brazilianpoliticalsciencereview

ARTICLE

Political Institutions, Electoral Systems, and Party Stability in 40 Democracies Including Brazil*

Augusto Neftali Corte de Oliveira[1]
https://orcid.org/0000-0002-5615-8187

[1]Pontifícia Universidade Católica do Rio Grande do Sul. School of the Humanities. Graduate Program in Sociology and Political Science. Porto Alegre/RS, Brazil

This article investigates the impact of political and electoral institutions on party system stability in 40 democracies, including Brazil. Party stability is analyzed using the Electoral Party Variation (EPV) indicator, based on the Effective Number of Electoral Parties (ENEP). The political and electoral institutions of interest include electoral magnitude, electoral formula, and an approach derived from Sartori (strong, feeble, and moderate electoral systems). The analysis employs four models using the generalized estimating equation (GEE) method for panel data (40 cases, seven periods). It is observed that the electoral system is efficient in explaining party stability. High average district magnitude, proportional electoral formula, and feeble electoral systems are permissive factors for party system instability. The case of Brazil is not an exception, as the instability of the party system in the country is appropriately interpreted in light of the prevailing political institutions.
Keywords: Party system; electoral system; panel data; party stability.

http://doi.org/10.1590/1981-3821202300020004
Data replication: https://doi.org/10.7910/DVN/XOFW2Q
Correspondence: ancolive@gmail.com

*I thank the reviewers and the editorial and translation team of BPSR for their contributions.

This article revisits the debate on the effects of the electoral system on the party system. Beginning with Duverger (1970), scholars have adopted party fragmentation as the primary lens through which the relationship between electoral and party systems has been studied (COX, 1997; GOLOSOV, 2017; GUARNIERI, 2015; NICOLAU and SCHMITT, 1995; NOHLEN, 2007; ORDESHOOK and SHVETSOVA, 1994; PERES, 2009; RIKER, 2003; SARTORI, 2003, 1998; SHUGART and CAREY, 1992; SCHUGART and TAAGEPERA, 2018).

Instead of the notion of fragmentation/concentration, this study is interested in the stability of party systems. Schoultz (2017) argues that a stable party system is a key feature of successful democratic systems, as it is instrumental in establishing political connections between voters and policymakers. According to the author, the role of political institutions is a relevant gap in studies on party stability (SCHOULTZ, 2017, p. 48).

One of the most widely used metrics for measuring party fragmentation is the Effective Number of Electoral Parties (ENEP) (SCHUGART and TAAGEPERA, 2018, p. 58). To move away from the fragmentation/concentration lens and instead address party system stability, this study uses the concept of Electoral Party Variation (EPV), which measures the variation of ENEP between subsequent elections (section 2.1). This is the dependent variable of the study, a metric that indicates the stability of the party system resulting from a particular electoral process. The indicator is described by country (Figure 01) and by institutional characteristics (Table 04, Appendix).

The general research hypothesis is that the stability of the party system in democratic regimes can be described as a function of the adopted political institutions, especially the characteristics of the electoral system.

The study tests four specific working hypotheses that explain EPV from different perspectives: (h1) average magnitude of electoral districts; (h2) adoption of a plurality electoral system in single-member districts; (h3) adoption of an electoral formula, whether plurality, preferential, mixed, or proportional; and (h4) adoption of a strong, moderate, or feeble electoral system - a classification

derived from Sartori (2003, 1998). Generalized Estimating Equation (GEE) models are employed using panel data (time series cross-sectional data).

Evidence of the effects of electoral systems on party stability is found (Table 02, Figure 02, Table 03 [Appendix]). The main interpretations indicate that party stability decreases (higher EPV) in response to an increase in average district magnitude (h1). When considering the perspective derived from Sartori (2003, 1998) (h4), it is confirmed that party stability is lower in feeble electoral systems compared to others, and in moderate systems compared to strong ones. Significant differences in party stability are also observed according to the adopted electoral formula (plurality, preferential, mixed, and proportional) (h2 and h3). The investigation suggests that the electoral system has a regulatory effect on party system stability, confirming the general research hypothesis.

The first section (01) presents the main institutional characteristics of electoral systems: district, magnitude, and formula. The taxonomic approach of Sartori's proposition (2003, 1998), which classifies systems as strong, moderate and feeble, is also discussed. Table 01 provides a breakdown of countries according to these issues. Additionally, variables such as the presence of federalism, the form of government, the size of the parliamentary chamber, the country's population size, and ethnic social diversity are considered as control variables.

The second section (02) comprises the empirical analysis. It identifies and justifies the universe of cases selected based on the criterion of the number of elections under democratic circumstances. It presents the operationalization of the concept of party stability using the Electoral Party Variation (EPV) indicator and provides descriptive data by country and institutional characteristics (Figure 01, Table 04 [Appendix]). The results of the models are presented, interpreted, and discussed (Appendix 01). Given the high number of political parties in Brazil, the country has sometimes been excluded from comparative analyses as a deviant case of high party fragmentation (LOWERY et al., 2010, p. 296; SHUGART and TAAGEPERA, 2018, p. 55). A concluding discussion in the third section evaluates the fit of the analyzed countries in a selected model (Figure 04) and observes

the good fit of Brazil, where high party instability is observed, to its political institutions.

Understanding electoral systems, Sartori's proposition, and political institutions

Magnitude of the electoral district

The electoral district is the definition of the set of voters, usually established in territorial terms, who will be responsible for the election of a certain number of seats. Within the electoral district, the votes cast are processed together to determine the outcome and the winners (TAVARES, 1994, p. 37). Circumscription and electoral district are synonymous terms.

Electoral magnitude refers to the number of positions that will be filled by a particular electoral district. For the election of collegial bodies such as parliaments, the electoral system can adopt a magnitude that ranges from one (single-member district) to the total number of positions that the body has (multi-member district). Along with the electoral formula, electoral magnitude is considered the main characteristic of the system (LIJPHART, 2003b, p. 124; ORDESHOOK and SHVETSOVA, 1994, p. 101).

Research on party fragmentation indicates a positive relationship between district magnitude and the number of parties. According to Cox (1997, p. 271), the number of viable candidates or parties (lists) tends to be equal to the district magnitude, plus one. The district magnitude sets the threshold for a party's entry into parliament, as higher magnitude tends to require a smaller fraction of votes to win a seat. Taagepera (2002, p. 385) provides a review of this argument. Another review is conducted by Lowery et al. (2010), and updated in Golosov (2017) and Golosov and Kalinin (2017).

In Rae's (1995) central argument, the effect of magnitude on the party system occurs in terms of defragmentation. Low magnitude encourages party coalescence because 01. it rewards large parties with more seats than their proportional share of votes; 02. it incentivizes political parties to recruit candidates who can broaden the electoral appeal of the party; and 03. it encourages voters to switch their votes

to a second party preference when they have little expectation that their first preference can reach the election threshold (RAE, 1995, p. 72). Rae (1995) illustrates this inference with the cases of Spain and Italy, with the former having a low to medium magnitude and the latter having a high magnitude. The average district magnitude in Spain would be a favorable factor for defragmentation of the party system, whereas in Italy, with a high magnitude, this effect would not occur.

This study shifts the focus from proportionality or fragmentation to the stability of the electoral party system. Therefore, the operationalization of magnitude should capture the potential psychological effects of the overlap of formulas on voter behavior (TAVARES, 1994, p. 336). The mechanical effects of disproportionality in the translation of electoral parties into parliamentary representation are not relevant. In this regard, similar to Rae (1995), the average magnitude of all districts in a country is chosen for use (Table 01)[1].

In the working hypothesis (h1), the instability of the party system between elections is positively correlated to the average magnitude of the electoral system. Among the 40 democracies studied, the range of average magnitude starts from 01 (in majoritarian electoral systems) and reaches 150 (full proportional representation in the Netherlands and Slovakia). Adopting Rae's parameters (1995) ('Rae's thresholds'), the Spanish average magnitude (6.8) is used as the threshold between low and high magnitude (Table 01). The magnitude of Italy 01 (26.25) is chosen as the maximum threshold for analysis, equalizing the higher disparate values (Israel, the Netherlands, and Slovakia).

Electoral formula

The electoral formula is "a set of rules and mechanisms that convert votes for parties and candidates into party legislative seats and legislative representatives" (TAVARES, 1994, p. 45). Although disaggregating views on the mechanisms of the formulas are also proposed (CAREY and SCHUGART, 1995), the main dichotomy

[1]The total number of seats in the house divided by the number of districts, including those from different formulas. Compensation districts are not taken into account, as in Sweden, Denmark, and Austria (TAVARES, 1994, pp. 47 and 332). A discussion of how to measure global magnitude is presented by Gallagher and Mitchell (2018, p. 34; 2005, p. 634).

among electoral formulas occurs between majority and proportional ones (LIJPHART, 1990, p. 484; SARTORI, 1994, p. 04; TAVARES, 1994, p. 45).

The basic model of majority elections is plurality[2] (simple majority) in single-member districts. Proportional formulas operate through a calculation that divides seats according to the number of votes received by distinct groups of candidacies, initially before the elections. These groups are presented in lists and are represented by parties, party coalitions, or other organizations with political-electoral functions. The proportional formula allocates the seats in the district according to different calculations based on quotients[3], divisors[4], or a combination of both (TAVARES, 1994, p. 133).

There is a set of countries analyzed whose electoral formulas do not have a homogeneous classification in the literature[5]. It includes the two-round election (runoff) in France, the alternative vote in Australia[6], the single transferable vote (STV) in Ireland[7], and the binominal system[8] in Chile[9]. It does not seem appropriate to treat these systems as proportional because they do not aim to divide the available seats according to the number of votes obtained by political parties. Nor do they directly and necessarily lead to the victory of the option with the highest number of individual preferences. The French, Australian, and Irish systems allow voters to express one (or more) subsequent preferences, while

[2]Named plurality, first past the post (FPTP), single member plurality (SMP), or district-based (NICOLAU, 2012, p. 22).

[3]The quotient refers to the distribution of seats according to the number of votes divided by the number of seats in the district, followed by the distribution of remainders.

[4]Series of divisors distribute the seats among the most voted lists, updating the number of votes for each list by dividing the initial or remaining total by an indicator of the number of seats already obtained.

[5]As demonstrated by the divergences between Nicolau (2012), Tavares (1994, pp. 57 and 64), Lijphart (2003b, p. 124), Sartori (1994, p. 04).

[6] The alternative vote in the lower house of Australia is also known as instant-runoff voting because voters are allowed to rank their preferences on the ballot (Gallagher and Mitchell, p. 2018).

[7]The VUT (Vote for Upper-Tier) is considered a type of proportional representation that is susceptible to allocation errors because the absence of a party list makes the eventual proportionality depend on the electoral behavior when ordering the options on the ballot paper (JOHNSON and HOYO, 2012).

[8]Of the two seats, one belonged to the second force whenever the first force did not exceed twice the number of votes of the second force. Alternatively, according to the application of the d'Hondt formula, the second party secures one of the two seats starting from 33% of the votes (TAVARES, 1994, p. 340).

[9]Siavelis (2006) opposes the binominal system to the proportional, plurality, and mixed systems. The allocation of seats occurred through open party lists in the case of Chile 01.

the Chilean system favors the election of the second preference in each district. This set of unusual formulas can be referred to as preferential, but each system's particular mechanisms is quite distinct from the others.

An electoral system can operate with a single electoral formula or through combinations. In the latter case, they are known as mixed electoral systems, in which a single district is represented through the overlapping use of both a proportional representation formula in a party list and another single-member district formula (HERRON, NEMOTO, and NISHIKAWA, 2018, p. 446). Nicolau (2012, p. 79) distinguishes electoral systems between correctional systems and parallel systems. In the correctional mixed system, the first round of seat distribution occurs through a majoritarian formula, and the second round uses a proportional formula (TAVARES, 1994, p. 103). Parallel systems operate with two independent electoral formulas. In these cases, the same parliamentary body is divided into portions elected through the application of different electoral systems in overlapping districts.

The scholarly debate on the relationship between electoral formulas and the party system has revolved around Duverger's laws (COX, 1997; DUVERGER, 1970, pp. 262 and 275, 285; GOLOSOV, 2017; GUARNIERI, 2015; NICOLAU and SCHMIT, 1995; NOHLEN, 2007; PERES, 2009; RIKER, 2003; SARTORI, 2003, 1998; SHUGART and CAREY, 1992; SCHUGART and TAAGEPERA, 2018): plurality in single-member districts tends to maintain or produce a two-party system. On the other hand, proportional representation systems or second-round (runoff) systems favor multipartyism by promoting party fragmentation and the entry of new parties.

These arguments can be extended to the topic of party system stability. Following the essential distinction, in the second working hypothesis (h2), it is proposed that electoral formulas that adopt plurality are restrictive of electoral party variation (EPV) and, therefore, favor party system stability. Another hypothesis (h3) allows for variation in typologies. It is proposed that proportional formulas are the least favorable to stability. Regarding preferential and mixed electoral formulas, it is acknowledged that research in this area is exploratory.

Nevertheless, it is expected that they are more associated with party stability than proportional formulas but less so than plurality formulas.

Sartori: strong, moderate, and feeble systems

The above discussion exemplifies a theoretical/empirical dilemma in the study of the effects of electoral systems on indicators such as party system fragmentation or disproportionality between votes and parliamentary seats. Tavares (1994, p. 49) observes that the analysis of electoral systems can resort to the categorical duality between majority and proportionality formulas or adopt the perspective of a continuum among different systems.

The district magnitude approach (h1) is continuous but does not take into account changes in the electoral formula. The approach that identifies the electoral formula (h2 and h3), on the other hand, is categorical in principle. Tavares (1994, p. 55) argues that it is possible to adopt the view of a continuum between electoral systems, even though majoritarian and proportional systems are normatively distinct. The author emphasizes that this set of systems shares institutions, mechanisms, electoral rules, and a functional interest in the party system, which constitutes the criterion upon which they are judged. An inclusive alternative that encompasses both magnitude and formula elements was presented by Sartori (2003, 1998).

According to Sartori (2003, 1998), electoral systems can be evaluated based on the degree of party mobility they allow. By altering the scope of Duverger's rules (1970), Sartori (2003,1998) does not propose a causal relationship between the electoral system and the party system. For the author, the electoral system is an intervening variable that modulates the transformations of the party system. The driving causes of these transformations should be found in specific contextual issues of the party system. For a discussion on Sartori's proposal, it is possible to consult Tavares (1994, p. 348), Nicolau and Schmitt (1995), and Guarnieri (2015).

Sartori (1998, p. 235) indicates that the systems he classifies as strong, such as plurality, exert greater constraints on electoral behavior. Conversely, a hypothetical perfect proportional system could be classified as feeble because it

would have no effect on electoral behavior. Finally, Sartori (1998) suggests that proportional systems employing low-magnitude districts or mechanisms that favor larger forces can be categorized as moderate, representing a mixture of strong and feeble electoral systems. Under some circumstances, replacing a strong option with a feeble one would remove obstacles to party change, potentially leading to an increase in the number of parties.

Following Sartori's proposition (1998), electoral systems can be classified into three levels of intervention on the party system. Strongs systems are classified as those that adopt the most restrictive system, namely plurality in single-member districts. An intermediate category is referred to as moderate. This category includes systems that, while not adopting plurality, have a moderately restrictive weighted average magnitude (such as preferential formula, low-magnitude proportional, or mixed systems).

Sartori's proposition (1998) is particularly useful for analyzing variations in the electoral party system. The fourth working hypothesis (h4) suggests that party instability is higher in feeble electoral systems than in moderate systems, and higher in moderate systems than in strong systems. Based on the previously discussed Rae threshold (1995) (section 1.2), the average magnitude of 6.8 in Spain is considered the cutoff point between a moderate and feeble proportional system. Sartori (1998, p. 14) validates the notion of districts with a magnitude between 04 and 07 as being small[10].

Chart 01 presents the electoral systems in the proposed classifications, identifying the electoral formula (plurality, preferential, mixed, or proportional), the average district magnitude, and Sartori's approach (1998). Countries followed by numbers indicate the existence of electoral system reforms that have changed one or more of these elements[11].

[10]The magnitude threshold that ceases to produce strategic effects in the electoral system is measured at 10 by Taagepera and Schugart (TAVARES, 1994, p.355), between 05 and 15 according to Lowery et al. (2010), or disregarded according to Cox (1997, p. 205) and Amorim Neto and Cox (1997).

[11]It should be noted that the research does not address the issue of the ballot paper or the structure of the party list, which is often considered relevant due to the incentive for personalized strategies of candidate behavior (AMES, 1995; GOLOSOV, 2017; SAMUELS, 1999; SANTOS, 2006). Since the concept is applicable only to electoral systems with proportional formulas (and in some cases, preferential systems), it is advisable to address this subject in a separate research study, with an appropriate record of relevant cases.

Chart 01. Electoral systems and weighted average magnitude

Strong	Moderate	Feeble
Plurality	Mixed	Proportional
Canada (01)	Germany (2.0-3.0)	Argentina (10.7)
United States (01)	Bolivia 02 (1.6)	Austria (20.3)
Gana (01)	South Korea (1.2)	Belgium (13.6)
India (01)	Italy 02 (1.2)	Bolivia 01 (14.4)
United Kingdom (01)	Japan (1.6)	Brazil (19)
	Mexico (1.6)	Bulgaria (7,7)
	New Zealand (2.4)	Costa Rica (8,1)
	Hungary 01 (1.9)	Denmark 01 (11,1)
	Hungary 02 (1.8)	Denmark 02 (17.9)
	Romania (1.2)	Slovakia (150)
	Proportional	Finland (13.3)
	Chile 02 (4.2)	Israel (120)
	Colombia (4.6)	Italy 01 (26.2)
	El Salvador (06)	Italy 03 (23.3)
	Spain (6.8)	Norway (8.9)
	Greece (05)	Netherlands (150)
	Uruguay (5.2)	Poland (11,2)
	Preferential	Portugal (17,6)
	Australia (01)	Romania 01 (7.7)
	Chile 01 (02)	Romania 03 (7.3)
	Ireland (3.8)	Sweden (10.6)
	France (01)	Switzerland (7.7)
		Czechia (14.2)

Source: Elabored by the author, based on Stability in 40 Democracies[12].
Note: The country names that are followed by numbers indicate electoral system reforms.

Government system, federalism, parliament, population, and diversity

The association between presidentialism and fragmentation of the parliamentary party system is analyzed in relation to the electoral cycle, the level of party fragmentation in the presidential election, and considerations regarding presidential powers (AMORIM NETO and COX, 1997; COX, 1997, p. 210; GOLOSOV, 2017; HERRON, NEMOTO, and NISHIKAWA, 2018, p. 461; LIJPHART, 2003b, p. 181; SHUGART and CAREY, 1992, p. 258; SHUGART and MAINWARING, 1997, p. 24). However, Golosov and Kalinin (2017), in a recent panel research with a time series, point out that the effect of the presidential election on parliamentary party fragmentation is weak. This study focuses on the categorical difference between parliamentary, semi-presidential, and presidential systems.

Without intending to explore the direct causality of party system stability, three variables are considered as additional conditioning factors: federalism, parliament size, and population size. According to Colomer (2018), the relationship

[12]Available at: https://doi.org/10.7910/DVN/XOFW2Q

between these three factors helps to understand the adoption of electoral institutions and party fragmentation. The presence of federalism or a larger parliament can serve as an institutional alternative to party fragmentation (and proportional representation), even in populous countries. In unitary countries with a smaller population size, party fragmentation becomes an alternative for political expression of social heterogeneity. It should be noted that the interpretation is not homogeneous, as Shugart and Taagepera (2018) observe an association between parliament size and party fragmentation. Similarly, Lijphart (2003b, p. 180) considers parliament size as one of the explanatory factors for the proportionality of the system.

This study prioritizes an institutional approach. Typically, the alignment of parties with social cleavages present in a particular context is considered a determining factor of party life, as exemplified by the historical formation of European party systems provided by Lipset and Rokkan (1996). Electoral systems can either facilitate or hinder realignments. Various studies have explored this perspective (AMORIM NETO and COX, 1997; COX, 1997; GOLOSOV and KALININ, 2017; MOSER, SCHEINER and STOLL, 2018; ORDESHOOK and SHVETSOVA, 1994; PERES, 2013). The theoretical/normative development of this relationship has led to the conclusion that the electoral system should allow for an appropriate level of party system fragmentation for the political expression of social heterogeneity (LIJPHART, 2003b).

In the presence of ethnic social cleavages (as the driving cause), party fragmentation is licensed by the magnitude of districts (ORDESHOOK and SHVETSOVA, 1994, p. 122) or permissive electoral systems (AMORIM NETO and COX, 1997, p. 167; COX, 1997, p. 221). Although this type of variable continues to be employed (GOLOSOV and KALININ, 2017), it is necessary to further understand whether and which cleavages are relevant in current democracies and in which contexts. Moser, Scheiner, and Stoll (2018) indicate that "developing improved data on social diversity measures is important for far more than simply learning about political parties" (MOSE, SCHEINER and STOLL, 2018, p. 153). However, as the authors point out, ethnicity remains the most commonly used variable for understanding party fragmentation. This research follows in that direction and uses the ethnic diversity metric presented by Alesina et al. (2003)

(GOLOSOV and KALININ, 2017) as a proxy for the social diversity present in the cases studied.

It is not difficult to think of other exploitable tensions (such as economic, and environmental ones) or situations that modulate or construct the politicization of ethnicity or nationality (such as migration and regional integration processes). From a dynamic concern regarding the stability of the party system, this opportunity for politicization, or making a certain issue controversial, seems more relevant than the inference offered by the history of cleavages present in the formation of European party systems.

The proposed approach deviates from a focus on social issues by placing political institutions at the forefront and by not assuming a certain level of party system fragmentation as a correlate (empirical or normative) of cleavages or social heterogeneity. Instead of working with the number of political parties or the level of fragmentation, it considers the stability of the electoral party system format in successive elections. The aim is to demonstrate that party stability can be understood, at least in part, through the institutional, political, and electoral elements employed in different countries. The limitations of control variables, such as social diversity captured as ethnic diversity, are taken into account in the discussion and interpretation of the results.

Electoral systems and party stability in 40 Democracies

The universe of analysis consists of elections for the lower or single chamber of all sovereign and democratic countries with two million or more inhabitants, and at least eight consecutive elections with available data. The democratic criterion used is that of The Economist (2020). Since the relationship between institutions and the party system is explained by the existence of an electoral market, it does not seem reasonable to control for the level of democracy. Eight elections provide data for seven periods of party variation. The research includes 280 cases (elections), distributed in a balanced panel of seven periods in 40 groups (countries). The countries can be found in Table 04.

The analysis period and, consequently, the selected cases were stipulated based on the Brazilian case. Following this example, eight elections for the Brazilian Chamber of Deputies were included in the study: 1990, 1994, 1998, 2002, 2006,

2010, 2014, and 2018. The electoral party variation (EPV) data correspond to the observations in the seven elections starting from 1994. The same process was carried out for all 40 analyzed countries (section 3.1). Thus, the inclusion of this number of cases in the research is justified, even though the total number of democratic countries at the time of this research far exceeds 40.

This section is divided into three parts. The first part presents the calculation of EPV and descriptive statistics by country and by groups of characteristics of interest. The second presents and interprets the models that test the four working hypotheses (Appendix 01). Tthe third and final section discusses the overall research results, with a special focus on the Brazilian case.

Electoral party variation (EPV): descriptions

A classic measure of party stability is the electoral volatility of parties. However, this study examines not the change of parties per se, but transformations at the party system level[13]. Here, the use of the effective number of electoral political parties (ENEP) is the primary academic metric (SCHUGART and TAAGEPERA, 2018, p. 58).

In this research, the absolute variation in ENEP compared to the previous election is used as an operationalization of party stability, known as Electoral Party

$$\text{Variation (EPV): } EPV = \left| {}^{1}\Big/\left(\sum_{i=1}^{n}\left(\frac{vp^{e,n}}{vt^{e}}\right)^{2}\right) - {}^{1}\Big/\left(\sum_{i=1}^{n}\left(\frac{vp^{e-1,n}}{vt^{e-1}}\right)^{2}\right) \right|, \text{ where 'vp'}$$

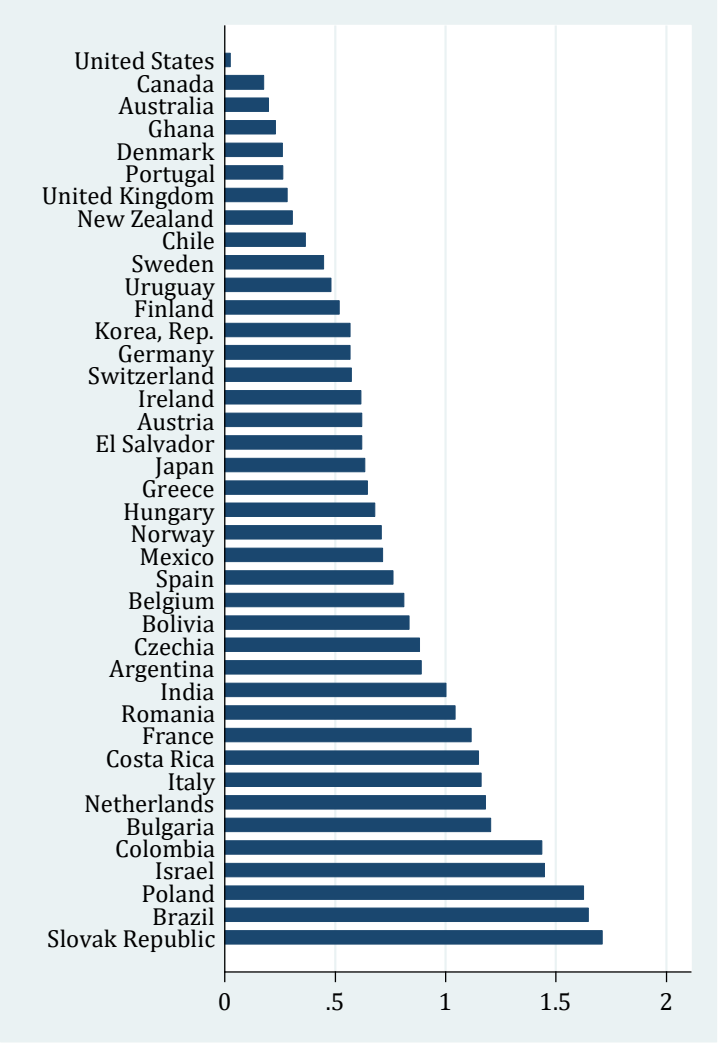
represents the number of votes for party 'n' in election 'e', and 'vt' represents the total number of votes in election 'e'.

The indicator has the advantage of being referenced to the trajectory of specific cases, as well as allowing for an intuitive measure in comparative terms. The higher the EPV, the greater the transformation that has occurred in the party system, and therefore, the lower the level of party stability.

[13]In this sense, it differs from electoral volatility. For a discussion on the concept of electoral volatility, refer to Peres (2013), and for an updated critique, consult Borges (2021).

Figure 01 displays the EPV of the 40 countries, based on the average value of the seven analyzed elections. Slovakia, Brazil, Poland, and Israel exhibit high EPV, indicating low party stability. On the other hand, the United States, Canada, Australia, and Ghana demonstrate low EPV and high party stability.

Figure 01. Average electoral party variation (EPV) by country (40 countries, seven elections)



Source: Elaborated by the author, based on Appendix 02.

The models presented in the following sections project the EPV based on institutional characteristics, the electoral system, and controls. From these projections, it will be possible to investigate the relationship between political and electoral institutions and party stability. Table 01 presents the descriptive information of cases (elections), average EPV, and its standard deviation.

Elections held under plurality systems have an average EPV of 0.34 effective parties, significantly lower than what is observed in other systems. The classification based on four electoral formulas also shows different average EPV values, progressing in the following order: plurality, preferential, mixed, and proportional. Sartori's classification (2003) of strong systems (equivalent to plurality) with a EPV of 0.65, moderate systems (0.65 effective parties), and feeble systems (0.98 effective parties) adheres to the theoretical expectation: the indicator progresses from the lowest (strong) to the highest (feeble).

Table 01. Descriptive statistics of electoral party variation (EPV)

		Cases	Mean	Minimum	Maximum	Standard Deviation
Plurality (h2)	No	245	0.82	0.01	5.22	0.83
	Yes	35	0.34	0.01	3.09	0.62
Electoral formula (h3)	Plurality	35	0.34	0.01	3.09	0.62
	Preferential	27	0.55	0.01	2.49	0.61
	Mixed	53	0.62	0.01	3.15	0.65
	Proportional	165	0.93	0.01	5.22	0.90
Sartori's classification (h4)	Strong	35	0.34	0.01	3.09	0.62
	Moderate	116	0.66	0.01	4.96	0.74
	Feeble	129	0.96	0.01	5.22	0.89
Form of state	Unitary	137	0.73	0.01	5.22	0.80
	Federal or regional	143	0.79	0.01	4.96	0.85
System of government	Parliamentary	133	0.69	0.01	3.73	0.68
	Semi-presidential	63	0.93	0.01	5.22	0.98
	Presidential	84	0.75	0.01	4.96	0.90
All		280	0.76	0.01	5.22	0.82

Source: Elabored by the author, based on Stability in 40 Democracies[14].

Table 01 includes two non-electoral political institutions. The presence of a federal or regional state makes a small difference in the average EPV, which is higher among those who adopt it. Among the three analyzed forms of government, semi-presidential systems show the highest average EPV, with parliamentary and presidential systems approaching each other in this indicator. It should be noted, for all observations, the high standard deviation of the metrics.

Panel analysis using time series models

This study covers 40 countries with seven observations each, forming a balanced short panel with a total of 280 observations. Political institutions and

[14]Available at: https://doi.org/10.7910/DVN/XOFW2Q

electoral systems are not usually reformed, so they are variables in the panel but almost always constant within country groups. Since they do not vary across time periods within each country, studying political institutions suggests using methods with random effects estimators (PETERSEN, 2009, p. 342).

The estimation of generalized equations (GEE) for population means is adopted as an investigative strategy[15]. Unit root tests for panel data reveal the suitability of EPV in the use of methods[16]. This semi-parametric modeling method offers greater flexibility, allowing for direct inferences on the calculated EPV after adjustments. The reports are presented in Appendix 01. All of them include the control variables: federal or regional state, system of government, parliamentary size, population size, and ethnic diversity.

In summary, this research starts with a general hypothesis: the stability of the party system in democratic regimes can be described as a function of the adopted political institutions, especially the characteristics of the electoral system. To operationalize the research, four working hypotheses are adopted, which, as discussed in the previous section, indicate alternative understandings of the evaluation and classification of political institutions in the electoral system. The working hypotheses and their respective operationalizations are as follows:

a) Hypothesis 1 (h1), model A (Appendix 01). Independent variable of interest: average district magnitude at the Rae threshold, as explained in section 1.2.
b) Hypothesis 2 (h2), model B (Appendix 01). Independent factor of interest: plurality electoral system (dummy), as explained in section 1.3.
c) Hypothesis 3 (h3), model C (Appendix 1). Independent factor of interest: plurality, preferential, mixed, or proportional electoral formula, as explained in section 1.3.
d) Hypothesis 4 (h4), model D. Independent factor of interest: classification derived from Sartori (2003) as strong, moderate, or feeble, as explained in section 1.4.

[15]The models' structures were replicated in regressions using the Ordinary Least Squares (OLS) and Generalized Least Squares with Random Effects (GLS RE) methods, which validated the results obtained for the variables of interest in models A, B, C, and D (see Appendix).
[16]The unit root test Levin-Lin-Chu t-adjusted = -12.85 ($p < 0.000$) and Harris-Tzavalis rho = 0.09, z = -12.24 ($p < 0.000$) were conducted.

Model A focuses on average district magnitude. Hypothesis (h1) states that the greater the magnitude, the higher the EPV, indicating greater party instability. Model A establishes a strong and significant positive relationship between average magnitude and EPV, supporting the hypothesis (Model A, Appendix 01). For a graphical analysis, please refer to Figure 02. Therefore, Model A confirms the working hypothesis (h1).

Model B tests the second working hypothesis (h2), which examines the dichotomous view of the electoral system regarding the adoption or non-adoption of the plurality formula (simple majority). The hypothesis is confirmed because in Model B, a statistically significant difference is observed between the group that adopts plurality (with lower EPV) and the group that does not (with higher EPV). As shown in Table 02, in this model, plurality reduces electoral party variation by approximately 0.64 effective parties, with high statistical significance, when compared to the group that does not adopt plurality as an electoral system.

Table 02. Pairwise contrasts in models B, C, D, and E (selected factors)

Model	Factors	EPV	Z
B (h2)	Plurality vs. Non-plurality	-0.65 (0.07)	-8.24***
C (h3)	Preferential vs. Plurality	0.26 (0.12)	2.07
	Mixed vs. Plurality	0.43 (0.08)	5.26***
	Proportional vs. Plurality	0.83 (0.08)	10.16***
	Mixed vs. Preferential	0.16 (0.14)	1.12
	Proportional vs. Preferential	0.56 (0.14)	3.89**
	Proportional vs. Mixed	0.39 (0.11)	3.53**
D (h4)	Moderate vs. Strong	0.48 (0.07)	6.34***
	Feeble vs. Strong	0.83 (0.09)	8.88***
	Feeble vs. Moderate	0.34 (0.11)	3.13**

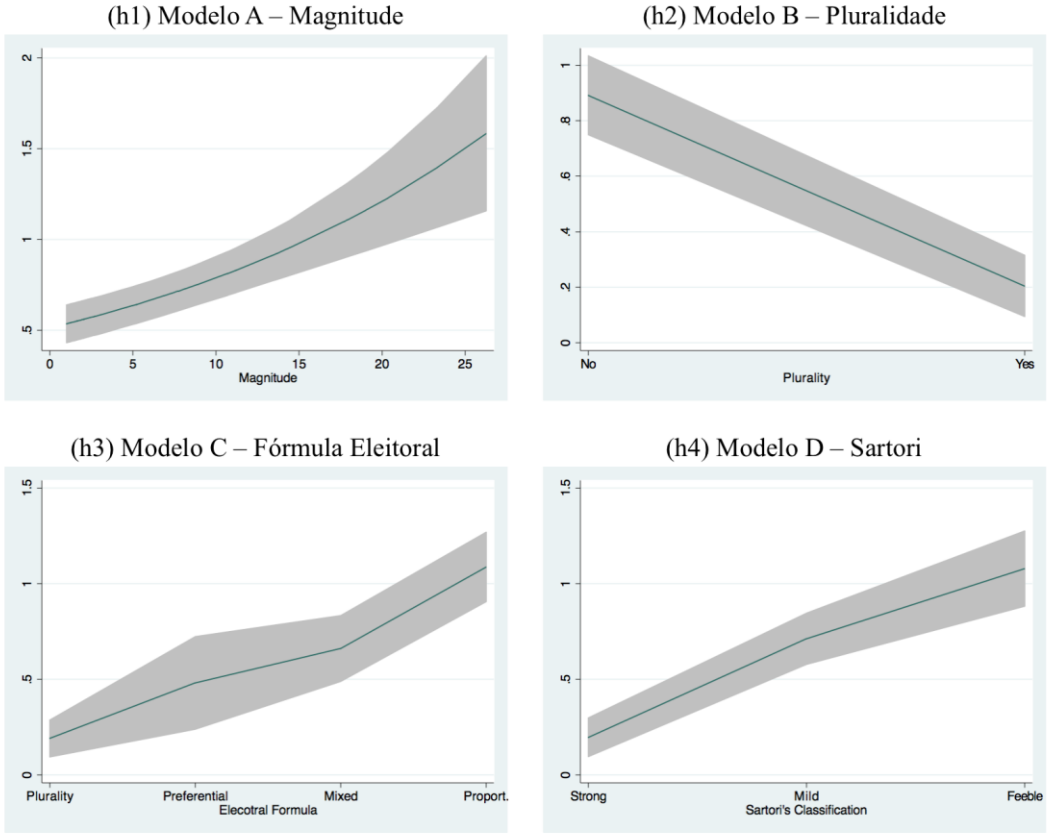
Source: Elaborated by the author, based on models listed in the appendix.
Note: Standard deviation calculated using the Delta method. 95% confidence interval. Z coefficient in Models C and D with standard deviation adjusted using the Sidak method. ***p < 0.001; **p < 0.01; * p < 0.05.

In Model C, the usual classification is adopted, including plurality, preferential, mixed electoral systems, and proportional representation. The research hypothesis (h3) is

less precise, but it is expected to find lower EPV in systems with a plurality formula and higher EPV in proportional systems. The pairwise comparison presented in Table 03 can be used to interpret the results, which confirm the hypothesis. The group that adopts a proportional electoral formula has a party variation of 0.82 effective parties more than the plurality system, 0.53 effective parties more than the preferential system, and 0.39 effective parties more than the mixed electoral system.

There are also statistically significant differences in Model C between the groups that adopt a mixed system and plurality. However, no significant differences were observed between the groups with a plurality electoral formula and a preferential formula, as well as between the mixed system and the preferential formula (Table 03). The graphical interpretation continues in Figure 02. It can be interpreted that the traditional view of electoral formulas (plurality, preferential, mixed systems, and proportional) does not effectively discriminate the relationship between institutions and party variation, considering that no statistical differences were observed in some comparisons. This is likely due to the less precise categories: preferential and mixed systems.

Figure 02. Marginal projections of party electoral variation for models A, B, C, and D, selected variables



Source: Elaborated by the author, based on Table 02, models A, B, C, and D (Appendix).

Model D tests and validates the hypothesis derived from Sartori's proposition (h4) as significant differences are observed among the electoral systems classified as strong, moderate, and feeble. This hypothesis works with an independent factor of three categorical positions. The contrasts can be visualized in the pairs of Table 03 and Figure 02. The feeble system presents an effective party magnitude (EPV) that is 0.82 higher than the strong system and 0.33 higher than the moderate system. The moderate system has a EPV that is 0.48 higher than the strong system. All comparisons are statistically significant. The analysis not only differentiates the systems in terms of party system stability but also follows a coherent sequence consistent with the logic of the hypothesis derived from Sartori's proposition (2003) (Figure 02): systems classified as strong are more restrictive than moderate and feeble systems, while moderate systems are more restrictive than feeble systems.

The performance comparison between GEE-based model methods is elusive. However, all four models present consistent information that aligns with the general theoretical expectations. Model B appears to be inferior, considering its reliance on the small number of cases that adopt a plurality formula. The partial failure of Model C to categorize the so-called preferential and myth systems is overcome by the more accurate classifications of the approaches used in Models A and D.

In practice, Models A and D exhibit redundancy due to the calculation method of average magnitude, placing mixed systems as intermediaries between plurality and proportional systems. Both models provide robust evidence that electoral systems can be categorized along a continuum based on their effects on party system dynamics. It should be noted that Model A (h1) employs a continuous independent variable, while Model D uses a nominal categorical factor.

These are the results obtained for the variables and factors of interest, followed by a brief analysis of the control variables. In line with the theoretical expectation, the group that adopts a federal or regionalized state shows a lower effective party magnitude (EPV) compared to the group that adopts a unitary state in all models. The understanding is that the possibility of political expression in different levels of government would have a stabilizing effect. However, in none of the models is there statistical significance (at the 5% level) between groups with different forms of state. In model C, it reaches a level of 10%, but in models A, B, and

D, it does not even reach this level. It can be inferred that the existence of federalism or regional government does not have explanatory power regarding party stability.

Similarly, the system of government does not seem capable of elucidating the differences in party variation. All models explored this factor based on the group of cases with presidential systems. In none of the models, the group with a parliamentary system of government shows a significant difference compared to the group with a presidential system. Moreover, the coefficient varies between negative (Model A) and positive (other models). Therefore, it is not possible to infer that the group with a parliamentary system of government differs, in terms of party stability, from the group that adopts a presidential system.

In contrast, the group with a semi-presidential government, when compared to presidential ones, exhibits greater party variation in all GEE model methods. This finding is consistent with Golosov and Kalinin's (2017, p. 128) observation, which indicates an association between semi-presidentialism and parliamentary party fragmentation. In Model B, the presence of a semi-presidential government shows significance at the 5% level, and in Model C, at the 10% level. However, this effect is not observed in Models A and D.

The coefficient related to the size of the parliament does not exhibit statistical significance in any model, nor does it have a coherent interpretation across them. On the other hand, the coefficients related to population size and ethnic diversity are positive and statistically significant (at the 5% level) in Models B, C, and D. It is possible, therefore, that there is an interaction between population size and social diversity with party variation, as expected in analyses of party fragmentation (AMORIM NETO and COX, 1997; COX, 1997; GOLOSOV and KALININ, 2017; MOSER, SCHEINER and STOLL, 2018; ORDESHOOK and SHVETSOVA, 1994; PERES, 2013) (section 1.4). However, as pointed out by Moser, Scheiner, and Stoll (2018), more robust indicators of the different dimensions of socio-economic tensions present in contemporary societies could help better understand the interaction between diversity and political institutions in the trajectories of party systems.

Analysis

The literature addressed in the first section examines the role of institutions, especially as they relate to party fragmentation. This research has reformulated

these ideas to analyze electoral party stability, measured by EPV. The set of models consistently indicates that electoral systems are relevant in distinguishing the observed patterns of party stability among the 40 democracies analyzed. Thus, the general research hypothesis is validated in this sense.

As indicated earlier, four working hypotheses were tested, reflecting different approaches to the political institutions of electoral systems. Two working hypotheses can be considered of lesser utility for understanding electoral stability: h2 (Model B) and h3 (Model C).

These two hypotheses work with the traditional classification of electoral systems based on the electoral formulas they adopt. H2 only differentiated between groups with and without the plurality electoral formula. As previously discussed, there is a long academic debate about the effect of plurality-based electoral systems on the party system, as they tend to preserve or encourage two-party systems (COX, 1997; DUVERGER, 1970; GOLOSOV, 2017; GUARNIERI, 2015; NICOLAU and SCHMITT, 1995; NOHLEN, 2007; PERES, 2009; RIKER, 2003; SARTORI, 2003, 1998; SHUGART and CAREY, 1992; SCHUGART and TAAGEPERA, 2018). On the other hand, the non-adoption of plurality (with preferential or proportional systems) tends to have a fragmenting effect on the party system. H3 expanded the set of 'non-plurality' into some traditional categories: preferential systems (two-round, binominal system, transferable vote), mixed systems, and proportional systems.

By shifting the research focus from fragmentation/concentration to stability, the tests related to working hypotheses 02 and 03 resemble the previous literature. In fact, countries that adopt plurality systems have lower party variation. Countries that adopt proportional systems have higher party variation compared to those adopting plurality, preferential formulas, and mixed systems. The limitations of these perspectives lie in the interpretive capacity they produce: the category of 'non-plurality' encompasses a diverse set of institutions, limiting the potential of hypothesis 02. On the other hand, the traditional view's discrimination of 'non-plurality' failed to identify the modulation of party variation between preferential formulas and plurality, as well as between mixed and proportional systems.

Working hypotheses 01 and 04 yielded results that offer more intuitive interpretations of party stability. Part of the literature considers district magnitude as the key electoral characteristic regarding party fragmentation/ concentration:

the higher the magnitude, the greater the incentives for party system fragmentation (LOWERY et al., 2010; RAE, 1995; TAAGEPERA, 2002). By shifting the focus from fragmentation to stability, this research indicates that district magnitude can indeed be an institutional feature of the political system that is relevant for understanding party variation. In general terms, the lower the average district magnitude of the system, the lower the observed party variation.

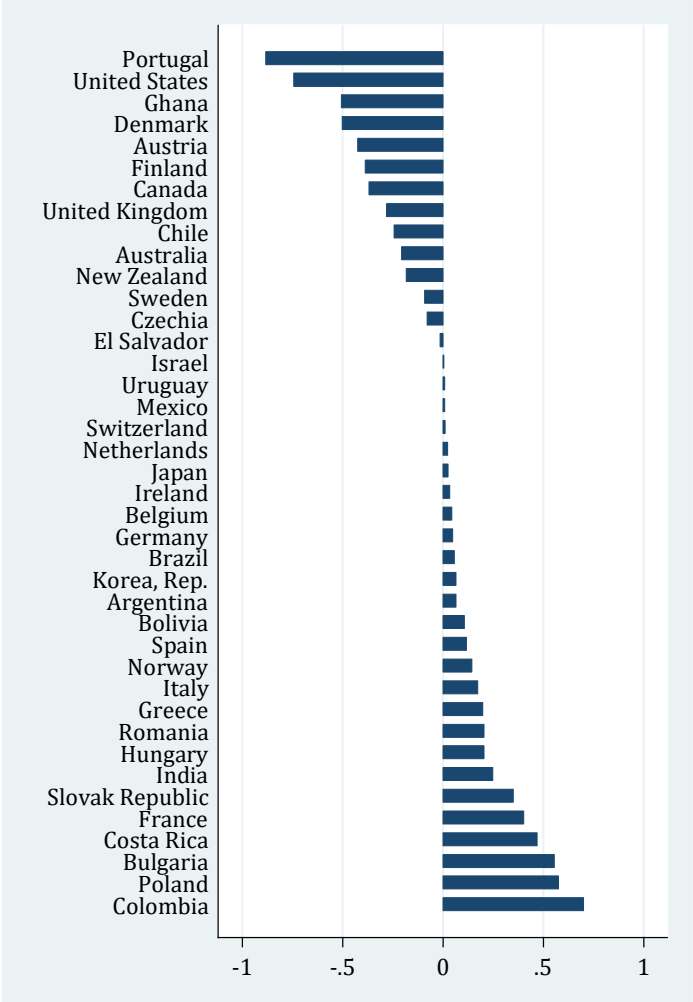
Finally, hypothesis 04 reinterpreted a proposition by Sartori (2003). The author considered that the most appropriate way to consider the relationship between the electoral system and party system fragmentation was not as a causal effect but as an intervening factor. The plurality electoral system would have a strong restrictive effect against potential sociological incentives for party fragmentation. On the other hand, proportional systems with high district magnitude would be feeble or loose and would not exhibit such a restrictive effect against fragmentation, although the immediate causes of party fragmentation should be found elsewhere, not in political institutions.

Sartori's argument (2003) was reconsidered in hypothesis 04 in terms of party system stability. It was expected, and model D provides confirmatory evidence, that the experience of plurality (strong classification) is accompanied by lower party variation. The experience of proportional electoral formulas with high magnitude (more than 6.8 seats per district, feeble classification) is accompanied by higher party variation. On the other hand, the intermediate classification, which includes preferential formulas, mixed systems, and preferential formulas with low district magnitude, consistently distinguishes itself from the others in an intermediate position regarding observed party variation.

Therefore, the two hypotheses that seem to have a greater interpretive capacity regarding party variation are those that adopt the average district magnitude view (h1, Model A) and the classification derived from Sartori (2003) (h4, Model D). Figures 03 and 04 present the difference in effective parties between the empirically observed EPV and the center of estimation of Model A (Figure 03) and Model D (Figure 04), both in average values per country. Positive discrepancies indicate cases where empirical reality exhibited greater party instability than projected by the respective models. Negative discrepancies represent cases where empirical reality exhibited greater stability than projected by the models.

Model A (h1) seems to have underestimated the stabilizing effect of the existence of an electoral system with a plurality formula (magnitude equal to one), as several examples from these countries were predicted to be closer to reality by Model D (h4): the United States, Ghana, Canada, the United Kingdom, and France. On the other hand, Model D (h4) seems to have underestimated party instability in feeble systems: Slovakia and Israel, countries with integral magnitude, were better described by Model A (h1).

Figure 03. Difference in the number of effective parties between average electoral party variation (EPV) per country and the Linear Exponential Projection of EPV in Model A per country (40 countries, seven periods).

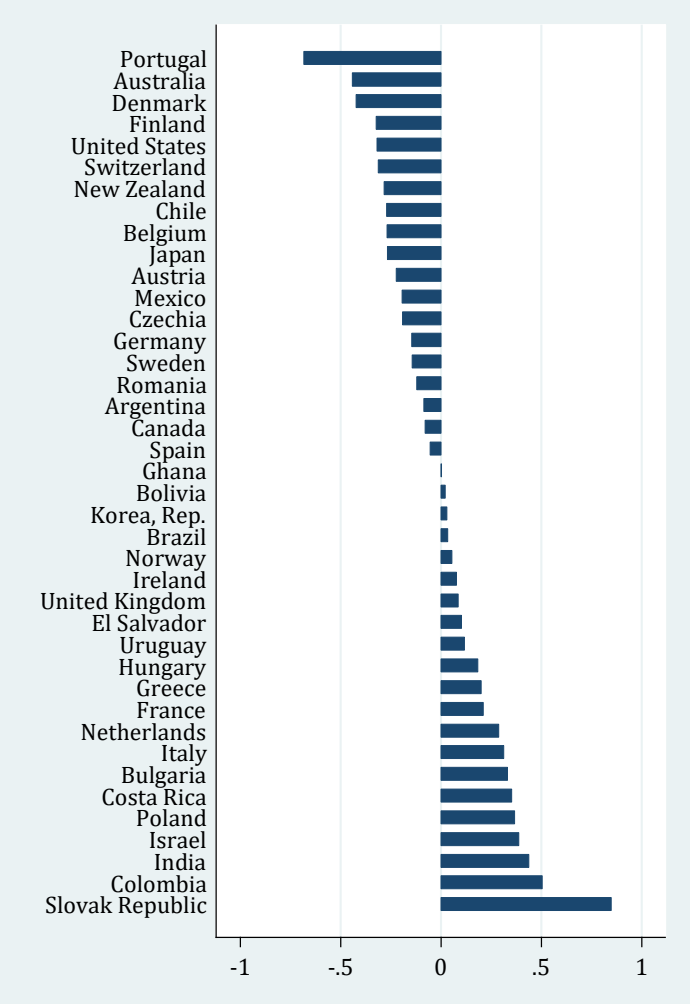


Source: Elaborated by the author based on Model A.

Considering the results of these two models, it is possible to identify countries that were adequately described by the investigation and those in which party variation was not sufficiently captured in the models. Focusing on the most

explicit cases, Portugal and Denmark are examples of countries where the high stability of the party system is not explained by this research. On the other hand, Colombia and India are the main examples of countries that exhibit higher instability than expected by Models A and D.

Figure 04. Difference in the number of effective parties between average electoral party variation (EPV) per country and the Linear Exponential Projection of EPV in Model D per country (40 countries, seven periods).



Source: Elaborated by the author based on Model D.

Returning to the interpretative logic of Sartori (2003, 1998), the sufficient cause for the party stability in Portugal and Denmark should be found in elements that were not studied or external to the electoral system. On the flip side, Colombia and India would be examples where the electoral institutions suitable for party stability performed worse than expected, which may indicate the presence of factors

not comprehended in the analysis, whether structural or conjunctural, and producers of party instability.

Most cases (countries) have interpretations consistent between Models A and B, which were able to predict the empirically observed party variation accurately. Brazil is the second country with the highest party instability (Figure 01) and can be considered a typical case. From the perspective of party fragmentation, the country is even excluded from empirical analyses due to the absurd number of effective parties in its system (LOWERY et al., 2010, p. 296; SHUGART and TAAGEPERA, 2018, p. 55). By replacing this view with the dynamics of the party system, captured in the concept of Effective Number of Parties (ENP), the case of Brazil emerges as a well-fitting example of the functioning of the electoral institutions it adopts.

Another way to assess the adequacy of the adopted interpretations is by examining the reforms in the political institutions covered in this study. Among the 40 countries studied, seven showed variation in their political institutions. The explanatory capacity of the internal variation within cases (countries) regarding the variation in the Effective Number of Parties (ENP) is very low[17]. Nevertheless, the descriptive data on electoral reforms support the inferences of the research:

a) Italy: Average ENP of 1.56 (standard deviation: 0.44) in elections with feeble electoral systems, average ENP of 0.63 (0.22) in elections with a moderate system.
b) Romania: Average ENP of 1.18 (0.32) in elections with feeble electoral systems, average ENP of 0.71 (0.96) in elections with a moderate system.
c) Bolivia (counterintuitive): ENP of 0.33 in the election with a feeble system, average ENP of 0.92 (1.16) in elections with a moderate system.
d) Germany: ENP increased from 0.03 when the average magnitude was 2.0 seats per district to an ENP of 1.37 when the average magnitude reached 3.0 seats per district.

[17]The variation 'within' in the models is only 1%. For the limits of within-statistics in regression with random effects, please refer to Schunk (2013).

e) Chile: Average ENP of 0.21 (0.11) with the old binomial preferential system, ENP of 1.28 in the first election with the preferential system with an average magnitude of 4.28 seats per district.
f) Denmark: Average ENP of 0.18 (0.27) in elections with an average magnitude of 11.1 seats per district, average ENP of 0.32 (0.19) in elections with an average magnitude of 17.9 seats per district.
g) Hungary: Average ENP of 0.24 (0.15) with an average magnitude of 1.8 seats per district, average ENP of 0.85 (0.41) after a reform that increased the average magnitude to 1.9 seats per district.

Marenco dos Santos (2012), analyzing four electoral reforms in Latin America (Venezuela, Bolivia, Ecuador, and Colombia), concludes that none of them achieved the intended effect of reducing party fragmentation. This observation is confirmed in terms of stability in this study, particularly in the case of Bolivia. However, the electoral reform in Bolivia is the only one among the seven experiences where the adoption of a stricter electoral system led to greater party instability. The experiences of Italy, Romania, Germany, Chile, Denmark, and Hungary align with expectations: the presence of a feeble electoral system or a higher average district magnitude was correlated with higher party variation.

Conclusion

Traditionally, party systems are analyzed from the perspective of their fragmentation, which is understood as a fundamental risk to the sustainability of democratic regimes (Dahl, 2015, p. 125). The focus of this research, however, has been on party system stability, which refers to the variation in the party system's format between successive elections. Party system stability is another relevant perspective for the performance of a democracy (SCHOULTZ, 2017), along with the institutionalization of the party system (BORGES, 2021; MAINWARING, POWER, and BIZZARRO, 2018).

This study investigated the stability of party systems over a period of eight elections in 40 democracies using the concept of electoral party variation (EPV). Four different perspectives on electoral systems were tested, resulting in four working hypotheses. The investigation revealed that the institutional differences

observed among the political institutions of the 40 democracies provide valid parameters for understanding stability and instability in the party system. The approach derived from Sartori (2003, 1998), referred to as hypothesis 04, model D, is enlightening: feeble electoral systems (with proportional formula and high district magnitude) are associated with party system instability. Brazil is a typical case of party instability, consistent with its political institutions.

Although the produced evidence is robust, the occurrence of atypical cases reinforces the perception that the dynamics of party systems is a complex subject that requires further investigative developments. Portugal and Denmark are examples of countries that are more stable than would be expected based on their political institutions. Colombia and India are less stable. Once again, returning to the reinterpretation of Sartori's proposition (2003, 1998), electoral political institutions do not appear to be either necessary or sufficient causes for the production of stability within the electoral system. However, within the limits of this research, it is possible to assert that there are political institutions that facilitate electoral party variation and others that hinder it.

Translated by Thomás Abers Lourenço
Submitted on October 03, 2022
Accepted on March 17, 2023

References

ALESINA, Alberto; DEVLEESCHAUWER, Arnauld; EASTERLY, William; KURLAT, Sergio, and WACZIARG, Romain (2003), Fractionalization. *Journal of Economic Growth*. Vol. 08, pp.155-194.

AMES, Barry (1995), Electoral strategy under open-list proportional representation. *American Journal of Political Science*. Vol. 39, Nº 02, pp. 406-433.

AMORIM NETO, Octávio and COX, Gary W. (1997), Electoral institutions, cleavage structures, and the number of parties. *American Journal of Political Science*. Vol. 41, Nº 01, pp.149-174.

BORGES, André (2021), The illusion of electoral stability: from party system erosion to right-wing populism in Brazil. *Journal of Politics in Latin America*. Vol. 13, Nº 02, pp. 166-191.

CAREY, John M. and SCHUGART, Matthew Soberg (1995), Incentives to cultivate a personal vote: a rank ordering of electoral formulas. *Electoral Studies*. Vol. 04, Nº 04, pp. 417-439.

COLOMER, Josep M. (2018), Party system effects on electoral systems. In: *The Oxford handbook of electoral systems*. Edited by HERRON, Erik S.; PEKKANEN, Robert J., and SHUGART, Matthew Soberg. Oxford: Oxford University. pp. 69-84.

COX, Gary W. (1997), *Making votes count: strategic coordination in the world´s electoral systems*. Cambridge: Cambridge University. 360 pp..

DAHL, Robert A. (2015), *Poliarquia*: participação e oposição. São Paulo: Edusp. 240 pp..

DUVERGER, Maurice (1970), *Os partidos políticos*. Rio de Janeiro: Zahar. 465 pp..

GALLAGHER, Michael and MITCHELL, Paul (eds) (2005), Introduction to electoral systems. In: *The politics of electoral systems*. Oxford: Oxford University. pp. 03-24.

GALLAGHER, Michael and MITCHELL, Paul (2018), Dimensions of variation in electoral systems. In: *The Oxford handbook of electoral systems*. Edited by HERRON, Erik S.; PEKKANEN, Robert J., and SHUGART, Matthew Soberg. Oxford: Oxford University. pp. 23-40.

GOLOSOV, Grigorii V. (2017), Party systems, electoral systems, and legislative fragmentation: a cross-national empirical study. *Party Politics*. Vol. 23, Nº 05, pp. 487-497.

GOLOSOV, Grigorii V. and KALININ, Kirill (2017), Presidentialism and legislative fragmentation: beyond coattail effects. *The British Journal of Politics and International Relations*. Vol. 19, Nº 01, pp.113-133.

GUARNIERI, Fernando (2015), Voto estratégico e coordenação eleitoral testando a Lei de Duverger no Brasil. *Revista Brasileira de Ciências Sociais*. Vol. 30, Nº 89, pp. 77-92.

HERRON, Erik; NEMOTO, Kuniaki and NISHIKAWA, Misa (2018), Reconciling approaches in the study of mixed-member electoral systems. In: *The Oxford handbook of electoral systems*. Edited by HERRON, Erik S.; PEKKANEN, Robert J., and SHUGART, Matthew Soberg. Oxford: Oxford University. pp. 445-471.

JOHNSON, Joel and HOYO, Verónica (2012), Beyond personal vote incentives: dividing the vote in preferential electoral systems. *Electoral Studies*. Vol. 31, Nº 01, pp. 131–142.

LIJPHART, Arend (2003a), Proportionality by non-pr methods. In: *Electoral laws and their political consequences.* Edited by GROFMAN, Bernard and LIJPHART, Arend. Nova York: Agathon. pp. 113-123.

LIJPHART, Arend (2003b), *Modelos de democracia*: desempenho e padrões de governo em 36 países. Rio de Janeiro: Civilização Brasileira. 392 pp..

LIJPHART, Arend (1990), The political consequences of electoral laws, 1945-85. *The American Political Science Review*. Vol. 84, Nº 02, pp. 481-496.

LOWERY, David; OTJES, Simon; GHERGHINA, Sergiu; WITTELOOSTUIJN, Arjen Van; PELI, Gabor, and BRASHER, Holly (2010), Unpacking LogM: toward a more general theory of party system density. *American Journal of Political Science*. Vol. 54, Nº 04, pp. 921-935.

MAINWARING, Scott P.; POWER, Timothy J., and BIZZARRO, Fernando (2018), The uneven institutionalization of a party system: Brazil. In. *Party systems in Latin America*: institutionalization, decay, and collapse. Edited by MAINWARING, Scott P.. Cambridge: Cambridge University Press. pp. 164-200.

MOSER, Robert; SCHEINER, Ethan, and STOLL, Heather (2018), Social diversity, electoral systems, and party system. In: *The Oxford handbook of electoral systems*. Edited by HERRON, Erik S.; PEKKANEN, Robert J., and SHUGART, Matthew Soberg. Oxford: Oxford University. pp. 134-158.

NICOLAU, Jairo Marconi (2012), *Sistemas eleitorais*. Rio de Janeiro: FGV. 116 pp..

NICOLAU, Jairo Marconi and SCHMITT, Rogério Augusto (1995), Sistema eleitoral e sistema partidário. *Lua Nova*. Vol. 36, pp. 129-147.

NOHLEN, Dieter (2007), *Os Sistemas eleitorais*: o contexto faz a diferença. Lisboa: Horizonte. 158 pp..

ORDESHOOK, Peter C. and SHVETSOVA, Olga V. (1994), Ethnic heterogeneity, district magnitude, and the number of parties. *American Journal of Political Science*. Vol. 38, Nº 01, pp. 100-123.

PERES, Paulo Sergio (2013), Institucionalização do sistema partidário ou evolução da competição?: uma proposta de interpretação econômica da volatilidade eleitoral. *Opinião Pública*. Vol. 19, Nº 01, pp. 21-48.

PERES, Paulo Sergio (2009), Revisitando a "teoria geral" dos partidos de Maurice Duverger. *BIB*. Vol. 68, pp. 17-58.

PETERSEN, Mitchell A. (2009), Estimating standard errors in finance panel data sets: comparing approaches, *The Review of Financial Studies*. Vol. 22, Nº 01, pp. 435–480.

RAE, Douglas W. (1995), Using district magnitude to regulate political party competition. *Journal of Economic Perspectives*. Vol. 09, Nº 01, pp. 65-75.

RIKER, William (2003), Duverger's law revisited. In: *Electoral laws and their political consequences.* Edited by GROFMAN, Bernard and LIJPHART, Arend. Nova York: Agathon. pp. 19-42.

SAMUELS, David J. (1999), Incentives to cultivate a party vote in candidate-centric electoral systems: evidence from Brazil. *Comparative Political Studies*. Vol. 32, Nº 04, pp. 487-518.

SANTOS, André Marenco dos (2006), Regras eleitorais importam? Modelos de listas eleitorais e seus efeitos sobre a competição partidária e o desempenho institucional, *Dados*. Vol. 49, Nº 04, pp. 721-749.

SARTORI, Giovanni (2003), The influence of electoral systems: fautly laws or faultly method. In: *Electoral laws and their political consequences.* Edited by GROFMAN, Bernard and LIJPHART, Arend. Nova York: Agathon. pp. 43-68.

SARTORI, Giovanni (1998), A influência dos sistemas eleitorais: leis defeituosas ou defeitos metodológicos? In: *Sistemas eleitorais*: o debate científico*.* Edited by CRUZ, Manuel Braga. Lisboa: Imprensa de Ciências Sociais. pp. 223-247.

SARTORI, Giovanni (1994), *Comparative constitutional engineering*: an inquiry into structures, incentives and outcomes. Houndmills: Macmillan. 231 pp..

SCHOULTZ, Asa von (2017), Party systems and voter alignments. In: *The SAGE Handbook of electoral behavior*. Edited by ARZHEIMER, Kai; EVANS, Jocelyn, and LEWIS-BECK, Michael S... Los Angeles: SAGE. pp. 30-55.

SCHUNCK, Reinhard (2013), Within and between estimates in random-effects models: advantages and drawbacks of correlated random effects and hybrid models. *The Stata Journal*. Vol. 13, Nº 01, pp. 65-76.

SHUGART, Matthew Soberg and CAREY, John M. (1992), *Presidents and assemblies*: constitutional design and electoral dynamics. Cambridge: Cambridge University. 332 pp..

SHUGART, Matthew, and MAINWARING, Scott (1997), Presidentialism and democracy in Latin America: rethinking the terms of the debate. In: *Presidentialism and Democracy in Latin America.* Edited by MAINWARING, Scott and SHUGART, Matthew. Cambridge: Cambridge University Press. pp. 12-54.

SCHUGART, Matthew Soberg and TAAGEPERA, Rein (2018), Electoral system effects on party systems. In: *The Oxford handbook of electoral systems*. Edited by HERRON, Erik S.; PEKKANEN, Robert J., and SHUGART, Matthew Soberg. Oxford: Oxford University. pp. 41-68.

SIAVELIS, Peter M. (2006), Electoral reform doesn't matter-or does it?: A moderate proportional representation system for Chile. *Revista de Ciência Política*. Vol. 26, Nº 01, pp. 216-225.

TAAGEPERA, Rein (2002), Nationwide threshold of representation. *Electoral Studies*. Vol. 21, pp. 383-401.

TAVARES, José Antônio Giusti (1994), *Sistemas eleitorais nas democracias contemporâneas*: teoria, instituições, estratégia. Rio de Janeiro: Relume Dumará. 396 pp..

THE ECONOMIST (2020), Democracy Index 2020: in sickness and in health?. Intelligence Unit. Available at <*https://www.eiu.com/n/campaigns/democracy-index-2020*/>. Accessed on October, 01, 2022.

Appendix

01. Models

All models were generated using the Party Stability in 40 Democracies database (X, X). (Provided in the submission).

Table 03.

Model	A	B	C	D
Regression	GEE	GEE	GEE	GEE
Dependent	SPV	SPV	SPV	SPV
Coefficient	Exp(b)	Exp(b)	Exp(b)	Exp(b)
Federalism	0.81 (0.11)	0.88 (0.14)	0.75[a] (0.11)	0.86 (0.13)
Parliamentarianism	0.85 (0.13)	1.32 (0.27)	1.26 (0.22)	1.19 (0.23)
Semi-presidential.	1.09 (0.23)	1.82* (0.46)	1.79* (0.49)	1.48 (0.38)
Parliament (Log)	0.98 (0.52)	0.44 (0.27)	0.56 (0.32)	0.54 (0.32)
Population (Log)	1.11 (0.11)	1.38* (0.17)	1.42** (0.17)	1.37* (0.18)
Diversity	1.51 (0.56)	2.22* (0.74)	2.01* (0.57)	2.09* (0.63)
Magnitude	1.04*** (0.00)			
Plurality		0.22*** (0.06)		
Mixed			2.52* (0.98)	
Preferential			3.46*** (0.87)	
Proportional			5.70*** (1.46)	
Strong				0.18*** (0.04)
Moderate				0.66** (0.08)
Constant	0.06** (0.05)	0.01** (0.01)	0.00*** (0.00)	0.01** (0.01)
Wald Chi2	60.66***	47.34***	102.79***	74.60***
Pearson Chi2	283.39	285.20	274.32	286.16
Estimator	Semi Robust	Semi Robust	Semi Robust	Semi Robust
Cases	280	280	280	280
Groups	40	40	40	40
Periods	7	7	7	7

Source: Elabored by the author, based on Stability in 40 Democracies[18].
Notes: Significance at (a) level < 0.10 *p < 0.05; **p < 0.01; ***p < 0.001. GEE logarithmic link, gamma distribution, and independent correlation (STATA 14).

[18]Available at: https://doi.org/10.7910/DVN/XOFW2Q

Table 04. Descriptive statistics of electoral party variation (EPV) by country

Country	Observations	Average	Minimum	Maximum	Amplitude	Standard Deviation
Germany	7	0.56	0.01	1.37	1.36	0.53
Argentina	7	0.88	0.01	1.59	1.58	0.62
Austria	7	0.62	0.12	1.08	0.96	0.39
Australia	7	0.19	0.01	0.43	0.42	0.13
Bolivia	7	0.83	0.15	3.15	3.00	1.09
Brazil	7	1.64	0.38	3.95	3.57	1.28
Bulgaria	7	1.20	0.43	2.06	1.63	0.61
Belgium	7	0.81	0.20	1.45	1.25	0.47
Canada	7	0.17	0.03	0.43	0.40	0.15
Chile	7	0.36	0.03	1.28	1.25	0.41
Colombia	7	1.43	0.08	4.96	4.88	1.70
South Korea	7	0.56	0.07	1.28	1.21	0.42
Costa Rica	7	1.15	0.13	2.84	2.71	0.93
Denmark	7	0.26	0.01	0.60	0.59	0.22
El Salvador	7	0.62	0.05	1.28	1.23	0.49
Slovakia	7	1.71	0.48	3.54	3.06	0.13
Spain	7	0.76	0.09	2.49	2.40	0.84
United States	7	0.02	0.01	0.06	0.05	0.02
Finland	7	0.51	0.10	2.11	2.01	0.72
France	7	1.11	0.25	2.49	2.24	0.77
Ghana	7	0.23	0.03	0.96	0.93	0.32
Greece	7	0.64	0.03	2.05	2.02	0.68
Hungary	7	0.68	0.02	2.24	2.22	0.81
Ireland	7	0.61	0.09	1.80	1.71	0.60
Israel	7	1.44	0.22	3.73	3.51	0.11
Italy	7	1.16	0.41	1.91	1.50	0.60
Japan	7	0.63	0.04	1.73	1.69	0.66
Mexico	7	0.71	0.19	1.99	1.80	0.66
Norway	7	0.70	0.21	1.24	1.03	0.37
New Zealand	7	0.30	0.03	1.12	1.09	0.37
Netherlands	7	1.18	0.70	2.62	1.92	0.65
Poland	7	1.62	0.09	5.22	5.13	1.77
Portugal	7	0.26	0.01	0.70	0.69	0.27
United Kingdom	7	0.28	0.04	1.04	1.00	0.34
Romania	7	1.04	0.03	1.60	1.57	0.52
Sweden	7	0.44	0.03	0.93	0.90	0.37
Switzerland	7	0.57	0.17	0.92	0.75	0.23
Czechia	7	0.88	0.08	2.85	2.77	0.92
Uruguay	7	0.48	0.01	0.80	0.79	0.27
India	7	1.00	0.02	3.09	3.07	1.10
Total	280	0.76	0.01	5.22	5.21	0.82

Source: Elabored by the author, based on Stability in 40 Democracies[19].

[19]Available at: https://doi.org/10.7910/DVN/XOFW2Q