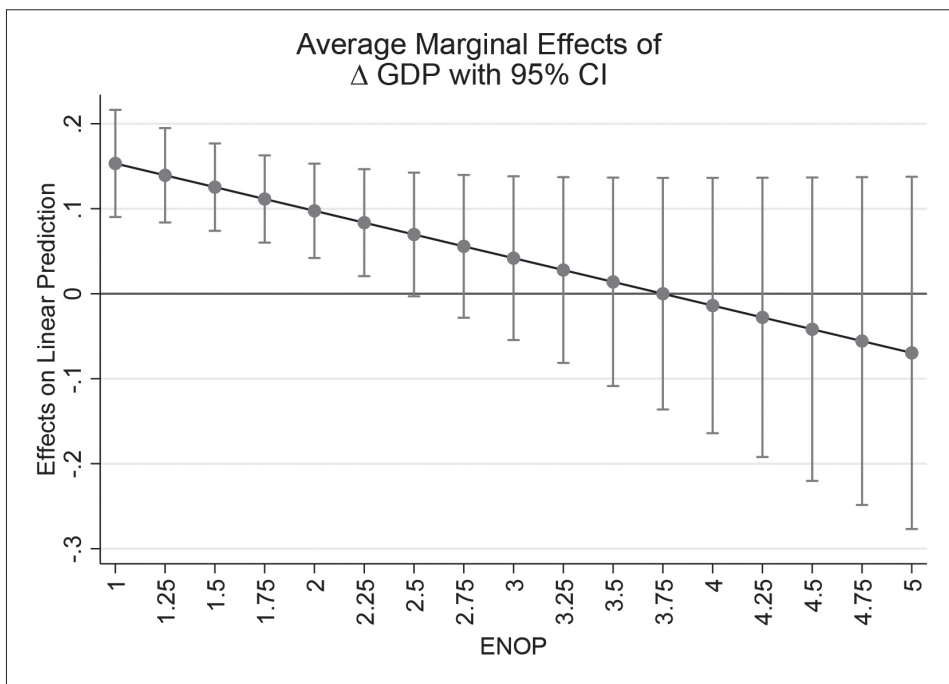
Source: Own elaboration

In model 6 we test H3b and analyse the interactive term between economic conditions and polarization. In this model, both indicators maintain their sign and significance and the interaction is negative (as it was in the GD-P*ENOP interaction) and statistically significant. Thus, the effect of the economy on cabinet size is moderated by polarization in the legislature. Figure 11 illustrates the effect. As in the case of the effective number of opposition parties, the effect of economic conditions on cabinet size is only significant when the opposition polarization is low. Thus, our results show that the effect of the economy only matters when polarization is low. Cabinets only increase the number of portfolios according to economic conditions when the opposition is less polarized, when polarization is high economic considerations lose relevance when structuring the cabinet. The results for H3a and H3b show that economic considerations are only influential when the political battles are smooth; when there are too many voices or just strongly discordant voices in the political scenario, increases or decreases in portfolios are not influenced by economic conditions.

Figure 11. Interactive effect of economic conditions and ENPP (Model 5)
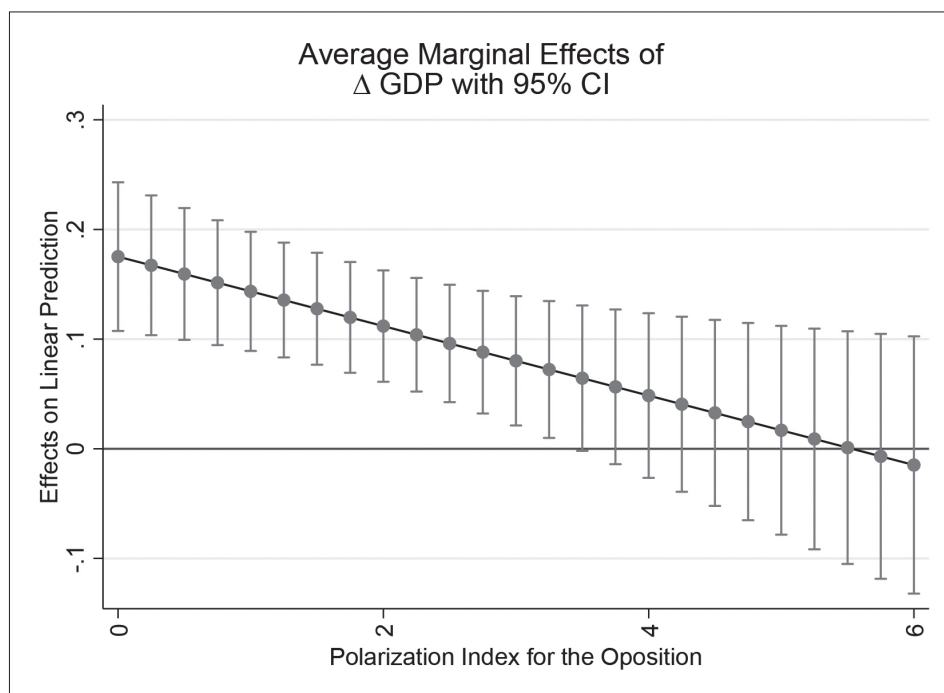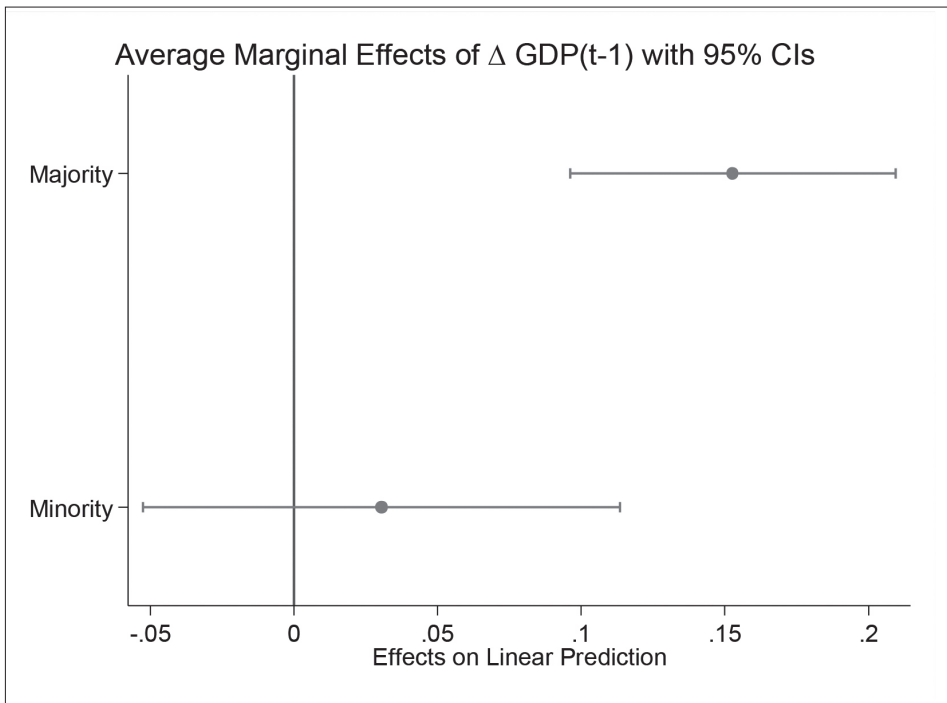

Source: Own elaboration

Finally, we hypothesized that the effect of the economy would be conditional on the majority status of the cabinet. Majority cabinets are not constrained by legislative politics since they have already secured a majority in parliament that grants them room for manoeuvre. It is only under minority scenarios that political competition will constrain the design of cabinet positions. Model 7 in Table 2 includes the interaction of interest. The coefficient of the interactive term is positive and statistically significant, which confirms our expectations.

In order to illustrate the relationship, Figure 12 plots the effect of GDP variations according to the majority status of the cabinet. The graph clearly shows that the effect of the economy on cabinet size is not statistically significant for those cabinets that hold a minority status. On the other hand, it is clearly positive and significant for those being backed by a majority in the parliament. This means that only for cabinets with a legislative majority, growth in GDP is associated to a larger number of cabinet positions.

Figure 12. Interaction between GDP variation and majority status of the cabinet (Model 7)

Source: Own elaboration

The fact that the proposed interactions show statistically significant results backs our intuition regarding the relationship between political and economic factors. As the interactions show, economic conditions influence an important decision such as the design of the cabinet structure. However, this influence is mainly in place when the executive is not constrained by political factors, such as the need to reach agreements in parliament or when it faces a lower number of opposition parties. Economy matters, but political factors can supersede economic considerations.

5.   Conclusions

While marginal in magnitude, the size of the cabinet sends a relevant symbolic message. During bad economic times, governments are as likely to implement cuts as to design several political strategies to counterbalance the negative effect of these measures. One of these strategies is to reduce the size of the cabinet. Departing from this common empirical pattern, we sought to contribute to the relationship between the state of the economy and the size of the executive. Conventional wisdom states that cabinet size shrinks when things turn sour, and increases when the economy is doing well. Yet, we have scarce empirical evidence to prove this relationship.

In addition, this article has also attempted to analyse the effect of the number of parties and polarization on cabinet size. As we argued before, both factors are hypothesized to increase the number of portfolios in the executive. Finally, we argued that the effect of the economy on the size of the cabinet is conditional on the number of parties, the level of polarization and whether the cabinet holds a majority status.

Results show several aspects. First, the state of the economy crucially affects the size of the cabinet. Second, fragmentation in the number of parties is also positively related to larger cabinets. Third, the level of polarization does not have a statistically significant effect. Fourth, political characteristics in the legislature seem to moderate the effect of the economy on the design of cabinet positions. Thus, the economy matters when the legislature is less fragmented and polarized and when the government holds a majority status.

The results of this article have an important empirical implication for the Spanish case. In recent years, the Spanish political system has evolved from

a bipartisan system to a truly multi-party system at the national level. The irruption of Podemos and Ciudadanos in the national political arena has implied a fractionalization of the national party system, which has also spilled over into the regional political arenas. This has come together with a higher fractionalization in regional political systems. According to the results presented here, this will make economic considerations less relevant when designing the structure of cabinet positions.

All in all, this article has shown the importance of contemplating the economic and political dynamics, and the interaction between both, if we want to understand how cabinets vary in size. Building on these insights, future research can further develop this approach and study how the interaction of economic and political conditions affects other aspects of the administration, such as spending or the amount of debt. In a similar vein, future studies can also delve deeper into how the interaction between economic conditions and the composition of the legislature affect coalition agreements both in their form and outcome.

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