ISSN: 2951-6641 (paper) 2951-8156 (online)
https://doi.org/10.54790/rccs.135

ARTICLE/ARTÍCULO

Proposal to Reform the Basque Electoral System

Propuesta de reforma del sistema electoral vasco

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Received/Recibido: 28-3-2025
Accepted/Aceptado: 22-9-2025

ABSTRACT

Objective. To avoid the current discordances between votes and seats among political parties, this proposal introduces a more proportional allocation of seats to constituencies based on updated population figures and takes into account the total number of votes received by each party across the region. Method. The d'Hondt method is applied using a reduction of votes (continuosus threshold) to determine the total number of seats allocated to each party at the regional level. These seats are then distributed across constituencies using the biproportional apportionment method. Results. The proposed system eliminates discordances between votes and seats, provides a seat bonus to the winning party (enhancing governability) and increases the representativeness of the Basque Parliament by allowing more parties to gain representation. Conclusions. The current Basque electoral system generates discordances beetween votes and seats, as evidenced in the 1990, 2012 and 2024 elections. These are primarily due to the lack of proportional seat distribution among constituencies according to updated population figures and because the total votes of the parties are not taken into account for the total seats allocated to the parties.

KEYWORDS: 1990, 2012 and 2024 Basque Parliament elections; Basque electoral system; discordances; discontinuous threshold; continuous threshold; d'Hondt method; governability; biproportionality.

HOW TO REFERENCE: López Carmona, A. (2026). Propuesta de reforma del sistema electoral vasco. *Revista Centra de Ciencias Sociales, 5*(1), 115-138. https://doi.org/10.54790/rccs.135

Spanish version can be read at https://doi.org/10.54790/rccs.135

RESUMEN

Objetivo Para evitar las actuales discordancias entre votos y escaños entre partidos se realizará previamente un reparto más proporcional de escaños a las circunscripciones según sus poblaciones actualizadas y se tendrán en cuenta los votos totales de los partidos. Método. Aplicaremos el método d'Hondt con una reducción de votos (barrera continua) a los partidos para obtener los escaños totales de cada partido a nivel global. Aplicaremos el método de biproporcionalidad para repartir los escaños totales de cada partido entre las circunscripciones. Resultados. Con nuestra propuesta se evitan discordancias entre votos y escaños, se prima al partido vencedor con más escaños (mejora de la gobernabilidad) y aumenta la representatividad del Parlamento Vasco (algún partido más obtendría representación). Conclusions. El actual sistema electoral vasco provoca discordancias entre votos y escaños entre partidos, tal y como ocurrió en las elecciones de 1990, 2012 y 2024. Esto se debe a que no se hace un reparto proporcional de escaños a las circunscripciones teniendo en cuenta sus poblaciones actualizadas y a que no se tienen en cuenta los votos totales de los partidos para los escaños totales a los partidos.

PALABRAS CLAVE: elecciones al Parlamento Vasco de 1990, 2010 y 2024; sistema electoral vasco; discordancias; barrera discontinua; barrera continua; método d'Hondt; gobernabilidad; biproporcionalidad.

1. Introduction

The Basque Parliament elections held in 1990, 2012 and 2024 have revealed that the current electoral system in the Basque Country generates discordances between the number of votes cast and the number of seats obtained. For example, in the most recent elections in 2024, the Elkarrekin Podemos – Green Alliance coalition received 23,679 votes, while Vox obtained 21,396. Despite this, the Elkarrekin Podemos – Green Alliance coalition failed to secure any representation, whereas Vox gained one seat. These discordances arise from two main factors: the failure to consider the total number of votes when allocating seats among parties, and the continued use of outdated legal population figures to determine the number of seats assigned to each electoral constituency. This leads to Álava being overrepresented in terms of seats, despite being the least populated constituency. Adjusting the number of seats per constituency in line with updated legal population figures would substantially reduce the likelihood of such discordances, although it would not eliminate them entirely. In addition, this article proposes that the total number of votes obtained by each party should be considered when calculating representation in the Basque Parliament. It is important to distinguish between discrepancy and disproportionality, as they are conceptually distinct. An electoral system may produce discordances while still being proportional, as is the case with the Basque system. This is due to the large

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district magnitude of its three constituencies – the larger the constituency, the more proportional the seat distribution among parties. Nonetheless, the Basque electoral system simultaneously produces discordances between votes and seats because seat distribution is carried out independently within each constituency. Such discordances occurred in the 1990, 2012 and 2024 elections, which are examined in this article.

Under the current system, a 3% threshold of valid votes (votes cast for party lists plus blank votes) is required to participate in the seat allocation process in each of the three constituencies. Achieving at least 3% of the vote in a given constituency therefore provides a strong likelihood of securing one of the 25 seats allocated to that district (Llera, 1998a). Indeed, in the most recent Basque regional elections held in 2024, Vox obtained a seat in Álava with just 3.71% of the vote, while Sumar also secured a seat with 3.69%. As such, reaching 4% of the vote in any given constituency effectively guarantees representation.

The primary objective of this article is to demonstrate that the discordances between votes and seats among political parties stem from two key issues: the absence of a more proportional allocation of seats across the three Basque constituencies based on updated population figures, and the failure to consider the total number of votes received by each party across the Basque Autonomous Community as a whole. To address this, we propose an alternative approach based on three core principles: using updated population figures for each constituency to ensure a more proportional distribution of seats among them; taking into account the total number of votes obtained by each party to allocate seats at the regional level by applying continuous thresholds of 1% and 3%; and finally, distributing the total number of seats obtained by each party among the constituencies through a biproportional method.

The theoretical framework includes a brief review of the existing literature, drawing on prior studies that have analysed the Spanish electoral system at both national and regional levels – including the Basque electoral system. The methodology section sets out our proposed approach, which consists of three main steps. First, seats are allocated more proportionally among the three constituencies in line with their updated populations. Second, the total number of votes received by each party is used to calculate their overall seat allocation, applying continuous thresholds of 1% and 3%. Third, a biproportional apportionment method is applied that simultaneously accounts for both the number of seats assigned to each constituency and the total number of seats awarded to each party. The results section illustrates how our biproportional apportionment proposal would have been applied to the Basque elections of 1990, 2012 and 2024, following the methodology outlined. Finally, the conclusions reaffirm the existence of discordances between votes and seats under the current Basque electoral system, and demonstrate how the proposed reform would eliminate such discordances while achieving a balance between representativeness and governability – favouring the most-voted parties.

2. Theoretical framework

The literature in political science and electoral sociology has long shown an interest in analysing the Spanish electoral system and its potential reform, both at the national level (Gambino, 2009; Lago and Lago, 2000; Montero, 1997; Montero and Riera, 2008, 2010; Oñate and Ocaña, 2000; Pallarés, 1981; Ramírez *et al*., 2013, pp. 29–73, 87–105; Riera, 2013; Vallès, 1986) and at the regional level (Delgado, 2011; Falcó and Verge, 2013; Gómez and Cabeza, 2013; Lagares and Oñate, 2019, pp. 165–187; Lago and Montero, 2004; Llera, 1998b, pp. 315–318; 2016a, pp. 27–63; 2016b, pp. 247–265; Libbrecht *et al*., 2011; Mancisidor, 1985; Montero and Font, 1991; Montero *et al*., 1992; Ortega and Oñate, 2019, pp. 205–224; Padró and Colomer, 1992; Pallarés, 1981, 1991, 1998, pp. 221–245; Schakel, 2011). Following the regional pacts reached during Spain's transition to democracy between the UCD and the PSOE, there emerged a strong interest in generalising, standardising or extrapolating the electoral system used for the Congress of Deputies to the various regional electoral systems (Ortega and Oñate, 2019, pp. 205–224; Vallès, 1988). As a result, most autonomous communities have either adopted or drawn significant inspiration from the national legislation established by the Spanish Constitution and, more specifically, from the Organic Law of the General Electoral System (LOREG) of 1985 (Llera, 1998a). The Basque electoral system, in particular, replicates key features of the 1985 LOREG – such as defining electoral districts in accordance with the three existing Basque provinces (Álava, Gipuzkoa and Bizkaia); applying the d'Hondt method of proportional representation to allocate seats independently within each constituency; using closed and blocked lists; and establishing a 3% electoral threshold in each constituency to participate in the distribution of seats (Ortega and Oñate, 2019, pp. 205–224; Act 5/1990 of 15 June on Basque Parliamentary Elections).

The 1985 LOREG does not define an ideal size for regional parliaments; rather, each autonomous community determines the size of its legislature based on budgetary, political or historical considerations, with limited regard for demographic or proportionality criteria (Baras and Botella, 1996, pp. 128–143; Jaráiz and Castro, 2022, pp. 38–56; Llera, 1998a; Nohlen, 1981, pp. 106–112; Ortega and Oñate, 2019, pp. 205–224; Ortega and Trujillo, 2022, pp. 251–262). Once the overall size of the parliament has been established, it becomes equally important to define the size of electoral districts or constituencies, given the political consequences such decisions may have on electoral outcomes (Baras and Botella, 1996, pp. 128–143; Jaráiz and Castro, 2022, pp. 38–56; Lijphart, 1990; Nohlen, 1981, pp. 106–112; 2004, pp. 92–134; Ortega and Trujillo, 2022, pp. 251–262; Taagepera and Shugart, 1989, pp. 61–141). In other words, the size or magnitude of constituencies may be a primary source of inequality and disproportionality, as small- and medium-sized constituencies tend to favour the dominant parties (Jaráiz and Castro, 2022, pp. 38–56; Llera, 1998b, pp. 315–318; 2016a, pp. 27–63; 2016b, pp. 247–265; Montero, Llera and Torcal, 1992; Nohlen, 1983; 2004, pp. 92–134; Ortega and Oñate, 2019, pp. 205–224; Ortega and Trujillo, 2022, pp. 251–262; Taagepera and Shugart, 1989, pp. 61–141). In both the Spanish and Basque electoral systems, the constituencies are multi-member districts (i.e. each elects more than one representative), which coincide with the

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existing provincial boundaries. In the case of the Basque Parliament, 25 seats are allocated to each of the three constituencies, irrespective of their updated legal populations. This allocation is based purely on historical and political convention, rather than on demographic criteria (Baras and Botella, 1996, pp. 128–143; Llera, 1998a; 1998b, pp. 315–318; 2016a, pp. 27–63; 2016b, pp. 247–265; Nohlen, 1981, pp. 106–112; Taagepera and Shugart, 1989, pp. 61–141). Indeed, according to the most recent legal population figures from 2023 – which should have been taken into account for the 2024 Basque elections – Álava had a population of 336,686, compared to 1,154,306 in Bizkaia. In other words, Bizkaia had a population 3.43 times greater than that of Álava, yet both constituencies were assigned an equal number of seats – 25 – based on political and historical rather than population-based criteria. The distribution of seats among the three constituencies is therefore not proportional. However, the allocation of seats to parties within each constituency is proportional, as it is carried out using the d'Hondt method. Although this is a proportional representation system, it tends to favour larger parties, penalising both party system fragmentation and smaller parties (López, 2015; Laakso and Taagepera, 1979; Llera, 2016a, pp. 27–63; 2016b, pp. 247–265; 2016, pp. 247-265; Nohlen, 1981, pp. 127–141; Ortega and Oñate, 2019, pp. 205–224; Ramírez *et al.*, 2013, pp. 29–73, 87–105; Sartori, 1999, pp. 149–157; Taagepera and Shugart, 1989, pp. 61–141). As Llera (1998a) argues, the calculation of constituency size is the principal source of distortion in voting equality and proportionality, as it can result in constituencies being either under- or overrepresented in terms of seat allocation relative to their populations – precisely the case in Basque parliamentary elections. This generates significant disparities in the weight of individual votes depending on the constituency in which they are cast. In the Basque Country, for example, the vote of a citizen in Álava carries significantly more value than that of a citizen in Gipuzkoa. No autonomous community in Spain allocates seats to constituencies in proportion to updated population quotas. This is often because constituencies are initially assigned an excessive number of seats, or because allocations are based on purely political agreements or conventions, with no reference to legal population figures, as occurs in the Basque Country (García, 2004; Llera, 1998a). This, combined with the independent allocation of seats to parties within each constituency, may lead to – and indeed has led to – discordances between votes and seats in various regional elections, including those held in the Basque Country.

The larger the size of the constituencies, the more proportional the allocation of seats will be when a proportional electoral formula is applied, such as the Sainte-Laguë or d'Hondt method, among others. The Basque electoral system has the advantage of being highly proportional, as it assigns a substantial number of seats to each of its three constituencies, irrespective of their population size. Although this equal allocation of seats – without considering population – may initially appear somewhat unjust, it nevertheless encourages proportional outcomes owing to the large size of the constituencies. In each constituency, any party that surpasses the legal threshold of 3% is eligible to obtain at least one seat. This makes the Basque electoral system highly proportional, but simultaneously prone to generating discordances between votes and seats across political parties

(López, 2015). However, this 3% legal threshold has limited practical significance in the Basque context, as it is highly unlikely that a party receiving less than 3% of the vote would secure representation under the d'Hondt method, which tends to disadvantage smaller parties. Given that the d'Hondt method is a proportional system that favours larger parties while penalising both fragmentation and smaller parties, its true corrective mechanism lies in constituency magnitude. The greater the magnitude of the constituencies, the stronger the corrective effect of the d'Hondt method. In other words, the disproportional effects typically associated with applying the d'Hondt formula in small- or medium-sized constituencies are significantly mitigated in the context of regional elections, where constituencies tend to be larger than in general elections (Gallagher, 1991; Llera, 1998b, pp. 315–318; Lijphart, 1985; Montero, 1992; Montero, Llera and Torcal, 1992; Nohlen, 1981, pp. 127–141; Ortega and Oñate, 2019, pp. 205–224; Taagepera and Shugart, 1989, pp. 61–141). The Basque electoral system is thus highly proportional due to the large magnitude of its constituencies, yet at the same time it is particularly susceptible to producing discordances, as evidenced in the elections of 1990, 2012 and 2024, in which parties receiving more votes than others failed to obtain representation. It is important to emphasise that the concepts of proportionality and vote–seat discordances must not be conflated, as they are distinct and may coexist within the same electoral system – as is the case with the Basque system. An electoral system such as that of the Basque Country may generate discordances while maintaining a high degree of proportionality, owing to the large size of its constituencies. The greater the constituency magnitude, the more proportional the seat distribution among parties. Nevertheless, the Basque electoral system simultaneously produces discordances between votes and seats because seat distribution is carried out independently within each constituency. This article analyses three regional elections – 1990, 2012 and 2024 – where such discordances between votes and seats occurred.

Currently, in their respective regional elections, autonomous communities use the d'Hondt method to allocate seats to parties independently within each constituency. The majority of these communities apply a 3% electoral threshold, following the general framework established by the 1985 LOREG (Baras and Botella, 1996, pp. 128–143; Jaráiz and Castro, 2022, pp. 38–56; Llera, 1998a; 1998b, pp. 315–318; Nohlen, 1981, pp. 127–141; Ortega and Trujillo, 2022, pp. 251–262; Sartori, 1999, pp. 149–157; Taagepera and Shugart, 1989, pp. 61–141). However, certain autonomous communities, such as Madrid and the Valencian Community, impose a higher threshold of 5% of valid votes to qualify for seat allocation. Although the Valencian Community comprises three provinces, this 5% threshold is applied to the total valid votes cast at the regional level, while the actual distribution of seats to parties is still carried out independently within each constituency – as is also the case in other autonomous communities with more than one constituency. This arrangement is relatively uncommon, since in most other multi-provincial autonomous communities the general rules laid out in the LOREG prevail: a 3% threshold of valid votes (i.e. votes for party lists plus blank votes) applied within each constituency when allocating seats to parties independently across constituencies.

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3. Methodology

This study focuses on the Basque Parliament elections of 1990, 2012 and 2024, all of which exhibited discordances between votes and seats among political parties. We propose an alternative method for the allocation of seats to constituencies, as the current approach is one of the key factors contributing to such discordances. Our proposal involves assigning one initial seat to each constituency, with the remaining seats distributed as follows: half of the remaining seats are allocated in proportion to the updated legal population, and the other half according to the square root of each constituency's updated legal population. Fractions are rounded using the Sainte-Laguë method (López, 2015; Grimmett *et al.*, 2017; Ramírez *et al.*, 2013, pp. 29–73, 87–105). A factor *k* must be calculated such that:

$$H = \sum_{i=1}^{n} \left[k \left(\frac{p_i}{\sum p_i} x \frac{H}{2} + \frac{\sqrt{p_i}}{\sum \sqrt{p_i}} x \frac{H}{2} \right) + 1 \right]_w$$

Where *H* is the total number of seats to be distributed in the autonomous community, and *pi* is the legal population of the constituency *i*. This factor *k* is then used to calculate the size *hi* of constituency *i* as follows:

$$h_i = \left[k \left(\frac{p_i}{\sum p_i} x \frac{H}{2} + \frac{\sqrt{p_i}}{\sum \sqrt{p_i}} x \frac{H}{2} \right) + 1 \right]_w$$

Under this system, each constituency receives at least one seat, regardless of population size. Smaller constituencies receive a slight advantage in terms of seat allocation, while larger constituencies are slightly underrepresented relative to their population. However, this marginal deviation from proportionality does not affect the allocation of seats to parties, as that process is based on their total number of votes. As a result, no discordances can arise between total votes and seats at the party level. Finally, we apply the biproportional apportionment method to distribute each party's seats among the three electoral constituencies (Álava, Gipuzkoa and Bizkaia).

To determine the overall representation of parties in the 1990, 2012 and 2024 Basque elections, we introduce a continuous threshold of 1% and 3%, calculated as 1% and 3% of the total votes cast for party lists, rounded to the nearest whole number (Ramírez *et al.*, 2013, pp. 29–73, 87–105). This threshold is then subtracted from each party's total number of votes, producing a reduced vote count. Parties that do not reach the 1% or 3% threshold of total valid votes are reduced to zero and are thus excluded from seat allocation. Those that do surpass the threshold are included in the apportionment process; however, this does not guarantee the allocation of seats, as distribution is based on each party's reduced

vote total, using the d'Hondt method. In many cases, after this reduction, the remaining vote totals are too low to yield a seat. It is important to note that the d'Hondt method – without the need for any formal percentage threshold – already discourages fragmentation, penalises smaller parties and favours larger ones (López, 2015; García, 2004; Llera, 2016a, pp. 27–63; 2016b, pp. 247–265; Nohlen, 1981, pp. 127–141; Ortega and Oñate, 2019, pp. 205–224; Ramírez *et al.*, 2013, pp. 29–73, 87–105; Sartori, 1999, pp. 149–157).

In most cases, constituency sizes are determined on the basis of population, typically granting smaller constituencies a slight advantage through the allocation of initial seats. Seat allocation to parties should be based on their total number of votes, with a modest advantage granted to the most-voted parties in order to avoid excessive parliamentary fragmentation and to ensure a minimum degree of governability (López, 2015; Llera, 2016a, pp. 27–63; 2016b, pp. 247–265; Márquez and Ramírez, 1998; Ramírez *et al.*, 2013, pp. 29–73, 87–105; Ramírez and Márquez, 2010; Sartori, 1999, pp. 149–157). When constituency sizes are determined according to population figures, and party representation is based on total vote counts, the resulting problem is one of apportionment: how to distribute each party's total number of seats across constituencies in such a way that each receives the predetermined number of seats. This is a matrix apportionment problem with constraints both on rows and columns – commonly referred to as a double-constraint problem (López, 2015; Gassner, 1991; Maier, 2006, pp. 105–116; Maier *et al.*, 2010; Ramírez *et al.*, 2013, pp. 29–73, 87–105).

Using the Sainte-Laguë method, it is relatively straightforward to distribute each party's seats across constituencies in proportion to the number of votes obtained: it is sufficient to compute an appropriate divisor for each party and round the resulting fractions to the nearest integer. However, this method does not guarantee that each constituency will receive the correct number of seats as determined by its size. Nor does it ensure that each party receives its exact total number of seats.

In this context, we know the number of votes each party obtained in each constituency, as well as the total number of seats that must be allocated to each party and to each constituency. What remains is to calculate the number of seats each party should receive in each constituency. If seats are allocated by rows – that is, by constituency, as is traditionally done – the row marginals (i.e. total seats per constituency, as shown in the final column) are respected, but there is no guarantee that the column marginals (total seats per party) will be satisfied. Conversely, if seats are allocated by columns – distributing each party's seats among constituencies according to its vote shares across constituencies – the column marginals will be satisfied, but the row marginals may not be. Row-wise allocation (by constituency) involves applying an adjustment factor to each row and rounding according to a specific rule. Column-wise allocation (by party) applies the adjustment factor to each column. The principle of biproportionality involves simultaneously applying adjustment factors to both

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the rows and columns of the vote matrix, such that, after rounding using the chosen method (e.g. Sainte-Laguë), the resulting seat matrix satisfies both sets of marginal constraints – by constituency and by party (Gassner, 1991; Maier, 2006, pp. 105–116; Maier *et al.*, 2010; Ramírez *et al.*, 2013, pp. 29–73, 87–105). To implement biproportional apportionment, the votes of all parties across all constituencies are organised into a rectangular matrix. The rows and columns of this matrix are then simultaneously scaled by appropriate adjustment factors, such that rounding with Sainte-Laguë (or another designated method) yields a distribution of seats that satisfies both the constituency-level and party-level constraints (Gassner, 1991; Maier, 2006, pp. 105–116; Maier *et al.*, 2010; Ramírez *et al.*, 2013, pp. 29–73, 87–105).

4. Results: Biproportionality with continuous thresholds of 1% and 3%

In the Basque Country, the allocation of the 75 seats in the Basque Parliament among the three constituencies is not based on proportionality according to population (García, 2004; Llera, 1998a; 1998b, pp. 315–318; 2016a, pp. 27–63; 2016b, pp. 247–265). Instead, seat distribution is determined by a purely political and historical agreement, as established in Article 10, Title II of the 1990 Basque Parliamentary Elections Act, which assigns 25 seats to each of the three constituencies. This arrangement results in significant disparities: Álava is markedly overrepresented, currently holding 25 seats despite its population share entitling it to fewer than half that number. Conversely, Bizkaia is substantially underrepresented, receiving only 25 seats when, based on its current population, it should be allocated considerably more (see the third column of Tables 1, 2 and 3). As outlined in the methodology section, our proposed model assigns one initial seat to each constituency. The remaining seats are then distributed in two stages: half (36 seats) are allocated in proportion to the updated legal population using the Sainte-Laguë method; and the other half (36 seats) are distributed according to the square root of each constituency's updated population. This dual-criterion approach results in a slight overrepresentation of less-populated constituencies such as Álava, and a slight underrepresentation of more populous constituencies such as Gipuzkoa. Applying this method to the Basque Parliament elections of 1990, 2012 and 2024 yields the proposed distributions shown in the fourth column of Tables 1, 2 and 3, respectively.

Table 1
Seats by constituency

Basque Parliament elections, 1990

Constituency	Population	Population share	Seats	
			Proposed	Actual
Bizkaia	1,170,594	41.28	37	25
Gipuzkoa	685,181	24.16	25	25
Álava	271,238	9.56	13	25
total	2,127,013	75.00	75	75

Source: own research based on www.euskadi.eus/elecciones and www.ine.es.

Table 2
Seats by constituency

Basque Parliament elections, 2012

Constituency	Population	Population share	Seats	
			Proposed	Actual
Bizkaia	1,155,772	39.68	36	25
Gipuzkoa	709,607	24.36	25	25
Álava	319,227	10.96	14	25
total	2,184,606	75.00	75	75

Source: own research based on www.euskadi.eus/elecciones and www.ine.es.

Table 3
Seats by constituency

Basque Parliament elections, 2024

Constituency	Population	Population share	Seats	
			Proposed	Actual
Bizkaia	1,154,306	39.01	35	25
Gipuzkoa	728,027	24.61	25	25
Álava	336,686	11.38	15	25
total	2,219,019	75.00	75	75

Source: own research based on www.euskadi.eus/elecciones and www.ine.es.

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The current non-proportional allocation of seats among constituencies is one of the primary factors contributing to discordances between votes and seats across political parties. A further contributing factor is the practice of allocating seats to parties independently within each constituency, without accounting for their total vote share at the regional level. Clear instances of vote–seat discordances are evident in all three elections analysed: 1990, 2012 and 2024. In the 1990 election, a significant discrepancy occurred between Alavese Unity, which secured three seats with 14,351 votes, and United Left–Greens, which, despite receiving 14,440 votes, failed to obtain any representation (see fourth column of Table 4). In the 2012 election, Union, Progress and Democracy won one seat with 21,539 votes, whereas United Left, with 30,318 votes, remained unrepresented (see fourth column of Table 5). Similarly, in the most recent election held in 2024, Vox secured one seat with 21,396 votes, while Elkarrekin, despite receiving 23,679 votes, did not obtain representation (see fourth column of Table 6).

Among the three provinces, Álava has the weakest tradition of Basque nationalist voting. Its overrepresentation has resulted in an electoral advantage for state-wide parties such as Vox in the 2024 election (Table 6). Conversely, Bizkaia, which has historically exhibited stronger support for Basque nationalist parties, is underrepresented – leading to a slight underrepresentation of Basque nationalist parties overall (López, 2015; Ibarra and Ahedo, 2004; Jaráiz and Castro, 2022, pp. 38–56; Lagares and Oñate, 2019, pp. 165–187; Llera, 2016a, pp. 27–63; 2016b, pp. 247–265; Ortega and Trujillo, 2022, pp. 251–262; Rivera *et al.*, 2019, pp. 299–317). A more proportional distribution of seats among the constituencies would have prevented the vote–seat discordances observed in the 2012 and 2024 elections, as shown in the fifth column of Tables 5 and 6. However, a proportional allocation of seats based on population does not necessarily eliminate the possibility of such discordances. While it reduces the likelihood of inconsistencies between votes and seats, it does not rule them out entirely. Indeed, the 1990 election demonstrates that accounting for updated legal population figures alone is insufficient to eliminate these mismatches. Under a proportional distribution model, Alavese Unity would have received only one seat instead of three – thereby reducing, but not eliminating, the discrepancy (see fourth and fifth columns of Table 4).

The current Basque electoral law applies the d'Hondt method independently within each constituency, together with a classic discontinuous threshold of 3% of valid votes, calculated separately for each constituency. This classic discontinuous threshold entails excluding from the seat allocation process all parties that do not reach at least 3% of valid votes (i.e. votes cast for party lists plus blank ballots) within a given constituency. Under this system, a party that reaches the 3% threshold becomes eligible to participate in the seat distribution, although this does not guarantee that it will obtain a seat. Conversely, a party falling short of the 3% threshold by even a single vote is excluded from the distribution of seats, even in cases where its vote share could potentially entitle it to representation.

One way to avoid such discontinuities in seat allocation would be to implement a continuous threshold based on a pre-established percentage. A continuous threshold entails applying an equal vote reduction to all parties, calculated as a set percentage of the total number of votes cast for party lists. Taking the most recent 2024 elections as an example, applying a 1% reduction to the total number of votes cast for party lists results in a deduction of 10,522 votes, while a 3% reduction corresponds to 31,565 votes. With a 1% continuous threshold, this amount is subtracted from each party's total number of votes. Consequently, parties with fewer than 10,522 votes would be reduced to zero and excluded from the allocation process. Likewise, with a 3% continuous threshold, any party with fewer than 31,565 votes would be excluded, as its adjusted vote count would fall to zero. This same approach can be applied to the two other elections analysed – those held in 1990 and 2012. In addition to eliminating discontinuities in seat allocation, continuous thresholds can, in some cases, enable an additional party to obtain representation and provide the winning party with a seat bonus – contributing to improved governability and political stability (Márquez and Ramírez, 1998; Ortega and Oñate, 2019, pp. 205–224; Ramírez *et al.*, 2013, pp. 29–73, 87–105; Ramírez and Márquez, 2010).

In short, taking into account each party's total number of votes and applying a continuous threshold of 1% or 3% would help to prevent discordances between votes and seats among parties, enhance governability (by favouring the winning and most-voted parties) and improve representativeness (by allowing additional parties to gain seats). If a 1% continuous threshold were applied in the 2024 elections, the winning party (the Basque Nationalist Party [PNV]) would receive a bonus of two additional seats compared to the actual results, and one additional party (Elkarrekin) would gain representation with one seat – as shown in the penultimate column of Table 6. If a 3% continuous threshold were applied, the PNV would receive a larger bonus of four additional seats, but neither the Sumar alliance nor Elkarrekin would obtain representation (see final column of Table 6). Thus, the higher the continuous threshold applied, the greater the bonus to the winning and most-voted parties, and the fewer the number of parties represented, thereby reducing party system fragmentation and promoting governability.

https://doi.org/10.54790/rccs.135

Table 4

Seat allocation to parties with constituency sizes proportional to population and continuous thresholds of 1% and 3%

Basque Parliament elections, 1990

Party	Votes	Population share	Seats			
			Actual	Updated population	1% threshold	3% threshold
PNV	289,701	21.21	22	24	24	26
PSE/PSOE	202,736	14.84	16	16	16	17
HB	186,410	13.65	13	14	15	15
EA	115,703	8.47	9	9	9	8
PP	83,719	6.13	6	5	6	5
EE	79,105	5.79	6	6	5	4
EB	14,440	1.06				
UA	14,351	1.05	3	1		
Other	38,134	2.79				
Total	1,024,299	75.00	75	75	75	75

Source: own research based on www.euskadi.eus/elecciones and www.ine.es.

Table 5

Seat allocation to parties with constituency sizes proportional to population and continuous thresholds of 1% and 3%

Basque Parliament elections, 2012

Party	Votes	Population share	Seats			
			Actual	Updated population	1% threshold	3% threshold
PNV	384,766	25.62	27	29	29	31
EH Bildu	277,923	18.51	21	21	21	21
PSE-EE	212,809	14.17	16	15	15	15
PP	130,584	8.69	10	9	9	8
IU-UP	30,318	2.02		1	1	
UPD	21,539	1.43	1			
Other	68,461	4.56				
Total	1,126,400	75.00	75	75	75	75

Source: own research based on www.euskadi.eus/elecciones and www.ine.es.

Table 6

Seat allocation to parties with constituency sizes proportional to population and continuous thresholds of 1% and 3%

Basque Parliament elections, 2024

Party	Votes	Population share	Seats			
			Actual	Updated population	1% threshold	3% threshold
PNV	370,554	26.41	27	29	29	31
EH Bildu	341,735	24.36	27	27	26	28
PSE-EE	149,660	10.67	12	12	11	10
PP	97,149	6.92	7	6	7	6
Sumar	35,092	2.50	1	1	1	
Elkarrekin	23,679	1.69			1	
Vox	21,396	1.53	1			
Other	12,905	0.92				
	1,052,170	75.00	75	75	75	75

Source: own research based on www.euskadi.eus/elecciones and www.ine.es.

Once the total number of seats allocated to each party has been determined, the next step is to distribute these total seats among the constituencies through a biproportional apportionment process. This type of apportionment addresses the matrix allocation problem, in which row marginals (seats assigned to constituencies, shown in the final column of Tables 7–12) and column marginals (seats assigned to parties, shown in the final row of Tables 7–12) must be simultaneously satisfied. In other words, we know the number of votes each party has obtained in each constituency, the total number of seats each party is entitled to and the number of seats to be assigned to each constituency as previously calculated. What remains is to determine how many seats each party should receive in each constituency.

If allocation is carried out row by row – that is, for each constituency – the row marginals (final column of Tables 7–12) will be satisfied. However, there is no guarantee that the column marginals (total seats per party, final row of Tables 7–12) will also be satisfied. Conversely, if allocation is performed column by column – distributing each party's total seats across constituencies in accordance with its vote distribution – the column marginals (final row of Tables 7–12) are guaranteed, but the row marginals may not be. Row-based allocations involve applying an adjustment factor to each row and rounding according to the selected electoral method.

https://doi.org/10.54790/rccs.135

Biproportionality consists in applying adjustment factors simultaneously to both the rows and the columns of the vote matrix such that, after rounding according to the chosen method, both the row and column totals match the predetermined marginals. In our case, the Sainte-Laguë method has been selected to carry out the biproportional apportionment. To implement this, the votes received by all parties across all constituencies are arranged in a rectangular matrix. The rows and columns of this matrix are then simultaneously multiplied by appropriate adjustment factors so that, when the resulting values are rounded using the Sainte-Laguë method (or any other designated method), the constraints for both constituencies and parties are met (see Tables 7–12). Similarly, in column-wise allocations, the adjustment factor is applied to each column. A feasible solution is guaranteed in cases where the vote matrix contains no zeros, as demonstrated by Balinski and Demange (1989a, 1989b). To obtain this solution, specialised software is required, as it cannot be computed using a standard calculator or spreadsheet. For this study, we used the software BAZI, developed by Maier and Pukelsheim (2007), to perform the biproportional apportionment.

Table 7

Biproportional apportionment with a continuous threshold of 1%

Basque Parliament elections, 1990

	PNV	PSE	HB	EA	PP	EE	Total
Bizkaia	14	8	7	3	3	2	37
Gipuzkoa	6	5	6	5	1	2	25
Álava	4	3	2	1	2	1	13
Total	24	16	15	9	6	5	75

Source: own research based on www.euskadi.eus/elecciones and www.ine.es.

Table 8

Biproportional apportionment with a continuous threshold of 3%

Basque Parliament elections, 1990

	PNV	PSE	HB	EA	PP	EE	Total
Bizkaia	15	8	6	3	3	2	37
Gipuzkoa	7	5	7	4	1	1	25
Álava	4	4	2	1	1	1	13
Total	26	17	15	8	5	4	75

Source: own research based on www.euskadi.eus/elecciones and www.ine.es.

Table 9

Biproportional apportionment with a continuous threshold of 1%

Basque Parliament elections, 2012

	PNV	EH Bildu	PSE-EE	PP	IU-UP	Total
Bizkaia	16	8	7	4	1	36
Gipuzkoa	9	9	5	2		25
Álava	4	4	3	3		14
Total	29	21	15	9	1	75

Source: own research based on www.euskadi.eus/elecciones and www.ine.es.

Table 10

Biproportional apportionment with a continuous threshold of 3%

Basque Parliament elections, 2012

	PNV	EH Bildu	PSE-EE	PP	Total
Bizkaia	17	8	7	4	36
Gipuzkoa	9	9	5	2	25
Álava	5	4	3	2	14
Total	31	21	15	8	75

Source: own research based on www.euskadi.eus/elecciones and www.ine.es.

Table 11

Biproportional apportionment with a continuous threshold of 1%

Basque Parliament elections, 2024

	PNV	EH Bildu	PSE-EE	PP	Sumar	Elkarre.	Total
Bizkaia	15	10	5	3	1	1	35
Gipuzkoa	9	11	3	2			25
Álava	5	5	3	2			15
Total	29	26	11	7	1	1	75

Source: own research based on www.euskadi.eus/elecciones and www.ine.es.

Table 12

Biproportional apportionment with a continuous threshold of 3%

Basque Parliament elections, 2024

	PNV	EH Bildu	PSE-EE	PP	Total
Bizkaia	16	11	5	3	35
Gipuzkoa	10	11	3	1	25
Álava	5	6	2	2	15
Total	31	28	10	6	75

Source: own research based on www.euskadi.eus/elecciones and www.ine.es.

https://doi.org/10.54790/rccs.135

5. Conclusions

It is not reasonable for discordances to occur between votes and seats whereby a party with more votes than another obtains fewer seats or is even left without representation, as has happened in the three elections analysed here: 1990, 2012 and 2024. Such discordances could also occur again in future elections. It would be more reasonable for a party with more votes than another not to be left without representation or to obtain more seats than parties with fewer votes. However, due to historical and political conventions that are difficult to change, implementing our proposed reform of the Basque electoral system would be complex. Paradoxically, the Basque electoral system in its current form favours state-wide parties over nationalist parties, because Álava is overrepresented in terms of seats relative to its population. This province has historically been less nationalist, although in recent years it has shown a tendency towards more Basque-nationalist positions (Lagares and Oñate, 2019, pp. 165–187; Llera, 2016a, pp. 27–63; 2016b, pp. 247–265; Rivera *et al.*, 2019, pp. 299–317). In fact, in the most recent Basque regional elections of 2024, EH Bildu was the most voted force in the province of Álava, even ahead of the PNV. This represents a significant historical shift in Basque-nationalist voting behaviour in this province. Nevertheless, it should be noted that discordances in Basque elections are not primarily driven by the more or less Basque-nationalist evolution of the vote in Álava – although this factor also plays a role – but rather by the failure to take into account the updated legal population of each of the three constituencies when allocating seats among them. To avoid discordances between votes and seats among parties, regardless of constituency size, it would be sufficient to take into account parties' total votes, even if a final distribution of seats among the three constituencies were subsequently carried out using a biproportional method. In this article, we do not propose a fully proportional allocation of seats among constituencies, but rather one that is more proportional than the current system, which assigns 25 seats to each constituency based on purely historical and political agreement. Our proposal grants one initial seat to each constituency and applies the square root of each constituency's population to allocate part of the remaining seats. This results in a slight overrepresentation of smaller constituencies (Álava) and a slight underrepresentation of larger constituencies (Gipuzkoa). This somewhat more proportional allocation – though not fully proportional – reduces the likelihood of discordances, but does not eliminate them entirely. Indeed, when applying our proposed seat allocation among the three constituencies to the 1990 Basque elections, a minor discrepancy still occurred involving Alavese Unity (Table 4), although it was smaller than the discrepancy observed under the actual results. Álava has, without doubt, experienced a significant evolution in its electoral behaviour towards more Basque-nationalist positions. Nevertheless, in Álava, minor state-wide parties such as Vox or Sumar have obtained representation in the Basque Parliament, as occurred, for example, in the most recent elections of 2024.

Determining the size of constituencies based on a seat allocation proportional to their population reduces the likelihood of discordances but does not eliminate them entirely unless seats are allocated to parties based on their total number of votes received. Independent seat allocations in regional elections in autonomous communities with more than one constituency have, on several occasions, led to mismatches between vote shares and seat shares, as observed in the Basque Parliament elections of 1990, 2012 and 2024. The probability of vote–seat discordances increases when seats are not allocated to constituencies in proportion to their population – at least partially. Some autonomous communities assign a fixed initial number of seats to each constituency, ranging from one to several seats, depending on the electoral system in place. The remaining seats are then distributed in proportion to the population. This is known as the linear method, where the constant is the number of initial seats. In contrast, other autonomous communities allocate seats across constituencies based on purely political agreements, without applying any population-based proportionality criteria, as is the case in the Basque Country.

Improving representativeness – by allowing an additional party to obtain representation (thereby increasing fragmentation) – is by no means incompatible with enhancing governability and stability. The central aim of this article is precisely to demonstrate that representativeness and governability are compatible and can be achieved simultaneously. As shown in Tables 4, 5 and 6, by applying a simple continuous threshold of 1%, the winning party (PNV) would receive a greater seat bonus, while at least one additional party would also gain representation. Moreover, vote–seat discordances would be avoided, provided that the total number of votes obtained by each party is taken into account. Evidently, the higher the continuous threshold applied, the greater the seat bonus awarded to the winning party and the major parties, thereby improving governability. At the same time, the number of parties gaining representation would be reduced, thus lowering fragmentation.

We reach the main conclusion that if party seat allocation were based on a distribution of seats to constituencies that is fully or partially proportional to their populations, the likelihood of vote–seat discordances would be significantly reduced – although not entirely eliminated. However, with our proposed biproportional apportionment method, vote–seat discordances would be eliminated altogether, since the total number of votes received by each party is taken into account, regardless of whether seat distribution across constituencies is proportional or not. In addition to eliminating discordances, in the three elections analysed (1990, 2012 and 2024), the winning party (PNV) would have obtained a bonus of several seats, and at least one more party would have gained representation – receiving at least one seat – under the continuous 1% threshold. In short, our proposal would eliminate discordances between votes and seats, enhance governability (by awarding a bonus to the winning party and the most-voted parties) and improve representativeness (by enabling at least one more party to gain representation).

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