Proportional Electoral Systems and Number of Parties in Parliament Evidence from Macedonia

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Abstract: *What is the best electoral system to increase the number of political parties represented in Parliament? This article answers the question using data from all the elections in Macedonia since 2002, and by making simulations of the results according to different electoral systems. In principle, we found that the electoral model that would bring most parties to the Macedonian Parliament is the Droop and Hare used in one electoral district. Moreover, the article answers the question how favourable different electoral systems are to larger/smaller parties. We find that the following is the order of electoral systems from most to least favourable for larger parties: Imperiali highest averages, D'Hondt, Sainte-Laguë, Largest remainders – Imperiali, Danish, Largest remainders – Droop, Largest remainders – Hare.*

Keywords: ***proportional electoral systems, favourable to large/small parties, Macedonia.***

Introduction

Proportional electoral systems (PR) based on party lists in multimember constituencies are widespread throughout Europe. This article provides a detailed analysis of the electoral system used in Macedonia focusing on the rationale for the use of the proportional electoral system. As a multiethnic, new democracy the country has employed this electoral model since the 2002 elections. The idea behind using the proportional system is that it will well reflect the interests of different segments of the society. Indeed, the implementation of this electoral system in Macedonia supplemented with special gender provisions has im-

proved the representation of women in Parliament to the extent that the country has among the highest percentage of female deputies in the national assembly. While it has also had good results when it comes to the representation of ethnic minorities, the current proportional electoral system has made it difficult for smaller parties to enter Parliament. We tackle this issue by making simulations based on the electoral results in all parliamentary elections in Macedonia from 2002 to 2016, using different models of the proportional systems.

Following the introduction, the paper offers a review of the theoretical discussion regarding electoral system design in liberal democracies. In the next section we outline the main aspects of the relationship between proportional electoral systems and the number of parties represented in Parliament. Afterwards we focus on the electoral results in Macedonia and make simulations of how various electoral models would benefit small or large parties. We seek to answer the question what is the best electoral system to increase the number of political parties represented in Parliament? In principle, we found that the electoral model that would bring most parties to the Macedonian Parliament is the Droop and Hare used in one electoral district. Moreover, the article answers the question how favourable different electoral systems are to larger/smaller parties. We find that the following is the order of electoral systems favourable to larger parties (from the most to the least favourable): Imperiali highest averages, D'Hondt, Sainte-Laguë, Largest remainders – Imperiali, Danish, Largest remainders – Droop, Largest remainders – Hare.

Proportional Elections in Multiethnic Countries

Electoral experts agree that there is no single best electoral system, as 'each electoral environment has different factors to take into account and that each electoral system has particular general advantages and disadvantages' (Wall and Salih 2007). For example, majority/plurality electoral systems are more likely to lead to two-party political systems, which inevitably lead to the formation of stable governments by a single party. However, these systems produce disproportional outcomes that tend to exclude minorities and smaller parties from representation in the legislature. PR systems ensure that both majority and minority groups are represented in the legislature but tend to be more unstable as they usually require coalitions of two or more parties to form a majority. Possible breakdowns in governing coalitions weaken the stability of the executive and the legislature, which may lead to frequent elections.

Achieving broad representation of different ethnic groups has 'important implications for the stability and quality of democracy in multiethnic societies' (Lijphart 2004: 97). In political science literature it has been argued that the capacity of ethnic minorities to win parliamentary seats is a consequence of electoral systems and the size and geographic concentration of minority

populations (Reilly and Reynolds 1999). Moreover, it is generally accepted that proportional representation (PR) increases minority representation. While minorities can gain representation under certain 'conditions in other electoral systems, it is still viewed as providing crucial advantages' (Moser 2008: 273). Liberal democracies using PR are characterised by better representation compared with majoritarian democracies. PR allows diverse voices and interests to be heard and considered in Parliament, government, and the policymaking process (Cox 1997; Duverger 1954; Lijphart 1999; Norris 2004; Rae 1967; Taagepera and Shugart 1989). It also enables better representation of minority groups (Shugart 1994), as well as women (Darcy, Hadley, and Kirksey 1993; Norris 1985). PR is expected to provide any ethnic minority, whether it is geographically concentrated or not, 'the ability to gain representation through an ethnic party and/or ethnic balancing on major parties' lists, whereas plurality systems are expected only to promote minority representation for ethnic groups that reach a critical mass within majority-minority electoral districts' (Moser 2008: 275).

Proportional Elections and Number of Parties

The number of political parties is largely dependent on the specific election rules. Electoral systems that follow proportional representation tend to have a greater number of political parties because parties will win seats in the national legislature based on their percentage of the popular vote. In theory and in practice votes are allocated to seats based on various methods. One is the **highest averages method** which requires the number of votes for each party to be divided successively by a series of divisors, and seats are allocated to parties that secure the highest resulting quotient, up to the total number of seats available. In Europe the most widely used is the d'Hondt formula, named after its Belgian inventor, Victor d'Hondt, using divisors (such as 1,2,3 etc.). While the 'pure' Sainte-Laguë method, used in New Zealand, divides the votes with odd numbers (1, 3, 5, 7, and so on) the 'modified' Sainte-Laguë replaces the first divisor by 1.4 but is otherwise identical to the pure version. From the other models used in elections around the world the Danish Method used for awarding seats within parties at elections uses divisors 1, 4, 7, 10, 13 etc, and the equal proportions model used in the USA for allocating representatives to states uses divisors 0, 1.41,2.45,3.46,4.47 etc. (Gallagher 1992: 470). Another highest average method is called Imperiali (not to be confused with the Imperiali quota which is a largest remainder method). The divisors are 1, 1.5, 2, 2.5, 3, 3.5, and so on.

An alternative is the **largest remainder method**, which requires the numbers of votes for each party to be divided by a quota representing the number of votes required for a seat (i.e. usually the total number of votes cast divided

by the number of seats or some similar formula). The result for each party will usually consist of an integer part plus a fractional remainder. Each party is first allocated a number of seats equal to their integer. This will generally leave some seats unallocated: the parties are then ranked on the basis of the fractional remainders, and the parties with the largest remainders are each allocated one additional seat until all the seats have been allocated. The minimum quota, in the simplest calculation is the Hare quota, where the total number of valid votes in each constituency is divided by the total number of seats to be allocated. The Droop quota raises the divisor by the number of seats plus one, producing a slightly less proportional result. A special variant of the greatest-remainder formula, used in Italy until 1994, is called the Imperiali formula, whereby the electoral quota was established by dividing the total popular vote by the number of seats plus two.

Another important factor in electoral systems is the formal threshold that parties must pass to qualify for seats. The formal threshold ranges from at lowest 0.67% of the national vote, used in the Netherlands, up to a 10% hurdle; whereas there is no formal threshold in some countries such as South Africa, where less than 0.25% of the national vote is necessary for election (Norris 2013: 55). In electoral systems in which there is a minimum-vote threshold, the mean number of political parties tends to be lower than in systems in which there is a lower or no minimum-vote threshold. District magnitude, or the mean number of seats per constituency, also influences the electoral results. While in Macedonia 120 members are elected in six electoral units, in Spain the 350 members are elected in fifty list districts, each district electing on average seven members. In principle, the larger the district magnitude, the more proportional the outcome, the more closely each party's seat share tends to correspond to its vote share (Taagepera, Shugart 1989: 19).

Under proportional electoral systems there is a relationship between seat and vote shares of parties. Ideal proportionality would be when all parties competing in the election receive the exact same share of seats in the parliament as they won of the vote – in other words, when seat shares equal vote shares (Taagepera 2007: 65). Such outcome is highly unlikely as it can happen only exceptionally (Gallagher 1991: 33). Even most proportional electoral systems have some deviation from proportionality, which means some degree of disproportionality is inevitable (Gallagher 1991: 33). Using specific proportional systems may have different effects on the results of smaller or larger political parties. Gallagher (1992:490) has done the analysis comparing 11 different electoral systems and ranked them based on how favourable these systems are to larger parties. From the most favourable to larger parties to the least favourable, the order is the following:

1. Imperiali highest averages
2. LR-Imperiali
3. D'Hondt
4. STV
5. Largest remainders-Droop
6. Largest remainders-Hare/Sainte-Laguë
7. Equal proportions
8. Danish

PR Elections in Macedonia

The unicameral parliament can by law have between 120 and 140 members elected by direct, universal suffrage. All parliaments since 1990 have 120 members. Since 2002 members of the Macedonian Parliament (MPs) are elected for a four-year term in six multimember electoral districts. Each district has about 290,000 voters and elects 20 members by proportional representation. Citizens vote for a closed type of electoral list, and seats are distributed on a proportional basis, according to the D'Hondt formula. The nomination lists may be submitted by parties, coalitions of parties, or groups of at least 500 voters. According to the Electoral Law, at least a third of the candidates on each list must be of a different gender. At the moment, the number of women in the Macedonian parliament is 47, which represents 39% of the total number of MPs. Although below 50%, the percentage of women in Parliament is among the highest in Europe, and 20th in the world (Data on Women in Parliaments 2019).

There are currently four main political parties in Macedonia, two from the Macedonian community and two from the Albanian community. Among Macedonian parties, VMRO-DPMNE and SDSM are the two parties that traditionally have the largest share of seats. Whichever of the parties 'wins the largest share of seats is entitled to form the government. Among the Albanian parties, DPA and DUI are the two main parties' (Berisha 2016: 4). Electoral data and analyses 'dealing with the effects of Macedonia's implementation of the proportional system affirms the view that the proportional system provides a better framework for minority groups and smaller political parties to get elected, because the seats are calculated based on the proportion of the votes won' (Berisha 2016: 15). If ethnic minorities and women are well represented in Parliament the remaining question is what kind of modification to the electoral system would also aid smaller parties to win seats in the national assembly.

Note on Data Used and Methodology

Using data from all the parliamentary elections in Macedonia since 2002 where the proportional electoral model was used, we made simulations of the electoral results using Imperiali highest averages, LR-Imperiali, D'Hondt, Largest remainders-Droop, Largest remainders-Hare/Sainte-Laguë Equal proportions, Danish. We have eliminated STV and Equal proportions from our analysis as the first method has not been used in Macedonia and a simulation cannot be made, and the Equal proportions method which is used in the USA for specific reasons tied to the political system of that country and not relevant for Macedonia. We have also made simulation using formal electoral thresholds: from the natural one similar to the Netherlands, to the highest one in Turkey. We have made simulations on the basis of the current electoral model in Macedonia with six electoral districts with a magnitude of 20 seats as well as assuming the country was one electoral district with 120 seats.

Elections in Macedonia and Simulations in Six Electoral Districts

We have made simulations using the Sainte-Laguë electoral model to ascertain the number of parties that could have been represented in the parliament had that model been applied in the elections. Consequently, we compare the results from the simulations to the actual ones.

Simulation of the Sainte-Laguë electoral model if used in six electoral districts

Table 1: Electoral Models if Macedonia was divided into six Electoral Districts

Election year	Number of parties in parliament using the existing electoral model of 6 Electoral districts (ED) D'hondt	Number of parties in parliament if using the 6ED Sainte-Lague model
2002	7	9
2006	8	11
2008	5	7
2011	5	7
2014	6	7
2016	6	7
Total	37	48

Using the Sainte-Laguë electoral model the parliament would have had more parties represented in Parliament than when using the existing d'Hondt formula. The surplus ranges from three at the 2006 elections to one in the 2014 and 2016 elections with an overall difference of 11.

Next, we analyse the effects this potential modification on the electoral system would have had on the larger political parties. Using the Sainte-Laguë electoral model, the large parties would have lost 32 parliamentary seats. The biggest losses in parliamentary seats would have been experienced by the biggest party in the period 2002–2016, VMRO-DPMNE. On the other hand, the smallest among the four, DPA, would have even gained two seats if the Sainte-Laguë electoral model had been used.

Table 2: Six electoral districts Sainte-Laguë vs. 6 electoral districts D'Hondt model effect on larger parties

Decrease in the number of parliamentary seats if using the 6ED Sainte-Laguë model per elections	VMRO-DPMMNE	SDSM	Democratic Union for Integration (DUI)	Democratic Party of Albanians (DPA)
2002	0	-4	-1	0
2006	-5	-2	-1	-1
2008	-1	2	-2	-1
2011	-4	-3	0	1
2014	-4	-1	-1	2
2016	-3	-3	-1	1
Total	-17	-11	-6	2

Simulations if Macedonia uses proportional electoral models in one district

Simulation of the Largest remainder models

Here we analyse the effects of using one electoral unit in Macedonia through simulation of the parliamentary results in the period 2002–2016. First we analyse the effects of the Largest remainder models, using Hare, Droop, and Imperiali quota.

Table 3: Largest remainder models in one electoral district

Election year	Number of parties in parliament using the existing electoral model 6ED D'hondt	Number of parties in parliament using Hare model in one district	Number of parties in parliament using Droop model in one district	Number of parties in parliament using Imperiali model in one district
2002	7	15	15	14
2006	8	19	19	18
2008	5	13	13	12
2011	5	13	13	13
2014	6	12	12	11
2016	6	11	11	10
Total	37	83	83	78

Using the Largest remainder models in one electoral district the parliament would have had many more parties represented in Parliament than when using the existing D'Hondt formula in six electoral districts. The surplus ranges from its highest at 11 in the 2006 elections to its lowest at five in 2016 with an overall difference of 46 for Hare and Droop models and 41 for Imperiali.

Next we analyse the effects this modification of the electoral system would have had on the larger political parties.

Table 4: Largest remainder models in one electoral district vs. 6ED D'hondt model effect on larger parties

Decrease in seats if using the Largest remainder models in one electoral district	VMRO-DPMMNE			SDSM			DUI			DPA		
	Imperiali	Droop	Hare	Imperiali	Droop	Hare	Imperiali	Droop	Hare	Imperiali	Droop	Hare
2002	-3	-3	-3	-9	-9	-10	-1	-1	-1	0	-1	-1
2006	-7	-7	-7	-4	-5	-5	-3	-3	-3	-2	-2	-2
2008	-5	-6	-6	1	1	1	-3	-3	-3	-1	-1	-1
2011	-7	-7	-7	-3	-3	-3	-3	-3	-3	-1	-1	-1
2014	-5	-6	-6	-3	-3	-3	-2	-2	-2	0	0	0
2016	-4	-5	-5	-4	-4	-5	-1	-1	-1	1	1	1
Total	-31	-34	-34	-22	-23	-25	-13	-13	-13	-3	-4	-4
Total per model all parties	-69	-74	-76									

Using the Largest remainder models in one electoral district in the period 2002–2016 all large parties would have had a decreased number of deputies in Parliament, ranging from a maximum of 34 for VMRO-DPMNE to four for DPA. The Hare Largest remainder model would have decreased the number of parliamentarians from the larger parties the most.

Simulation of the Highest averages method

Next we analyse the effects of using one electoral unit in Macedonia through a simulation of the parliamentary results in the period 2002–2016. Here we analyse the effects of the highest averages models, using the D'Hondt formula, the Sainte-Laguë, the modified Sainte-Laguë method and the Danish method.

Table 5: Highest averages models in one electoral district

Election year	**Number of parties in parliament using the existing electoral model 6ED D'Hondt**	Number of parties in parliament using D'Hondt formula in one district	Number of parties in parliament using the Sainte-Laguë in one district	Number of parties in parliament using the modified Sainte-Laguë in one district	Number of parties in parliament using the Danish method in one district	Number of parties in parliament using the Imperiali Method in one district
2002	7	10	15	12	16	8
2006	8	12	15	13	19	9
2008	5	5	11	8	13	4
2011	5	9	10	10	12	9
2014	6	9	10	9	11	7
2016	6	9	9	9	10	7
Total	37	54	70	61	81	44

Using the highest averages models in one electoral district the parliament would have had many more parties represented in Parliament than using the existing d'Hondt formula in six electoral districts. The surplus ranges from its highest at 11 in the 2006 elections to its lowest at four in 2016 with an overall difference of 81 using the Danish method, 70 for using the Sainte-Laguë model, 61 using the modified Sainte-Laguë, 54 for using D'Hondt formula in one district and 44 for using the Imperiali Method in one district.

Next, we analyse the effects this potential modification on the electoral system would have had on the larger political parties.

Table 6: Highest averages models in one electoral district vs. 6ED D'Hondt model effect on larger parties

Decrease in seats if Highest remainder models in one electoral district	VMRO-DPMMNE					SDSM					DUI					DPA				
	D'Hondt	Sainte Laguë	Sainte Laguë *	Danish	Imperiali	D'Hondt	Sainte Laguë	Sainte Laguë *	Danish	Imperiali	D'Hondt	Sainte Laguë	Sainte Laguë *	Danish	Imperiali	D'Hondt	Sainte Laguë	Sainte Laguë *	Danish	Imperiali
2002	0	-3	-2	-3	1	-6	-10	-9	-11	-3	0	-1	-1	-1	0	0	-1	0	-1	-1
2006	-2	-5	-4	-6	0	-2	-3	-3	-4	0	-1	-2	-2	-3	-1	-2	-2	-2	-2	-2
2008	0	-4	-3	-6	1	3	1	2	1	2	-2	-3	-2	-3	-2	-1	-1	-1	-1	0
2011	-4	-5	-5	-6	-2	-1	-2	-2	-3	0	-2	-3	-3	-3	-2	-1	-1	-1	-1	-1
2014	-3	-5	-4	-5	0	-1	-2	-2	-3	-1	-2	-2	-2	-2	-2	0	0	0	0	0
2016	-3	-4	-4	-4	0	-2	-3	-3	-4	0	-1	-1	-1	-1	-1	1	1	1	1	0
Total	-12	-26	-22	-30	0	-9	-19	-17	-24	-2	-8	-12	-11	-13	-8	-3	-4	-3	-4	-4
Total per model all parties	-32	-63	-53	-71	-14															

Using the highest averages models in one electoral district in the period 2002–2016 all large parties would have had a decreased number of deputies in Parliament, ranging from a maximum of 30 for VMRO-DPMNE to three for DPA. The Danish highest averages model would have decreased the number of parliamentarians of the larger parties the most and Imperiali the least.

Simulation of the electoral results in one district if using a formal electoral threshold

The formal electoral threshold in party-list proportional representation systems is the minimum share of the vote which a candidate or political party is required to achieve before they become entitled to any representation in a legislature. In our study we have made stimulations of electoral results using the D'Hondt system with the following thresholds: 10%, 5%, 3%, 2% and 0.83%.

Table 7: Formal threshold models in one electoral district

Election year	Number of parties in parliament using the existing electoral model 6ED D'hondt	Number of parties in parliament using D'Hondt formula in one district with natural threshold (0.83%)	Number of parties in parliament using D'Hondt formula in one district with 2% threshold	Number of parties in parliament using D'Hondt formula in one district with 3% threshold	Number of parties in parliament using D'Hondt formula in one district with 5% threshold	Number of parties in parliament using D'Hondt formula in one district with 10% threshold
2002	7	10	7	4	4	3
2006	8	12	6	6	6	3
2008	5	5	4	4	4	3
2011	5	9	6	4	4	2
2014	6	8	5	5	4	3
2016	6	9	6	4	3	2
Total	37	53	34	27	25	16

Using the D'hondt system in one electoral unit with a formal threshold of 0.83% would increase the number of parliamentary parties from 37 to 53. In all other cases of using a formal electoral threshold (2%, 3%, 5%, 10%) the number of parties would decrease, most significantly if the 10% threshold is applied when the number of parties in the 2002–2016 period had dropped to 16 in total for all the electoral cycles.

Table 8: Formal thresholds in one electoral unit vs. 6ED D'Hondt model effect on larger parties

Decrease in seats if D'Hondt formula in one district with various thresholds	VMRO-DPMMNE					SDSM					DUI					DPA				
	0.83%	2%	3%	5%	10%	0.83%	2%	3%	5%	10%	0.83%	2%	3%	5%	10%	0.83%	2%	3%	5%	10%
2002	-1	0	3	3	5	-5	-4	0	0	4	0	0	1	1	2	0	0	0	0	-7
2006	-2	0	0	0	13	-2	0	0	0	9	-1	0	0	0	4	-2	-1	-1	-1	-11
2008	0	0	0	0	6	3	4	4	4	6	-2	-2	-2	-2	0	-1	-1	-1	-1	-11
2011	-4	-2	0	0	12	-1	1	3	3	13	-2	-2	-1	-1	-15	-1	-1	0	0	-8
2014	-2	0	1	1	5	-1	0	1	1	3	-2	-1	-1	-1	1	0	0	1	1	-7
2016	-3	-2	2	5	10	-2	-1	2	5	10	-1	-1	0	0	-10	1	1	-2	-2	-2
Total	-12	-4	6	9	51	-8	0	10	13	45	-8	-6	-3	-3	-18	-3	-2	-3	-3	-46
Total per model all parties	-31	-12	10	16	32															

The effect on large parties is mixed when using the formal electoral threshold in party-list proportional representation systems in one electoral district in Macedonia in the period 2002–2016. While using 0.83% would have decreased the number of seats the large parties won by a total of –31, using the 10% threshold would have increased the number of seats for the largest parties by +32. An increase in seats would have also occurred if thresholds of 3% and 5% were used, while a decrease in the seats would occur if the threshold is set at 2%. However, only the two biggest parties, VMRO-DPMNE and SDSM, would have benefited from a higher threshold of 3%, 5%, and 10%, while DUI and DPA would have lost seats. Had the threshold been set at 2% all parties except SDSM would have lost some seats, while set at 0.83% the threshold would result in losses of seats of all parties. Overall then, the 0.83% threshold would have decreased the number of parliamentarians of the larger parties the most and using the 10% threshold the least.

Effects of all electoral models on the number of parliamentary parties

Table 9: Effects of all electoral models on the number of parliamentary parties

Elections n.parties	6ED D´Hondt	6ED Sainte-Laguë	1ED dhondt	1 ED Sainte-Laguë	1ED Sainte modified	1ED Danish	Imperiali Highest Averages Method	Imperiali quota and largest remainders	Droop	Hare	1ED D´Hondt 0.83%	1ED D´Hondt 2%	1ED D´Hondt 3%	1ED D´Hondt 5%	1ED D´Hondt t 10%
2002	7	9	10	15	12	16	8	14	15	15	10	7	4	4	3
2006	8	11	12	15	13	19	9	18	19	19	12	6	6	6	3
2008	5	7	5	11	8	13	4	12	13	13	5	4	4	4	3
2011	5	7	9	10	10	12	9	13	13	13	9	6	4	4	2
2014	6	7	9	10	9	11	7	11	12	12	8	5	5	4	3
2016	6	7	9	9	9	10	7	10	11	11	9	6	4	3	2
TOTAL	37	48	54	70	61	81	44	78	83	83	53	34	27	25	16
Average	6	8	9	12	10	14	7	13	14	14	9	6	5	4	3

As we can see from the results of the elections in Macedonia in the period 2002–2016 and the simulations of the results as presented in Table 9, using specific electoral models in proportional systems may have different effects on the number of parliamentary parties. The electoral models that would produce

the largest number of parliamentary parties are Droop, Hare and the Danish method used in one electoral district. The electoral models that would produce the least number of political parties represented in the parliament are the D'Hondt model used in one electoral district together with a formal threshold of 10%, 5%, 3% or 2%, followed by the existing electoral system that uses the D'Hondt model in six electoral districts and the Imperiali Highest Averages Method. As far as the smaller parties are concerned their chances of winning parliamentary seats would increase if the electoral model was changed.

Smaller parties would need much fewer votes to win a seat than under the current electoral model. For example, as we can observe from the results presented in Table 10, the votes that small parties would have needed to win seats in parliament are two to four times less than the votes that were actually needed at the elections to win parliamentary seats during the period of 2002–2016. While in the period 2002–2016 a party needed to win at least 6459 votes concentrated in one of the six electoral units, if the Droop or Hare electoral models had been implemented in the same period using one electoral model, parties would have won a seat in the parliament with as low as 1925 votes in the whole territory of the country.

Table 10: Minimum number of votes necessary for winning seats in the parliament per electoral model

Electoral year/ model	2002 D'Hondt in 6 units	2006 D'Hondt in 6 units	2008 D'Hondt in 6 units	2011 D'Hondt in 6 units	2014 D'Hondt in 6 units	2016 D'Hondt in 6 units
Party with least votes that has won one seat	Socialist Party	Party for European Future	Party for European Future	National Movement for Prosperity	Grom	Alliance for Albanians
Votes gained in the electoral unit where seat won	8377	6459	7669	8680	8725	7355
If electoral model changed into:	2002 Danish	2006 Danish Droop Hare	2008 Danish Droop Hare	2011 Imperiali largest remainders Droop Hare	2014 Droop Hare	2016 Droop Hare
Party	Social Democratic Party of Macedonia	League for Democracy	Alliance of Tito's Left Forces	Social Democratic Union	Peoples Movement for Macedonia	Party for Democratic Prosperity
Votes	3981	2663	3758	2270	1925	3194
Difference in votes	4396	3796	3911	6410	6800	4161

Effects of all electoral models on the large parties

Table 11: Effects of all electoral models on the largest parties, VMRO-DPMNE

Effects on VMRO-DPMNE seats lost/gained Elections	6ED D´Hondt	6ED Sainte-Laguë	1ED D´Hondt	1 ED Sainte-Laguë	1ED Sainte modified	1ED Danish	Imperiali Highest Averages Method	Imperiali quota and largest remainders	Droop	Hare	1ED D´Hondt 0.83%	1ED D´Hondt 2%	1ED D´Hondt 3%	1ED D´Hondt 5%	1ED D´Hondt 10%
2002	33	0	0	-3	-2	-3	1	-3	-3	-3	-1	0	3	3	5
2006	45	-5	-2	-5	-4	-6	0	-7	-7	-7	-2	0	0	0	13
2008	63	-1	0	-4	-3	-6	1	-5	-6	-6	0	0	0	0	6
2011	53	-4	-4	-5	-5	-6	-2	-7	-7	-7	-4	-2	0	0	12
2014	58	-4	-3	-5	-4	-5	0	-5	-6	-6	-2	0	1	1	5
2016	51	-3	-3	-4	-4	-4	0	-4	-5	-5	-3	-2	2	5	10
TOTAL		-17	-12	-26	-22	-30	0	-31	-34	-34	-12	-4	6	9	51

Table 12: Effects of all electoral models on the largest parties, SDSM

Effects on SDSM seats lost/gained Elections	6ED D´Hondt	6ED Sainte-Laguë	1ED D´Hondt	1 DE Sainte-Laguë	1ED Sainte modified	1ie Danish	Imperiali Highest Averages Method	Imperiali quota and largest remainders	Droop	Hare	1ED D´Hondt 0.83%	1ED D´Hondt 2%	1ED D´Hondt 3%	1ED D´Hondt 5%	1ED D´Hondt 10%
2002	60	-4	-6	-10	-9	-11	-3	-9	-9	-10	-5	-4	0	0	4
2006	32	-2	-1	-3	-3	-4	0	-4	-5	-5	-1	0	0	0	9
2008	27	2	3	1	2	1	2	1	1	1	3	4	4	4	6
2011	42	-3	-1	-2	-2	-3	0	-3	-3	-3	-1	1	3	3	13
2014	34	-1	-1	-2	-2	-3	-1	-3	-3	-3	-1	0	1	1	3
2016	49	-3	-2	-3	-3	-4	0	-4	-4	-5	-2	-1	2	5	10
TOTAL		-11	-8	-19	-17	-24	-2	-22	-23	-25	-7	0	10	13	45

Table 13: Effects of all electoral models on the largest parties, DUI

Effects on DUI seats lost/gained Elections	6ED D´Hondt	6ED Sainte-Laguë	1ED D´Hondt	1 DE Sainte-Laguë	1ED Sainte modified	1ie Danish	Imperiali Highest Averages Method	Imperiali quota and largest remainders	Droop	Hare	1ED D´Hondt 0.83%	1ED D´Hondt 2%	1ED D´Hondt 3%	1ED D´Hondt 5%	1ED D´Hondt 10%
2002	16	-1	0	-1	-1	-1	0	-1	-1	-1	0	0	1	1	2
2006	17	-1	-1	-2	-2	-3	-1	-3	-3	-3	-1	0	0	0	4
2008	18	-2	-2	-3	-2	-3	-2	-3	-3	-3	-2	-2	-2	-2	0
2011	15	0	-2	-3	-3	-3	-2	-3	-3	-3	-2	-2	-1	-1	-15
2014	19	-1	-2	-2	-2	-2	-2	-2	-2	-2	-2	-1	-1	-1	1
2016	10	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	0	-10
TOTAL		-6	-8	-12	-11	-13	-8	-13	-13	-13	-8	-6	-3	-3	-18

Table 14: Effects of all electoral models on the largest parties, DPA

Effects on DPA seats lost/gained Elections	6ED D´Hondt	6ED Sainte-Laguë	1ED D´Hondt	1 DE Sainte-Laguë	1ED Sainte modified	1ie Danish	Imperiali Highest Averages Method	Imperiali quota and largest remainders	Droop	Hare	1ED D´Hondt 0.83%	1ED D´Hondt 2%	1ED D´Hondt 3%	1ED D´Hondt 5%	1ED D´Hondt 10%
2002	7	0	0	-1	0	-1	-1	0	-1	-1	0	0	0	0	-7
2006	11	-1	-2	-2	-2	-2	-2	-2	-2	-2	-2	-1	-1	-1	-11
2008	11	-1	-1	-1	-1	-1	0	-1	-1	-1	-1	-1	-1	-1	-11
2011	8	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	0	-8
2014	7	2	0	0	0	0	0	0	0	0	0	0	1	1	-7
2016	2	1	1	1	1	1	0	1	1	1	1	1	-2	-2	-2
TOTAL		2	-3	-4	-3	-4	-4	-3	-4	-4	-3	-2	-3	-3	-46

Table 15: Summary of effects of all electoral models on the four largest Macedonian parties

Effects on seats lost/ gained using alternative Electoral model	6ED D´Hondt	6ED Sainte-Laguë	1ED D´Hondt	1 DE Sainte-Laguë	1ED Sainte modified	1ie Danish	Imperiali Highest Averages Method	Imperiali quota and largest remainders	Droop	Hare	1ED D´Hondt 0.83%	1ED D´Hondt 2%	1ED D´Hondt 3%	1ED D´Hondt 5%	1ED D´Hondt 10%
VMRO-DPMNE	0	-17	-12	-26	-22	-30	0	-31	-34	-34	-12	-4	6	9	51
SDSM	0	-11	-8	-19	-17	-24	-2	-22	-23	-25	-7	0	10	13	45
DUI	0	-6	-8	-12	-11	-13	-8	-13	-13	-13	-8	-6	-3	-3	-18
DPA	0	2	-3	-4	-3	-4	-4	-3	-4	-4	-3	-2	-3	-3	-46
TOTAL	0	-32	-31	-61	-53	-71	-14	-69	-74	-76	-30	-12	10	16	32

As we can see from the results of the elections in Macedonia in the period 2002–2016 and the simulations as presented in Tables 11–15, using specific electoral models in PR may have different effects on the results of smaller or larger political parties. Our analysis compared 15 different electoral systems and ranked them based on how favourable these systems are to larger parties. We have ranked the system using calculations from the most favourable to larger parties to the least favourable, the order is as follows:

1. D'Hondt with threshold 10% used in one unit
2. D'Hondt with threshold 5% used in one unit
3. D'Hondt with threshold 3% used in one unit
4. D'Hondt used in six electoral units
5. D'Hondt with threshold 2% used in one unit
6. Imperiali Highest Averages Method
7. D'Hondt with threshold 0.83% used in one unit
8. D'Hondt without threshold used in one unit
9. Sainte-Laguë used in six electoral units
10. Sainte-Laguë modified used in one electoral unit
11. Sainte-Laguë used in one electoral unit
12. Largest remainders Imperiali quota
13. Danish method
14. Largest remainders Droop
15. Largest remainders Hare

Next we contrast our ranking with the one done by Gallagher comparing only the electoral models analysed in both studies.

Table 16: How favourable electoral systems are to larger parties, from most to least favourable

Our study	Gallagher	Ranking if both studies considered[1]
1. Imperiali highest averages	1. Imperiali highest averages	1. Imperiali highest averages
2. D'Hondt	2. Largest remainders -Imperiali	2. D'Hondt
3. Sainte-Laguë	3. D'Hondt	3. Largest remainders -Imperiali
4. Largest remainders -Imperiali	4. Largest remainders-Droop	4. Sainte-Laguë
5. Danish	5-6. Largest remainders-Hare	5. Largest remainders-Droop
6. Largest remainders-Droop	5-6. Sainte-Laguë	6. Danish
7. Largest remainders-Hare	7. Danish	7. Largest remainders-Hare

The Imperiali highest average is the electoral model that favours most of the largest parties both in this and in Gallagher's study. D'Hondt is second ranked in our study and third ranked in Gallagher's study and if considering both rankings second best model. Largest remainders –Imperiali is fourth ranked in our study and second ranked in Gallagher's study making it third ranked if we consider both studies. These are the top three electoral models favouring large parties when taking into consideration both analyses. If we consider both studies, the other models are ranked in the following order: Sainte-Laguë, Largest remainders-Droop, Danish, Largest remainders-Hare

Conclusions

Using data from all the parliamentary elections in Macedonia from 2002 to 2016 and making simulations of the results in the same period according to different electoral systems, we have found that the best electoral system to increase the number of political parties represented in the Parliament are Droop and Hare models in one electoral district. Using specific proportional systems may have different effects on the results of smaller or larger political parties. We found that the most favourable electoral systems to the larger parties, from the most to the least favourable, are: Imperiali highest averages, D'Hondt, Sainte-Laguë, Largest remainders – Imperiali, Danish, Largest remainders-Droop, Largest remainders-Hare. Our results are similar to the ones in the well-known study of electoral models done by Gallagher. The Imperiali highest average is the electoral model that best favours large parties in both studies. Overall, small Macedonian political parties are well advised to insist on changes to the elec-

1 Ranking based on sum of points from both studies, where best ranked system was given 7 points, the second best 6, and so on. So Imperiali highest averages got 14, D'Hondt 11 points and so on.

toral model to one electoral district using Droop or Hare, while if changes are to be made the big parties are to insist on introducing the D'Hondt in one unit with higher electoral thresholds of 3%, 5% or 10%, in which case they would even gain more seats. A threshold of 2% employing the D'Hondt model or using Imperiali Highest Averages Method in one Unit would only slightly diminish the results of the large parties.

References

SDSM Electoral Platform for the 2016 Elections, *Plan for Life in Macedonia* – SDSM, Skopje, (2016), available at: http://zazivot.mk/wp-content/uploads/2016/11/Plan_za_zivot_vo_Makedonija.pdf.

"Malite partii baraat edna izborna edinica i otvoreni listi," A1On, 18. 8. 2015, available at:https://a1on.mk/archives/521495.

"I Besa i PDP se za edna izborna edinica" *Fokus*, 29/08/2015, available at: http://fokus.mk/i-besa-i-pdp-se-za-edna-izborna-edinitsa/.

Трајанов предлага една изборна единица, Vecher, 8 јуни 2015, available at: https://vecer.mk/makedonija/trajanov-predlaga-edna-izborna-edinica.

ПРЕДЛОГ НА ЛИДЕРОТ НА ДР-ДПА – МАКЕДОНИЈА ДА БИДЕ ЕДНА ИЗБОРНА ЕДИНИЦА, TV21, Sep 20, 2016, available at: https://tv21.tv/mk/?p=102477.

Сите политички партии се за една изборна единица, освен ВМРО-ДПМНЕ и СДСМ, MKD.MK, 5. 6. 2015, available at: https://www.mkd.mk/makedonija/partii/site-politichki-partii-se-za-edna-izborna-edinica-osven-vmro-dpmne-i-sdsm.

ВЛАДЕЈАЧКАТА ДУИ СО ПРЕДЛОГ Цела Македонија една изборна единица, Vecher, 16 март 2010, available at: https://vecer.mk/makedonija/cela-makedonija-edna-izborna-edinica.

GDU i VMRO-DPMNE da dade podrshka za edna izborna edinica, A1On, 5. 5. 2018, available at: https://a1on.mk/archives/890092.

СДУ: Македонија една изборна единица, NET Press, 12. 01. 2011, available at: http://arhiva.netpress.com.mk/mk/vest.asp?id=81346 & kategorija=1 & utm_source=daily.mk & utm_medium=daily.mk.

Единствена Македонија: СДСМ има обврска да воведе една изборна единица и да распише предвремени избори, MakFax, 4. 5. 2018, available at: https://makfax.com.mk/makedonija/%D0%B5%D0%B4%D0%B8%D0%BD%D1%81%D1%82%D0%B2%D0%B5%D0%BD%D0%B0-%D0%BC%D0%B0%D0%BA%D0%B5%D0%B4%D0%BE%D0%BD%D0%B8%D1%98%D0%B0-%D1%81%D0%B4%D1%81%D0%BC-%D0%B8%D0%BC%D0%B0-%D0%BE%D0%B1%D0%B2%D1%80%D1%81/.

Berisha, Dardan (2016): The Politics of Electoral Systems in the Former Yugoslav Republic of Macedonia. *Indiana Journal of Constitutional Design* 2 (1).

Cox, Gary W. (1997): *Making Votes Count*. Cambridge: Cambridge University Press.

Darcy, Robert, Charles D. Hadley, and Jason F. Kirksey (1993): Election Systems and the Representation of Black Women in American State Legislatures. *Women and Politics* 13 (2): 73–89.

Data on Women in Parliaments 2019. available at: https://data.ipu.org/women-ranking?month=9 & year=2019

Duverger, Maurice (1954): *Political Parties*. New York: Wiley.

Gallagher, Michael (1991): Proportionality, Disproportionality and Electoral Systems. *Electoral Studies* 10: 33–51.

Gallagher, M. (1992): Comparing Proportional Representation Electoral Systems: Quotas, Thresholds, Paradoxes and Majorities, *British Journal of Political Science* 22: 469–496.

Lijphart, Aarend (1986): Degrees of Proportionality of Proportional Representation Formulas. In *Electoral Laws and Their Political Consequences*, ed. Bernard Grofman and Arend Lijphart. New York: Agathon Press.

Lijphart, Aarend (1999): *Patterns of Democracy: Government Forms and Performance in Thirty-Six Countries*. New Haven, CT: Yale University Press.

Lijphart Aarend, Constitutional Design for Divided Societies, *Journal of Democracy*, 15 (April 2004), 97.

Moser Robert G. Electoral Systems and the Representation of Ethnic Minorities: Evidence from Russia in *Comparative Politics* 40 (3) (Apr., 2008): 273–292.

Norris, Pippa (1985): Women's Legislative Participation in Western Europe. *West European Politics* 8 (4): 90–101.

Norris Pippa, *Electoral Engineering, Voting Rules and Political behavior* Cambridge University Press, 2012

Rae, Douglas (1967): *The Political Consequences of Electoral Laws*. New Haven, CT: Yale University Press

Reilly Ben and Andrew Reynolds, Electoral Systems and Conflict in Divided Societies (Washington, DC: National Academy Press, 1999).

Shugart, Matthew Soberg. 1994. Minorities, Represented and Unrepresented in *The Impact of Electoral Systems on Minorities and Women in Comparative Perspective*, ed. Wilma Rule and Joseph F. Zimmerman. Westport, CT: Greenwood Press, 31–41.

Taagepera, R.; Shugart, M. S. (1989): *Seats and Votes: the Effects and Determinants of Electoral Systems*, New Haven and London: Yale UP

Taagepera, Rein (2007): *Predicting Party Sizes: The Logic of Simple Electoral Systems*. Oxford: Oxford University Press.

Wall Alan and Salih Mohamad, *Engineering Electoral Systems: Possibilities and Pitfalls.* Netherland Institute for Multiparty Democracy, 8 (2007) available at: http://aceproject.org/ero-en/misc/engineering-electoral-systems-possibilitiesand.

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Annex 1

The Hare quota is equal to the total valid poll (V) divided by the total number of seats (n), or V/n, while Droop quota equals (V/n+1)+1, Imperiali quota equals Q=(V/S+2).

The 0.83% threshold is 1/120th of total number of valid votes. This is equivalent of the threshold in the House of Representatives (Tweede Kamer) of the Netherlands where the threshold is 1/150th of the total number of valid votes.