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# Key Electoral Institutions and Rules Influencing Proportionality and Partisan Bias in Spanish Politics

**Summary:** The current paper focuses on the Spanish electoral rules governing political competition for the central “Congreso de los Diputados”. It is well-documented that the system as a whole has traditionally favoured one or the other of the two main political parties (PP and PSOE) at the expense of proportionality and the remaining political parties. This paper focuses on some key Spanish electoral rules and investigates how much the observed biases could be altered by introducing some alternative rules taken from the Swedish electoral system, *ceteris paribus*. Measures of disproportionality are made through the Loosemore-Hanby index and the Gallagher index. The electoral raw data used for our estimations comes from the 2011, 2015 and 2016 last three Spanish general elections. The basic contribution of the paper is an empirical one as it provides a new example that institutions matter for results.

**Keywords:** Institutions, Institutional changes, Spanish electoral rules, Adapted Swedish electoral rules, Proportionality, Partisan bias, Quantitative estimations.

**JEL:** C1, H0.

That institutional arrangements matter is now well-acknowledged among economic and political science scholars. Concerning political competition and electoral processes, there is also wide agreement that some of the existing electoral rules and procedures are particularly influential in the higher or lower proportionality and equity of each electoral system. The formula employed for converting votes into seats, the size of the districts, the number of representatives elected per constituency, the size of the representative body, the electoral threshold and the rules defining the ballot structure are examples of these relevant explanatory institutional arrangements.

Although the tension between implementing an electoral system with more or less proportionality exists in all countries, the issue is particularly relevant in those parliamentary democracies in which a majority of parliament indirectly elects the executive. In these settings, the above mentioned institutional arrangements could be even more relevant factors since a few pivotal seats may be decisive in reaching a majority. If the electoral rules of a country also generate recurrent positive and negative partisan bias upon the right and left blocks there is little doubt that the electoral system will be subject to permanent debate (J. Morgan Kousser 1996; Michael P. McDonald 2004; Eric J. Engstrom 2006). This is the case in Spain, where a quite

proportional system exists but some of its electoral rules exercise a counterbalance effect that tends to reduce proportionality by favouring the main big political groups in each district. Taking all this into account, we have decided to focus on some of the Spanish electoral rules and investigate the potential impact upon proportionality and partisan bias that might result from replacing them with alternative ones not requiring a constitutional reform to be implemented.

Therefore, the final purpose of this paper is that of estimating how much the share of seats that resulted from the 2011, 2015 and 2016 Spanish general elections is altered if we apply, all other things being equal, some electoral rules taken from the Swedish system instead of the Spanish rules currently in use. Does proportionality alter significantly when we implement such an estimate? What about the estimated impact of the new rules upon the partisan bias and the majority formed in the central parliament? Whatever the results we reach, however, our analysis should not be overstated. It is performed as a standard “comparative statics” exercise. That is, it is assumed that all agents behave under the new tested rules as they actually did under the electoral rules in effect. A more applied analysis would require taking into account that the behaviour and strategies of political actors, as well as those of voters, are not necessarily independent of the rules in use.

To accomplish the abovementioned research questions, the paper is organized as follows. In Section 1, some references to the related literature are made and the quantitative indexes we use introduced. In Section 2, we briefly focus on the key characteristics of the Spanish electoral system from which the abovementioned disproportionality and partisan bias impacts mainly emerge. In Section 3, we describe the basic Swedish alternative rules for converting votes into seats that will be used in our estimates. In Section 4, several estimates are provided and interpreted. The final section contains our conclusions.

## 1. Theoretical Background and Quantitative Indexes Employed

The shift from majoritarian systems to proportional representation systems was one of the most important changes in early advanced democracies during the 20<sup>th</sup> century. Proportional representation has continued its progress with successive waves of democratization, and majoritarian systems are increasingly a minority, as documented in Josep M. Colomer (2004).

The conventional theory for the proportional/majority rule divergence was first posed by Stein Rokkan (1970), and later expanded by Carlos Boix (1999). Given the threat that new parties (mostly socialists) posed to the old party system if they won the election under majoritarian rules, the old elites changed the system to proportional representation in order to minimize the political shock. In some countries, where either the socialists did not mobilize a strong electoral support or where the old parties were able to coordinate a single political front against them, the majoritarian system survived. This dominant view has been partially challenged on different accounts, for instance by Alberto Penadés (2008), pointing out that the socialist parties also played a role in the choice of systems, and that they preferred proportional systems in environments of weak links to the workers' unions and strong risk of communist divergence.

That current electoral institutions, as well as some alternative ones if reforms were implemented, are not neutral is a statement that can be easily found in the literature (Kenneth Benoit 2000). This is a valid statement concerning the conversion formula as well as regarding the ballot structure (Augusti Bosch and Lluís Orriols 2014). This also concerns the impact different electoral rules may exercise upon the formation or not of pre-electoral coalitions (Sona Nadenichek Golder 2006; Jae-Jae Spoon and Karleen Jones West 2015), or the influence different rules may exercise on the number of political parties that enter a legislature, to mention but a few areas of research of this literature.

Matthew M. Singer and Laura B. Stephenson (2009) and Jeffrey A. Taylor, Paul S. Herrnson, and James M. Curry (2018) are also examples of these contributions as they focus on how the district magnitude may influence the number of parties that pass the threshold and enter the legislature as well as the behaviour of political actors. Rein Taagepera (2002) investigates the impacts of legal thresholds showing that the effect of thresholds can be stronger than that of low district magnitudes in some cases. Royce Carroll, Gary W. Cox, and Mónica Pachón (2006), John M. Carey (2007, 2009) and Gonzalo Caballero (2011) stress that the rules characterizing party-centered electoral systems with closed ballots, as compared with those of candidate-centred ones, tend to generate strong-party legislatures with party leaders exercising a strict control over the behaviour of their political groups and, therefore, over the policies adopted.

All these are also influential electoral rules in Spain, no doubt. However, as Pranab Bardhan (2005) and Andrew Tylecote (2016) themselves question, the key issue is not that institutions matter but “which ones are so in each collective decision making situation and how much”. It seems also true that answering these types of more specific questions is not an easy research task if a wide consensus among scholars must be reached.

Specific predictions for real countries in concrete situations often fail because many analyses are based on too strict assumptions about the capacity of political actors to interpret the incentives provided by current electoral rules and act in accordance (Audrey André, Sam Depauw, and Shane Martin 2016). On other occasions, when the influence of a specific electoral rule is empirically investigated, the problem stems from the usual research strategy most authors employ to compare electoral outcomes across countries that have different versions of the said specific rule being tested. This necessarily confronts a serious problem as one can never be sure whether the observed differences may be due to the explanatory variable being considered or to some other correlated factors. Although the effects of these other potential factors may be controlled through a multivariate estimation, one can never be sure about whether all the relevant exogenous variables have been taken into account.

Alternatively, some other authors try to estimate these different impacts of alternative rules by comparing results of two real electoral processes held in the same country when different rules are employed or before and after an electoral reform has taken place (Dafydd Fell 2013; Adrián Lucardi 2017). This reduces the above mentioned risk. Still, it is difficult to rule out the possibility that other relevant factors may also be experiencing changes at the same time. For example, the level of competition among the existing political parties may be changing (increased) if a new relevant party

gets formed and successfully enters the competition, forcing others to relocate and alter their policy positions and strategies (Tarik Abou-Chadi and Matthias Orłowski 2016). Or some changes may be occurring internationally that attract the attention of insiders that try to imitate these changes if they are favourably perceived (Damien Bol, Jean-Benoit Pilet, and Pedro Riera 2015; Tobias Böhmelt et al. 2016).

All these difficulties clearly show that collective affairs by humans are not predictable as if they were the result of mechanistic reactions to ex-ante known factors by the scholars. In this paper we do not attempt to make any prediction at all, not to build any explanatory hypothesis. As we are interested in depicting the potential impact that might have occurred if some alternative rules had been in effect at past electoral processes in Spain, our analysis can be best understood as a standard “comparative statics” exercise under the usual, and very relevant, *ceteris paribus* assumption (Paul A. Samuelson 1941; Kevin M. Currier 2000; A. Allan Schmid 2001). Our main contribution will be that of transforming the usual qualitative nature of these comparative exercises into a quantitative one. Of course, in a scenario of an actual reform, several other variables not considered in our exercise would surely be altered too (Bosch 2014). Changes in behaviour and strategies of voters and politicians are an example of these changes (Taylor et al. 2018), as many authors have stressed too by referring to the psychological impacts of electoral rules and rule changing in the traditions of Maurice Duverger (1954) and Cox (1997, 1999a, b).

For estimating the potential impact upon proportionality that might have occurred if some electoral rules had been different, we are going to use the Loosemore-Hanby index and the Gallagher index shown in Equations (1) and (2), respectively. These two indices measure disproportionality in somewhat different ways. In both cases, the ultimate aim is to estimate the discrepancy’s value between the distribution of the various votes percentages obtained by the parties and the distribution of seats percentages that result from a specific electoral system of rules “s”. The  $p_i$  variable is the percentage of votes obtained by the  $i$ -th party in the election. The  $e_i(s)$  variable is the percentage of seats obtained by the  $i$ -th party as a result of applying the electoral system “s”. Finally,  $k$  is the number of political parties considered. Definitions of both indexes can be seen in Equations (1) and (2). As usual, when the discrepancy measure is zero this means perfect correspondence between the resulting share of seats and the real share of voters.

**Equation (1):** Loosemore-Hanby index:

$$\text{LH.Index} = \frac{1}{2} \sum_{i=1}^k p_i - e_i(s) \quad (1)$$

**Equation (2):** Gallagher index or least squares index:

$$\text{LS.Index} = \sqrt{\frac{1}{2} \sum_{i=1}^k (p_i - e_i(s))^2} \quad (2)$$

For comparatively estimating the partisan biases generated by the current Spanish electoral rules and the biases that might result from the new Swedish adapted ones, we will apply the same procedure employed by José Ramón Montero Gilbert and Riera (2009a) for the 1977 to 2008 Spanish general elections (see. e.g., Table 4 in their

paper). That is, we are going to group the competing political parties and coalitions into the traditional left and right segments of the political spectrum, excluding those parties with an ambiguous public position on this aspect. The resulting bias for each right/left block according to the different electoral rules scenarios considered will be estimated as the addition of all differences (positive or negative) between seats sharing percentages and votes sharing percentages in each district. The higher the positive difference the bigger the positive bias each (right or left) block gets. Conversely, the higher the negative difference the bigger the negative bias. Our ultimate purpose is to estimate how the new rules might affect these positive and negative biases of each block under the assumptions of our comparative statics exercise which, it must be emphasized once more, is not intended to obtain predictions in a real case situation after an electoral reform is made.

## 2. The Key Electoral Rules Influencing Proportionality and Partisan Bias in Spain

The Spanish electoral system is often classified as a proportional system (Francesc Pallarés and Michael Keating 2003) though some of its electoral rules exercise a counterbalance effect that tends to reduce proportionality by favouring the main big political groups in each district. This non-proportionality bias is also detected when we compare the results traditionally obtained by small state-wide parties with those obtained by nationalist parties that only present candidates at one region-state and not in all regions-states of Spain.

In fact, there is the 1978 Spanish Constitution itself where an explicit mention to the “proportionality principle” appears on several occasions. Particularly, article 68.2 states that seats must be assigned among constituencies in proportion to their population, whereas article 68.3 states that in each district the assignment of seats should be based on criteria of proportional representation. Moreover, article 69.6 also indicates that for the election of those senators that each regional parliament can propose/choose, an adequate proportional representation must be ensured. Article 78.1 insists on the idea of proportionality when setting the Standing Committee of the Central Congress and in article 152.1 it is mentioned, referring to the organs of the regions-states (CC.AA.), that “... the political organization of the region-state will be based on a Legislative Assembly elected by universal suffrage under a system of proportional representation that also ensures representation of the various villages-areas of the territory ...”.

However, besides all these constitutional declarations in favour of the proportionality principle, the subsequent *Organic Law 5/1985 of 19 June on the General Electoral System* (LOFCA) did not in fact establish such a proportional electoral system as one would expect, mainly due to the fact that: (a) the provinces were finally chosen as districts as required also in the Constitution; (b) that a threshold rule was established; (c) that the d’Hondt rule was adopted for allocating seats in each district in all electoral competition processes at central, regional-state and local levels of government.

Moreover, it was through the said LOREG that several other key electoral specifications for the research purpose at hand were settled according to constitutional dictates. Regarding the composition of the Central Parliament, the LOREG also defined several other key aspects. In articles 162 and 163 of this Organic Law, the number of Congresspersons was settled at 350 (the Constitution establishes a maximum of 400) and an initial number of two seats were also assigned to each province, except for Ceuta and Melilla where only one was allocated, following the constitutional specifications. Concerning the remaining 248 seats, the LOREG establishes that they must be allocated proportionally to the legal population in each province, using the so-called Hamilton rule or Vinton rule. This law also establishes an electoral threshold or barrier of 3% of valid votes. And the d'Hondt rule is the mechanism finally chosen for allocating seats in each district among the political parties or coalitions that pass the above mentioned 3% barrier.

Regarding the Hamilton (or Vinton) method, popularized by Alexander Hamilton (the first US treasury secretary and assistant to George Washington), it must be briefly stated for our purpose here that it serves to distribute the available seats among the districts according to, as much as possible, their population quota. Specifically, as settled in Spanish legislation (BOE, 1985), the method comprises the following steps: (i) by dividing the legal population of all provinces between the number of deputies or seats to be distributed we obtain the so-called sharing quota; (ii) then, by dividing the legal population of each province by the population quota we get the number of deputies of each district according to whole numbers, without decimal; (iii) then, the remaining seats are distributed by assigning one to each of the provinces whose quota, obtained under the rules of the preceding paragraph, has a bigger decimal fraction.

However, Hamilton's rule presents a major drawback, known as the paradox of Alabama, which is inherent to all methods of allocation based on natural quotas (Michel L. Balinski and H. Peyton Young 2001). Because of the paradox of Alabama this method was abandoned in US in 1911, after having been in force since 1852 (Michael G. Neubauer and Joel Zeitlin 2003). Currently, the method used in US is that of equal proportions or Huntington-Hill, whose details, as well as those of some alternatives such as Jefferson or Webster, can be consulted in Balinski and Young (2001).

Concerning the d'Hondt rule, popularized by Victor d'Hondt, although invented by Thomas Jefferson nearly a century ago, we must briefly acknowledge that this is a method that tends to favour the major parties in each district to the detriment of the smaller ones (José M. Pavía, Belén García-Cárceles, and Elena Badal 2016) and has a significant tendency to produce majorities (Arend Lijphart 1994, 2003, 2012). This allocation algorithm is slightly different from the one that is used in Sweden and will be explained in Section 3 of the paper. As is known, the d'Hondt rule requires elaborating a table with a row (or column) for each party or coalition that passes the threshold and the same number of columns (rows) as seats are available for distribution. The cells are then completed with the result obtained by dividing the number of votes gained by each party by the serial 1, 2, 3, etc. up to the number of seats available, which coincide with the number of columns. Finally, the seats are assigned sequentially to the parties that have the highest division ratio, so that whenever a party receives one seat the division ratio used gets cancelled.

### 3. The Swedish Electoral Rules We Focus on

Regarding some alternative electoral rules that might increase proportionality in Spain, several proposals have been made over recent decades. The problem with them comes not just from their lack of neutrality regarding any trade-off impact upon representation and stability but also from the fact that most of them require a constitutional reform to be implemented, which in Spain is a very complicated institutional process. For accomplishing such a reform, the parliament who approves it must be dissolved and the new elected parliament must approve the reform again with similarly inclusive majorities (Colomer 2003; Penadés and Pavía 2016).

Could a change of such rules be implemented without a constitutional reform? If this change received the necessary acceptance (Lidia Nunez and Kristof T. E. Jacobs 2016) its chances to succeed would increase. Although several alternatives could be considered, we have decided to focus on the Swedish electoral system as it is a well-known proportional system containing several rules that could be implanted in Spain without reforming the Constitution, just through a reform of the LOREG (Organic Law 5/1985 of 19 June on the General Electoral System).

Therefore, if we focus now to the Swedish electoral system it must first be stated that the Swedish Parliament consists of 349 deputies (*riksdagsledamöter*) who are elected every four years. For this election, the country is divided into 29 constituencies. Of the 349 deputies, 310 seats (permanent seats) are *ex-ante* allocated by law among the districts in proportion to the number of electors in each constituency. The remaining 39 seats (adjustment seats) are distributed among the constituencies depending on the votes each party obtains upon the rules and procedures explained below.

As in Spain, the Swedish electoral system includes a threshold or barrier to exclude minority options. To participate in the allocation of permanent seats, political parties must obtain at least 4% of the total votes in the country. Those who do not reach that percentage may still participate in the distribution of permanent seats in those constituencies where their share of valid votes exceeds 12% (Valmyndigheten 2006).

With regards to the allocation of seats, the Swedish system proceeds in two stages. First, after elections, for those parties that gain over 4% of the national vote, or gain over 12% in one or more constituencies, the permanent seats of each constituency are allocated by using the so-called modified Sainte-Laguë method. Basically, this method is similar to the above mentioned d'Hondt rule although instead of using the 1, 2, 3, 4 etc. series it uses 1.4, 3, 5, 7 etc. as dividers. This change entails more proportional allocations in districts of medium size.

In a second stage, the Swedish rules have the explicit purpose of compensating those political parties that obtain a lower share in permanent seats than the number they might have obtained if only a national district existed and the abovementioned modified Sainte-Laguë allocation formula had been used. Therefore, the purpose is to try to increase the final proportionality between votes and seats. So, the rules require estimating a difference ( $A_j$ ) between the *estimated* number of permanent seats under a pure national proportional assignment for each party ( $N_j$ ) and the real number of permanent seats obtained ( $P_j$ ).

If this difference ( $A_j = N_j - P_j$ ) is positive for a political party then it must be compensated for by allocating this party some extra adjustment seats from the 39

available. This must be done by a sequential allocation process, starting with the party whose remaining quotient is greater in whatever constituency. A party cannot get more adjustment seats as to surpass the total (permanent + adjustment) seats than the number it could obtain under a national assignment. By contrast, if any political party obtains a negative difference ( $A_j = N_j - P_j$ ) it does not lose any permanent seat but gets excluded from the second round together with the amount of popular votes it received.

For this second and sequential process of seat allocation, only the Sainte-Laguë table quotients that were not used for the allocation of permanent seats are now considered, and only for the case of those political parties with a positive  $A_j$  difference, as mentioned. That is, only those who have a right to take part in the share of adjustment seats are included. Then, as usual, the sequential process means that seats are allocated one by one to those parties that have the right to participate whose *not-used quotient coefficient* in the Sainte-Laguë table is higher under one more constraint: the party must have not yet obtained the maximum number of adjustment seats as to make its  $A_j$  difference equal to zero. Once a divide coefficient is used it gets cancelled.

As we will see, these basic Swedish rules represent an imaginative solution that might help to increase proportionality in Spain if implemented. These rules conform to a system that takes into account the *estimated* national proportional results in order to reduce the differences between the share of votes and the final share of seats that political parties obtain. However, the procedure used for such compensation is not an arbitrary one but one dependent on the comparative results obtained by political parties in each district, or in each province in the case of Spain. We will also see that the new rules might help to reduce the positive and negative partisan biases generated by the current Spanish electoral rules.

#### 4. The New Rules and the Estimations Regarding Proportionality and Partisan Bias

In order to check whether the above mentioned basic Swedish rules might help to increase proportionality and reduce the current partisan bias observed in past electoral processes (Penadés 1999; Ignacio Lago Peñas and Montero Gilbert 2005; Montero Gilbert and Riera 2009b) we need to decide which of these rules are going to be used in our estimations and how they can be adapted in our case.

First of all, we need to choose how many extra adjustment seats are going to be added to the Spanish central parliament. As the constitution allows for a maximum of 400 seats, by a simple reform of the LOREG up to 50 more adjustment seats could be added to the current 350 ones, which could therefore be defined as permanent seats. Of course, less than 50 extra seats could be added.

A second change that also requires reforming the LOREG might consist in not imposing any minimum national barrier, in addition to the 3% district threshold that is now in place according to the LOREG. All the remaining Spanish constitutional principles and LOREG rules and procedures could be maintained because instead of using the modified Sainte-Laguë rule that characterizes the Swedish system we could keep the d'Hondt rule that is used in Spain, and this is how we have proceeded in our research exercise. It should be noted that if we had used the Sainte-Laguë rule, instead



of the d'Hondt one, a similar result would have been reached, though exacerbated for scenarios without barriers<sup>1</sup>.

As it has a relevant impact upon proportionality, we are going to also use the Swedish rule by which if any party gets a negative  $A_j$  difference in the first round it must be excluded in the second round together with the popular votes it obtained and all calculations recalculated for each party or coalition under the new scenario.

**Table 1** 2011 Spanish General Elections: Sharing Percentages of Seats under Different Rules<sup>a</sup>

Party	Actual % of votes <sup>b</sup>	(350) Seats on current system	(400) Seats on current system <sup>c</sup>	(400) Seats on Swedish system <sup>d</sup>		(400) Seats based on current system but national district <sup>e</sup>	
				No barrier	With barrier	No barrier	With barrier
				PP	45.25	53.14	53.25
PSOE	29.16	31.43	31.25	29.50	30.50	30.00	32.25
IU-LV	7.02	3.14	3.25	7.00	7.25	7.25	7.75
UPyD	4.76	1.43	1.25	4.75	5.00	4.75	5.25
CIU	4.23	4.57	5.00	4.25	4.25	4.25	4.50
AMAIUR	1.39	2.00	1.75	1.75	1.75	1.25	0.00
EAJ-PNV	1.35	1.43	1.50	1.25	1.25	1.25	0.00
COMPROMIS-Q+EQUO	1.07	0.29	0.25	1.25	0.25	1.25	0.00
ESQUERRA	1.42	0.86	0.75	1.00	0.75	1.00	0.00
BNG	0.77	0.57	0.50	0.75	0.50	0.75	0.00
CC-NC-PNC	0.60	0.57	0.75	0.50	0.50	0.50	0.00
PACMA	0.43	0.00	0.00	0.25	0.00	0.25	0.00
FAC	0.41	0.29	0.25	0.25	0.25	0.25	0.00
Eb	0.41	0.00	0.00	0.25	0.00	0.25	0.00
PA	0.32	0.00	0.00	0.25	0.00	0.25	0.00
PxC	0.25	0.00	0.00	0.25	0.00	0.25	0.00
PRC	0.18	0.00	0.00	0.00	0.00	0.00	0.00
GBAI	0.18	0.29	0.25	0.25	0.25	0.00	0.00
Resto	0.80	0.00	0.00	0.00	0.00	0.00	0.00
L-H index <sup>f</sup>	-	6.90	6.96	0.99	2.08	1.12	4.63
Gallagher index <sup>f</sup>	-	11.26	11.55	2.00	4.46	2.30	9.53

**Notes:** <sup>a</sup> In all cases the d'Hondt rule is used. <sup>b</sup> Percentage of votes obtained by each party as compared with total votes to candidatures. <sup>c</sup> LOREG rules are applied, except regarding the number of seats that are 400. <sup>d</sup> 350 permanent seats and 50 adjustment seats with a 3% provincial barrier always settled in both cases, plus a 3% national barrier of total valid votes when indicated. <sup>e</sup> Only one district equivalent to the whole country, plus a 3% national barrier of total valid votes when indicated. <sup>f</sup> Index of disproportionality.

**Source:** Instituto Nacional de Estadística (2016), Ministerio del Interior (2016), and own made.

For comparative purposes we are also going to estimate how the 350 permanent seats and the 50 adjustment ones would be allocated among political parties in three more scenarios according to 2011-15-16 voting raw percentages that were actually obtained. The first scenario to be considered is the one under the Spanish current system now in place, which includes a 3% district barrier. The second scenario is the one under the Spanish current system but changing the provincial district by only one national district, and including a 3% national barrier. Finally, the third scenario is the one under

<sup>1</sup> Results are available upon request to the authors.

the Spanish current system but changing the provincial district by only one national district, and with no barrier. Estimations are provided in the last three columns of the Tables 1, 2, and 3.

For interpreting results, we must again emphasize that these are just simulations based on the usual *ceteris paribus* clause, as is often done when the potential impacts of electoral reforms are being scrutinized (Montero Gilbert and Riera 2009a). Of course, if electoral rules in those electoral processes had in fact been different all actors might have adapted their behaviour and strategies, particularly political agents but also many voters. Therefore, we are not going to conclude that if the said changes in electoral rules had been made the results regarding votes and seat sharing in those electoral processes would have been *exactly* the ones estimated here.

As highlighted in the introductory comments of the paper, many other influential variables not considered in our exercise also affect electoral results. It is evident that changing electoral rules greatly affects the behaviour of all agents involved, and particularly these institutional changes affect coordination, persuasion and mobilization strategies by political parties (Cox 2008, 2015). Some rules may induce, for example, the making of pre-electoral coalitions, as is the case regarding local elections, particularly in small municipalities (Golder 2006). Others may systematically tend to direct more campaign efforts by a political party to those districts where the leaders estimate that winning a new seat is more likely or there is a greater danger of losing one already held (Enrique García-Viñuela, Ignacio Jurado, and Riera 2016).

Another example of this adapted political behaviour can be seen by looking at what often happens in Spain when political parties compete for seats in the European Parliament under only one national district. In this case, political parties that only compete in a region or state often form coalitions to achieve the required national threshold of votes. Similarly, it must be taken into account that in Spain there are also many legislative chambers under a complex multilevel political system that in fact works as a federal system and generates many interdependencies between levels of government (Bonnie N. Field 2009; Jonathan Rodden and Erik Wibbels 2011; Sandra León 2014; Fernando Toboso and Eric Scorsone 2015). These interactions do in fact also influence electoral results and the final share of seats as well as emerging public policies (Rodden 2002; Pallarés and Keating 2003; Pablo Sanguinetti and Mariano Tomassi 2004; Toboso 2005, 2006; Carl Henrik Knutsen 2011; Leon 2012). Finally, to clearly state that our research endeavour is not that of obtaining predictions but a more modest one, it is also relevant to stress that electoral results and seat sharing also depend on many other institutional and non-institutional factors besides those electoral ones mentioned above (Norman Schofield and Caballero 2011; Frédéric Holm-Hadulla, Sebastian Hauptmeiera, and Philipp Rothera 2012; Schofield, Kevin McAlister, and Jee Seon Jeon 2013).

With all these limitations in mind, let us look at the figures obtained through our estimations which are shown in Tables 1, 2, and 3 for the 2011, 2015 and 2016 elections, respectively. A global view of all of them allows us to make several straightforward considerations. Firstly, for all the electoral processes investigated, applying the adapted Swedish electoral rules to a Congress with 400 deputies with a 3 percent threshold to our raw electoral data would result in a much more proportional

distribution of seats than the distribution emerging from the current Spanish system. The proportionality of results, measured by the Gallagher Index, goes in these scenarios from 11.55 to 4.46 in 2011, from 8.30 to 4.09 in 2015, and from 7.74 to 3.24 in 2016. If estimated by the L-H Index the differences are even higher in all cases.

Secondly, if we apply the adapted Swedish rules with no barrier, the proportionality of results increases even more if compared with alternative scenarios. In this case, the two main parties reduce their share in seats even more if compared with the 400 seat scenario with a 3 percent threshold. Our discrepancy ratios show these changes, as can be seen in the corresponding tables.

Thirdly, in all the three electoral processes results also show that if we apply the current Spanish electoral rules but provinces are replaced by a sole district and no barrier is settled, the share of seats presents one of the highest degrees of proportionality, quite similar to the case with the adapted Swedish rules and no barrier. However, the option of adopting only one national district is a very complicated reform in Spain because implementing it would require a Constitutional reform for replacing the provinces as districts and consensus among current political parties is not likely to be reached.

**Table 2** 2015 Spanish General Elections: Sharing Percentages of Seats under Different Rules<sup>a</sup>

Party	Actual % of votes <sup>b</sup>	(350) Seats on current system	(400) Seats on current system <sup>c</sup>	(400) Seats on Swedish system <sup>d</sup>		(400) Seats based on current system but national district <sup>e</sup>	
				No barrier	With barrier	No barrier	With barrier
				PP	28.92	35.14	34.00
PSOE	22.16	25.71	24.25	22.50	23.00	22.75	24.75
PODEMOS	20.83	19.71	21.25	20.75	21.50	21.25	23.25
C's	14.05	11.43	11.75	13.75	14.50	14.25	15.75
UP-UPeC	3.70	0.57	1.00	3.50	3.75	3.75	4.00
ERC-CATSÍ	2.40	2.57	2.50	2.25	2.25	2.25	0.00
DL	2.27	2.29	2.50	2.25	2.00	2.25	0.00
EAJ-PNV	1.21	1.71	1.50	1.50	1.50	1.00	0.00
EH-Bildu	0.88	0.57	1.00	0.75	0.50	0.75	0.00
CCa-PNC	0.33	0.29	0.25	0.25	0.25	0.25	0.00
PACMA	0.88	0.00	0.00	0.75	0.00	0.75	0.00
UPyD	0.62	0.00	0.00	0.50	0.00	0.50	0.00
NOS	0.28	0.00	0.00	0.25	0.00	0.25	0.00
UNIO.CAT	0.26	0.00	0.00	0.25	0.00	0.25	0.00
Resto	1.21	0.00	0.00	0.00	0.00	0.00	0.00
L-H index <sup>f</sup>	-	5.96	4.71	1.39	1.79	0.86	4.54
Gallagher index <sup>f</sup>	-	10.45	8.30	2.44	4.09	2.05	10.30

**Notes:** <sup>a</sup> In all cases the d'Hondt rule is used. <sup>b</sup> Percentage of votes obtained by each party as compared with total votes to candidatures. <sup>c</sup> LOREG rules are applied, except regarding the number of seats that are 400. <sup>d</sup> 350 permanent seats and 50 adjustment seats with a 3% provincial barrier always settled in both cases, plus a 3% national barrier of total valid votes when indicated. <sup>e</sup> Only one district equivalent to the whole country, plus a 3% national barrier of total valid votes when indicated. <sup>f</sup> Index of disproportionality.

**Source:** Instituto Nacional de Estadística (2016), Ministerio del Interior (2016), and own made.

For estimating the effect that the new electoral rules might tend to exercise upon the partisan bias in each electoral process under the assumptions previously mentioned, we have taken into consideration all political parties and coalitions that appear explicitly considered in Tables 1, 2, and 3 and have grouped them in the right wing or left wing blocks, as shown in Figure 1, whenever a wide consensus exists on their ideological location. Those parties with a strong nationalist or regionalist flavour have also been taken into account and assigned to one or other of these blocks. Only one exception to these rules has been implemented in the case of the 2011 electoral process. In the end we decided to exclude one political party from the analysis as it was not clear where to locate it. This is the party called UPyD (*Union, Progreso y Democracia*). In the 2015 and 2016 this issue was no longer a problem as this party did not get representation in the Central Parliament. In these two last electoral processes, two new parties emerged with considerable strength (Podemos and C's) and other coalitions and changes in names occurred, as can be seen in the Tables. The final grouping of all parties and coalitions mentioned in the tables appears in Figure 1.

**Table 3** 2016 Spanish General Elections: Sharing Percentages of Seats under Different Rules<sup>a</sup>

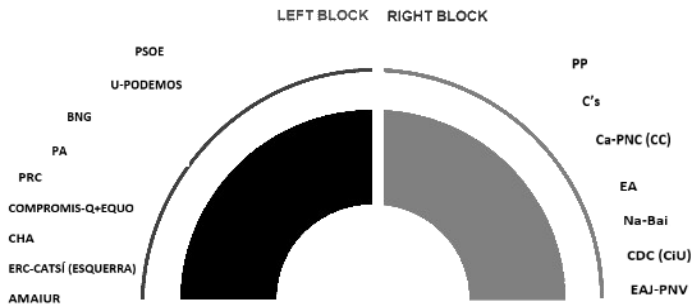
Party	Actual % of votes <sup>b</sup>	(350) Seats on current system	(400) Seats on current system <sup>c</sup>	(400) Seats on Swedish system <sup>d</sup>		(400) Seats based on current system but national district <sup>e</sup>	
				No barrier	With barrier	No barrier	With barrier
				PP	33.27	39.14	39.25
PSOE	22.84	24.29	24.00	23.25	23.75	23.25	25.25
U-PODEMOS	21.26	20.29	20.00	21.50	22.00	21.75	23.50
C's	13.15	9.14	9.50	13.25	13.50	13.50	14.50
ERC-CATSI	2.65	2.57	2.75	2.50	2.25	2.50	0.00
CDC	2.03	2.29	2.25	2.00	2.00	2.00	0.00
EAJ-PNV	1.20	1.43	1.50	1.25	1.25	1.00	0.00
EH-Bildu	0.77	0.57	0.50	0.75	0.50	0.75	0.00
PACMA	1.20	0.00	0.00	1.00	0.00	1.00	0.00
CCa-PNC	0.33	0.29	0.25	0.25	0.25	0.25	0.00
Resto	1.30	0.00	0.00	0.00	0.00	0.00	0.00
L-H index <sup>f</sup>	-	5.26	5.18	0.84	1.55	0.81	4.44
Gallagher index <sup>f</sup>	-	7.78	7.74	1.74	3.24	1.94	9.44

**Notes:** <sup>a</sup> In all cases the d'Hondt rule is used. <sup>b</sup> Percentage of votes obtained by each party as compared with total votes to candidatures. <sup>c</sup> LOREG rules are applied, except regarding the number of seats that are 400. <sup>d</sup> 350 permanent seats and 50 adjustment seats with a 3% provincial barrier always settled in both cases, plus a 3% national barrier of total valid votes when indicated. <sup>e</sup> Only one district equivalent to the whole country, plus a 3% national barrier of total valid votes when indicated. <sup>f</sup> Index of disproportionality.

**Source:** Instituto Nacional de Estadística (2016), Ministerio del Interior (2016), and own made.

The basic results of our estimations are presented in Figure 2. Given the ideological or partisan grouping mentioned above, significant changes toward a more leftist legislature can be detected in our hypothetical exercise for all the elections considered regardless of which specific new, more proportional Swedish adapted rules we test. The partisan biases (positive and negative) are much lower in magnitude for both blocks in the case of the Swedish rules for all elections considered as the non-proportionality biases are also lower. This clearly benefits the left block and hurts the right

one. The *negative* bias of the left block diminishes, whereas in the case of the right block what decreases is its *positive* bias. It is the PP (in right block) which sees its positive bias decrease the most in all elections when Spanish and Swedish adapted rules are compared.

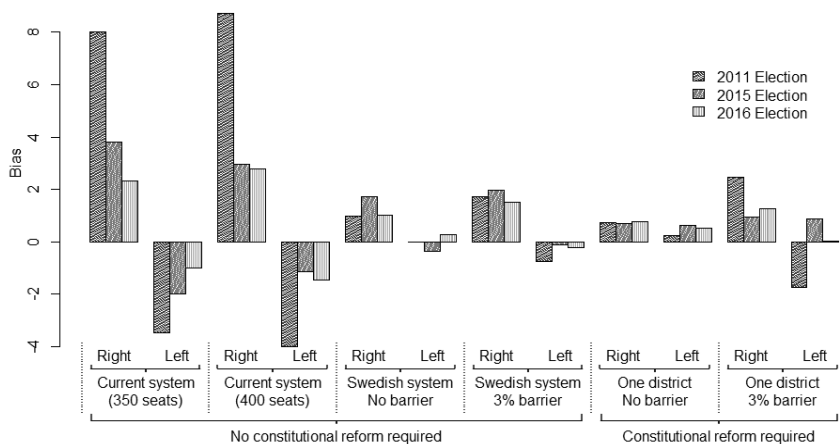


Notes: (\*) foot image: UPyD has been excluded for the reasons mentioned in the text.

Source: Own made.

**Figure 1** Left and Right Block Classification of Political Parties and Coalitions in Spanish Politics (\*)

Therefore, under the assumptions and limitations of our exercise it is reasonable to expect that if the said adapted Swedish rules had been in place, it might have resulted in a few less seats for the right block in all three electoral processes considered, and particularly in 2011 where the PP obtained an absolute majority. More proportionally oriented rules if all things remained equal, which is rarely the case, might have resulted in our scenarios in a more leftist oriented legislature in all cases. However, the importance of the *ceteris paribus* clause must not be underestimated.



Source: Own made.

**Figure 2** Partisan Positive or Negative Bias with Alternative Electoral Rules in 2011, 2015 and 2016 Elections (Added Differences between Seats Percentages and Votes Percentages in Each Scenario)

The Tables A1, A2 and A3 with seat numbers included in the Appendix confirm such a stylized conclusion. In the 2008 and 2011 general elections (in which *Podemos* and *Ciudadanos* did not participate), the new adapted Swedish rules favour the left block if compared with actual outcomes, *ceteris paribus* again of course. In 2011, for example, the right block obtained a real number of 243 seats (in an adapted congress of 400 seats) whereas in the scenario with the adapted Swedish rules and a 3 percent barrier the estimated figure is 215, as shown in Table A2 of the Appendix (the PP seats go from 213 to 190). In these two elections, the new rules produce a significant increase in the seats shared by the leftist IU party (or IU-LV) and a high decrease in the seats shared by the right-wing PP if compared with real figures. IU (or IU-LV) goes from 13 real seats to 29 estimated seats in 2011, as shown in Table A1.

In 2015, the right block obtained a total of 200 seats (in a 400 seats adapted parliament), whereas in the scenario with the Swedish rules and a 3 percent threshold this block reaches only 196 seats in our estimations, as can be seen in Table A2 of the Appendix. The left block goes from 200 to 204 in the same two cases. In 2016, these figures were 211 and 205 for the real and estimated number of seats obtained by the right block respectively, and 189 and 195 for the left block respectively, as shown in Table A3 of the Appendix.

This is, in fact, to be expected as the new Swedish adapted rules tend to increase proportionality and it is to the left where there has traditionally been greater fragmentation, with the third and remaining parties much affected. Moreover, the many small existing electoral districts, with a minimum of two seats each, also tend to favour more the big parties as less proportional rules are in place. In our study, the current rules have clearly favoured the right block and the main party in this block (PP) in all the years considered if compared with the potential existence of more proportional rules. However, over the eighties and early nineties the political party with a higher positive partisan bias under the said Spanish electoral rules was the PSOE. Its single bias in 1982, 1986, 1989 and 1992 electoral processes were 9.60, 8.51, 10.40 and 6.65, respectively. In the case of PP over the same elections its biases were: 4.21, 4.03, 4.78 and 5.53.

As the right block, and particularly the PP, appears now to be the block more negatively affected by any reform intended to introduce greater proportionality, it is not unreasonable to expect considerable opposition to such reforms on the part of the PP leaders. They frequently speak in the media of the virtues of majoritarian systems.

Might these extra seats for the left block (that are lost by the right one in our estimations) be sufficient for a different majority and executive to be formed in any of the four electoral processes examined? If this transfer of seats had occurred it might have helped a push in that direction but, as previously mentioned, many other factors that transcend the realm and purpose of this paper may also have affected the outcome. Forming a majoritarian coalition in the legislature for supporting an executive is a more complex issue than that of counting seats of each block, as reality has recently shown.

Of course, our estimations on both proportionality and partisan bias would slightly change if we fixed the barrier at a different percentage level, or the number of permanent and adjustment deputies were different, or the total number of deputies was lower than 400, for example. And, as previously mentioned, if competition strategies

by political parties under the new rules also changed, as is often the case, and this impacted upon the share of votes, the estimations here provided would also be changed if we could take into account such expected changes.

## 5. Concluding Remarks

That the sharing of seats among political parties tends to be influenced, in part, by the electoral system in place has been proved once more by the exercises performed in this paper. As mentioned previously in the case of Spain, the high number of provincial districts that exists, the minimum allocation of two deputies per province and, to a lesser extent, the d'Hondt rule used for allocating seats in each district have traditionally favoured those main political parties that present candidates in all districts.

Given this non-proportionality bias and the traditional complaints against it recurrently emerging in Spain, our research purpose has been that of investigating, under the usual *ceteris paribus* assumption, how much the share of seats that resulted from the 2011, 2015 and 2016 general elections in Spain is altered when we replace some Spanish rules by others obtained and adapted from the Swedish electoral system. The main contribution of this paper is an empirical one as it provides a new example that institutions matter for results.

As shown in previous tables, the scenario that provides a greater degree of proportionality, as measured by our discrepancy measures (the Loosemore-Hanby index and the Gallagher Index), is one in which the adapted Swedish rules are applied with no minimum national barrier. Alternatively, when the Swedish rules contain a 3 percent threshold, as in the threshold that also exists in Spain, the proportionality also increases considerably if compared with a Spanish Central Congress of 400 seats under the current rules. The Gallagher Index goes from 11.55 to 4.46 in 2011, from 8.30 to 4.09 in 2015, and from 7.74 to 3.24 in 2016.

A different issue not addressed in our paper is whether proportionality may be considered a good in itself. Whereas proportional representation is the overarching aim of the apportionment of seats to constituencies, the same cannot be said of the translation of votes into seats for parties or candidates. There are strong arguments in favour of proportional representation, normally stressing policy responsiveness and median voter/median legislator congruence, but some other arguments can be used to underline the greater fragmentation and political instability that often emerge if compared with countries with majoritarian systems. A classic statement of the former claim can be found in Bingham G. Powell (2000); specimens of the latter argument can be found as early as in F. A. Hermens (1936), although a recent and consistent formulation is Niall Hughes (2016). It is perhaps safe to say that the intermediate position commands an increasing consensus in the literature, as defended for instance in Carey and Simon Hix (2011) who argue that in the trade-off between the goods offered by proportional systems and those provided by majoritarian systems one should attempt to reach an optimum mix, which they find in low-magnitude proportional electoral systems, of which Spain is considered one of the best examples. This is why low magnitude is kept as a desirable property in electoral reform plans like in Penadés and Pavía (2016).

With regards to how the new, more proportionally adapted Swedish rules affect the ideological distribution of seats in our estimations, significant changes favouring

the left wing block are found for all the electoral processes considered, whatever the new rules applied. We have comparatively shown how much the traditional positive partisan bias of the right block (previously stressed in the literature for elections before 2008 and clearly found also in our estimations for the 2011, 2015 and 2016 elections despite the new political actors that have emerged) decreases when the current rules are replaced by the new ones.

Might it have been easier to form a coalition in the left block after the 2015 and 2016 elections, for example, if the new rules had been in place? Considering the assumptions and limitations of our comparative statics exercise we can also conclude that introducing greater proportionality in the Spanish electoral system might have helped in the three electoral processes examined to generate more leftist oriented legislatures with a few more seats for the left block. But again, whether this change, if occurred, might have been sufficient or not for a different majority and executive to be formed transcend the scope and purpose of this paper.

Adopting the new rules studied here may also have effects upon accountability and stability. This would contribute to diminishing the likelihood that a single party obtains a majority in the Central parliament or a stable coalition gets formed, then increasing the need for negotiations and the possibility that more governmental crises appear, with more frequent elections, etc. This is particularly relevant after the new developments occurring in Spanish politics with the strong emergence of the two new parties already mentioned (*Podemos* and *Ciudadanos*) and the radicalisation of the two main Catalanian parties (former *CiU* and *Esquerra Republicana*).

It is not clear if a more proportional system would be beneficial for good governance and economic growth as compared with a more majoritarian one in specific circumstances or countries. Certain econometric analyses have found some relationship of proportional representation with increased corruption, but only in certain combinations of district magnitude and open or closed lists (Eric C. C. Chang and Miriam A. Golden 2007). Proportional systems have also been linked to shorter governments, but, again, the combination with the type of list (open or closed) helps accounting? the kind of crisis leading to the fall of governments (e.g., José María Maravall 2016). Proportional systems have also been related to higher investment in public goods, higher taxes and more leftist coalition governments (Torsten Persson and Guido Tabellini 2004; Torben Iversen and David Soskice 2006). However, the issue is still widely debated in the literature.

In any case, it is also evident that when the existing electoral rules and procedures tend to favour the major parties whose approval is necessary to reform them it is unlikely that those parties would endorse any reform that undermines their chances of success (Pavía 2011a, b; Nunez and Jacobs 2016). As mentioned in this paper, the adapted Swedish rules have nevertheless a virtue for those wishing to increase proportionality: no constitutional reform would be needed to implement them if adapted as indicated in this paper.

Of course, all estimates here provided would have been slightly different if the barriers considered or the number of permanent and adjustment deputies or the total number of deputies that were tested had been different. Our estimates are not offered as predictions but as potential influences that might come up if the considered electoral



rules were reformed in one direction or another, all other things being equal. This means that we have focused on the potential effects of institutional reforms under the usual *ceteris paribus* clause, assuming other conditions remain unchanged or constant.

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## Appendix

**Table A1** 2011 Spanish General Elections: Allocation of Seats under Different Rules<sup>a</sup>

Party	Actual % of votes <sup>b</sup>	(350) Seats on current system	(400) Seats on current system <sup>c</sup>	(400) Seats on Swedish system <sup>d</sup>		(400) Seats based on current system but national district <sup>e</sup>	
				No barrier	With barrier	No barrier	With barrier
				PP	45.25	186	213
PSOE	29.16	110	125	118	122	120	129
IU-LV	7.02	11	13	28	29	29	31
UPyD	4.76	5	5	19	20	19	21
CIU	4.23	16	20	17	17	17	18
AMAIUR	1.39	7	7	7	7	5	0
EAJ-PNV	1.35	5	6	5	5	5	0
COMPROMIS-Q+EQUO	1.42	1	1	5	1	5	0
ESQUERRA	1.07	3	3	4	3	4	0
BNG	0.77	2	2	3	2	3	0
CC-NC-PNC	0.60	2	3	2	2	2	0
PACMA	0.43	0	0	1	0	1	0
FAC	0.41	1	1	1	1	1	0
Eb	0.41	0	0	1	0	1	0
PA	0.32	0	0	1	0	1	0
PxC	0.25	0	0	1	0	1	0
PRC	0.18	0	0	0	0	0	0
GBAI	0.18	1	1	1	1	0	0
Others	0.80	0	0	0	0	0	0

**Notes:** <sup>a</sup> In all cases the d'Hondt rule is used. <sup>b</sup> Percentage of votes obtained by each party as compared with total votes to candidatures. <sup>c</sup> LOREG rules are applied, except regarding the number of seats that are 400. <sup>d</sup> 350 permanent seats and 50 adjustment seats with a 3% provincial barrier always settled in both cases, plus a 3% national barrier of total valid votes when indicated. <sup>e</sup> Only one district equivalent to the whole country, plus a 3% national barrier of total valid votes when indicated.

**Source:** Instituto Nacional de Estadística (2016), Ministerio del Interior (2016), and own made.

**Table A2** 2015 Spanish General Elections: Allocation of Seats under Different Rules<sup>a</sup>

Party	Actual % of votes <sup>b</sup>	(350) Seats on current system	(400) Seats on current system <sup>c</sup>	(400) Seats on Swedish system <sup>d</sup>		(400) Seats based on current system but national district <sup>e</sup>	
				No barrier	With barrier	No barrier	With barrier
				PP	28.92	123	136
PSOE	22.16	90	97	90	92	91	99
PODEMOS	20.83	69	85	83	86	85	93
C's	14.05	40	47	55	58	57	63
UP-UPeC	3.70	2	4	14	15	15	16
ERC-CATSI	2.40	9	10	9	9	9	0
DL	2.27	8	10	9	8	9	0
EAJ-PNV	1.21	6	6	6	6	4	0
EH-Bildu	0.88	2	4	3	2	3	0
CCa-PNC	0.33	1	1	1	1	1	0
PACMA	0.88	0	0	3	0	3	0
UPYD	0.62	0	0	2	0	2	0
NOS	0.28	0	0	1	0	1	0
UNIO.CAT	0.26	0	0	1	0	1	0
Others	1.21	0	0	0	0	0	0

**Notes:** <sup>a</sup> In all cases the d'Hondt rule is used. <sup>b</sup> Percentage of votes obtained by each party as compared with total votes to candidatures. <sup>c</sup> LOREG rules are applied, except regarding the number of seats that are 400. <sup>d</sup> 350 permanent seats and 50 adjustment seats with a 3% provincial barrier always settled in both cases, plus a 3% national barrier of total valid votes when indicated. <sup>e</sup> Only one district equivalent to the whole country, plus a 3% national barrier of total valid votes when indicated.

**Source:** Instituto Nacional de Estadística (2016), Ministerio del Interior (2016), and own made.

**Table A3** 2016 Spanish General Elections: Allocation of Seats under Different Rules<sup>a</sup>

Party	Actual % of votes <sup>b</sup>	(350) Seats on current system	(400) Seats on current system <sup>c</sup>	(400) Seats on Swedish system <sup>d</sup>		(400) Seats based on current system but national district <sup>e</sup>	
				No barrier	With barrier	No barrier	With barrier
PP	33.27	137	157	137	138	136	147
PSOE	22.84	85	96	93	95	93	101
U-PODEMOS	21.26	71	80	86	88	87	94
C's	13.15	32	38	53	54	54	58
ERC-CATSÍ	2.65	9	11	10	9	10	0
CDC	2.03	8	9	8	8	8	0
EAJ-PNV	1.20	5	6	5	5	4	0
EH-Bildu	0.77	2	2	3	2	3	0
PACMA	1.20	0	0	4	0	4	0
CCa-PNC	0.33	1	1	1	1	1	0
Others	1.30	0	0	0	0	0	0

**Notes:** <sup>a</sup> In all cases the d'Hondt rule is used. <sup>b</sup> Percentage of votes obtained by each party as compared with total votes to candidatures. <sup>c</sup> LOREG rules are applied, except regarding the number of seats that are 400. <sup>d</sup> 350 permanent seats and 50 adjustment seats with a 3% provincial barrier always settled in both cases, plus a 3% national barrier of total valid votes when indicated. <sup>e</sup> Only one district equivalent to the whole country, plus a 3% national barrier of total valid votes when indicated.

**Source:** Instituto Nacional de Estadística (2016), Ministerio del Interior (2016), and own made.