



PhD-FHSE-2021-020
The Faculty of Humanities, Education and Social Sciences

DISSERTATION

Defence held on 04/06/2021 in Esch-sur-Alzette

to obtain the degree of

DOCTEUR DE L'UNIVERSITÉ DU LUXEMBOURG
EN SCIENCES POLITIQUES

by

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THE INTRA-PARTY EFFECTS OF OPEN-LIST DESIGN

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To Stephen
My inspiration an motivation

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Chapter 1

Diversity of systems, diversity of outcomes?

Representative democracies can differ in many respects: some have strong centralised governments while others have federal systems; some countries have presidential systems while others have parliamentary systems and so on. In all their diversity, representative democracies all have in common that citizens are the ultimate principals¹ of those who hold political offices such as legislators or cabinet members. Arguably the most influential manifestation of the power of citizens occurs at regular intervals when the latter become “voters” who choose their representatives for the next couple of years. As a result, elected officials can never be certain about maintaining their power because the voters regularly need to confirm them.

Considering their role, elections are undoubtedly a key moment in every modern democratic state. In fact, the organisation of regular free elections constitutes a central criterion to assess whether a political entity is democratic (Schmitter & Karl, 1991). Despite observed tendencies of decreasing voter turnout (Blais & Rubenson, 2013), elections have preserved their importance in media coverage, social media or conversations between family and friends². Moreover, while turnout may have decreased over the years, a large proportion of citizens fulfil their role as voters in the political system because of a wish to make their voice heard, civic duty or other factors that drive them to the ballot box. In the moment of casting their votes, citizens are alone with their conscience, expressing a voice they consider to be best.

¹ The term *principal* refers to the entity (in this case the citizens) toward which the agents (the elected officials) are answerable. Theories on accountability argue that principals delegate tasks to agents. In return, the latter are accountable to the principal (Ferejohn, 1999: 133-136)

² For instance, 93,3% of the respondents in a post-election survey for the 2018 parliamentary elections in Luxembourg declare that they discussed the elections with family members and close friends (preliminary findings to be published in the forthcoming election report).

Due to their central role it is not surprising that the study of elections constitutes one of the main research agendas in political science. In several countries one finds long-running research projects such as the British Election Study or the Australian Election Study that analyse public opinion and aim at finding the determinants of vote choices. Scholars have identified a wide range of potential factors that could account for the behaviour of voters including social class (Knutsen, 2007), values (Halman, 2007), ethnicity (Saggar, 2007) or economic considerations (Lewis-Beck&Stegmaier, 2007).

Particularly the institutionalist tradition in political science, which emphasises the centrality of the limitations and incentives that institutions impose on political actors (Lowndes, 2010: 61), emphasises that one should not neglect the electoral process itself, i.e. the rules that govern the elections as a potential explanation. In fact, the impact of these rules can be twofold. First, those rules impose physical limitations on what is possible and therefore play a decisive role in shaping the political system as a whole (Taagepera, 2007: 4). Second, they create incentives for political actors to behave in certain ways according to the insitutionalist argument. With regard to elections each political system has its own rules that define the electorate, the organisation of the electoral process as well as the rules on how votes are expressed and how these votes are subsequently assessed to determine one or more winners. The latter of this set of rules – those that determine vote expression and their translation into votes – constitute an electoral system.

The study of electoral systems has developed into a key area within the subfield of electoral studies for the simple reason that ‘electoral systems matter’ (Gallagher & Mitchell, 2005: 3). In fact, in imposing physical restrictions and incentivising certain types of behaviour electoral systems have the potential to ‘fundamentally shape the connections among citizens, government and policy’ (Herron et al, 2018: 1). The literature has – among other things – identified electoral systems as a key

determinant of the party system (Duverger, 1951; Sartori, 1997), the behaviour of voters (Bawn, 1999) or the behaviour of legislators (Martin, 2011).

For the sake of objectivity, it should be stressed that not all scholars agree that one should perceive electoral systems as an independent variable that can potentially shape almost every aspect of a political system. In fact, some scholars defend the opposite thesis that electoral systems result from the existing political systems. In essence, they argue that politicians choose the rules and that they would choose rules favourable to them, meaning in most instances preserving the conditions that allowed them coming into power (Colomer, 2005).

However, such arguments accept at least implicitly that electoral systems have some degree of impact; otherwise it would seem fruitless for politicians to invest time in considering electoral reforms if these were without any consequences. For this reason, Taagepera argues that “after an initial bow to this two-way causality, most researchers treat electoral systems as causes of party systems rather than results” (Taagepera, 2007: 7). Therefore, even if politicians typically have the power to decide on electoral system changes, one needs to acknowledge that these systems “once in existence, have political consequences for those actors.” (Gallagher & Mitchell: 2005, 3). To illustrate this argument, I propose to consider relatively recent findings on the decision of parties to compete in an election. Specifically, Bol et al. (2019) find that an electoral system’s degree of proportionality affects the decision of parties to enter an electoral contest.

Due to their significance, electoral systems have been studied extensively. This has resulted in a particularly rich body of literature that exhibits considerable progress (Shugart, 2005: 25). Political scientists have for instance shown the influence of electoral systems on the number of political parties (Duverger, 1951; Shugart & Taagepera, 2017) or on the proportionality between a party’s vote share and the share of allocated assembly seats (Duverger, 1951; Rae, 1967; Taagepera and Shugart, 1989; Lijphart, 1994).

Observations on the progress in electoral system studies should however not be interpreted as an assertion that political scientists possess full knowledge on the consequences of electoral systems. In his excellent literature review, Matthew Shugart emphasises that the enormous progress in the field does not mean that there are no persisting gaps in that literature (Shugart, 2005: 25).

In fact, Shugart highlights two gaps in particular to support this argument. First, he argues that scholars have not sufficiently studied the effects that electoral systems have within parties (Shugart, 2005: 36-37). Second, Shugart asserts that political scientists do not yet have enough knowledge about the different configurations of preferential-list PR system (Shugart, 2005: 45-49), i.e. PR electoral systems where preferential votes can be cast³.

The present thesis aims at addressing both of these gaps in raising the question about whether the specific characteristics of certain preferential-list PR systems affect intra-party outcomes at the moment of an election. In other words, the purpose of this thesis is – as I shall outline in more detail in this chapter – to investigate whether differences in electoral system characteristics cause differences in election results within candidate lists.

The aim of this chapter is to (1) outline the general context of this analysis, (2) define the scope and research questions that guide the thesis and (3) highlight the relevance of addressing these research questions. The discussion of these points is divided into six different sections.

The first section introduces the notion of the intra-party dimension, which is commonly identified as the understudied domain within electoral systems research. It will not only provide a definition of that dimension but also discuss the reasons for its neglect in the existing literature as well as the importance to study it.

³ A more detailed definition will be provided in section 1.2.

The second section discusses the diversity of preferential list PR systems. In addition, this section will also provide the rationale on why it is important to differentiate more thoroughly between these systems.

The third section specifies the scope of this analysis. While the electoral system is susceptible to have effects within parties before, during and after an election, this thesis focuses specifically on the effects during the election. In essence, the emphasis on this moment is justified because it represents the moment in intra-party competition where voters are the primary actor. The two other stages, on the other hand, can be conceptualised as stages where parties anticipate and react to the actions of voters.

The fourth section presents the three central research questions that guide the thesis. These raise the question about (1) the existence of a causal relationship between preferential list PR systems and the intra-party dimension, (2) the origins of this causal relationship as well as (3) the impact of these systems on the intra-party performance of certain candidates.

The fifth section expands the argument on the particular relevance of these research questions. Particularly questions on electoral reform should be emphasised.

The *sixth section* will outline the structure of the remainder of this thesis and how the different chapters relate to the three research questions.

1.1. The neglected dimension of electoral systems

Electoral systems define (1) the rules on how votes can be cast and (2) how these votes are subsequently transformed into seats, which entails the “allocation of seats between parties” and the “allocation of seats within parties” (Shugart, 2005: 37). It is essential for an electoral system to perform both of these functions in order to

yield a full election result (Carey & Shugart, 1995). This distinction of allocations between and within parties highlights two crucial points.

First, Shugart's emphasis on parties underlines their centrality within contemporary political systems, a circumstance that led Katz to assert that "modern democracy is party democracy" (Katz, 1980: 1). In particular one can conceive parties as a key intermediary between the people and the state (Dalton et al, 2011: 6), meaning that they are primarily a key coordinator in any modern democratic system (Ware, 1996). Dalton et al (2011: 7) identify five different ways in which parties and voters are connected: (1) the provision of candidates and debate platforms during campaigns, (2) voter mobilisation, (3) the provision of information on ideological stances, (4) a representational link between voters and legislators as well as (5) a connection between the public and policy outcomes.

The centrality of parties in democratic systems motivates the necessity to understand electoral systems, which are susceptible to shape each of these links. In fact, elections constitute one of the key ways in which citizens can express their approval or disapproval for specific parties. As institutions that define the rules of this process, electoral systems ought to be considered consequential to shaping this particular link between citizens and political parties.

Second, in a party-centric perspective one can distinguish two different dimensions of electoral systems: the *inter-party dimension* and the *intra-party dimension*. The first refers to the relationship between electoral systems and the competition *between* parties while the second concerns the connection with competition *within* parties⁴.

⁴ Arguing that one can (and should) make this important distinction between these two dimensions does not imply an assertion that these two dimensions are completely independent from each other. In fact, it would be rather unrealistic to assume that the two dimensions do not affect one another. For the conceptualisation of the argument, it may however not be fully possible to take this interdependence into account. The semblance of a complete separation of the inter- and intra-party dimensions in the present argument should thus be considered with this analytical necessity in mind.

Elections are commonly viewed as a contest between different parties for the seats within an elected assembly. The inter-party dimension relates to all of the effects that the rules on vote allocation and seat distribution have on that contest between parties. As reviews on the electoral systems literature (Lijphart, 1985; Shugart, 2005) emphasise, the large majority of contributions is concerned with this dimension. This includes the arguably best-known contribution in the literature: Duverger's seminal law (1951), which posits a relationship between the dichotomy of majoritarian and PR electoral systems and the party system that can be expected to emerge in a particular political system.

Viewing elections exclusively as a competition between parties would however not provide a complete picture because it is also necessary to determine the individuals who will occupy the seats won by a party. In other words, a process to determine these individuals is necessary, which implies some degree of competition within parties. The *intra-party dimension* of electoral systems refers to the impact of electoral systems within parties, i.e. the impact of the rules on which individuals receive a party's seat.

In a first step, the intra-party dimension is therefore concerned with the question about who decides on the intra-party allocation of seats. The answer to this question can have major implications for individual political careers, the degree of polarisation within parties or the balance of power in party organisations or different state institutions. Despite all of these major implications questions on the intra-party dimension have thus far been largely underrepresented in the literature (Shugart, 2005; Renwick & Pilet, 2016, Dodeigne & Pilet, 2019), leading Colomer (2011) to refer to the "neglected dimension of electoral systems".

In fact, the most prominent work in the literature on electoral systems is symptomatic for this neglect. With regard to Duverger's law Benoit (2006) notes the complete absence of any considerations on the intra-party dimension despite a large emphasis on intra-party politics in his work on political parties.

One could therefore not solely attribute this neglect of the intra-party dimension to the fact that simply no one thought about the importance of the dynamics within parties. Hence, one needs to raise the question about the reasons for this neglect.

1.1.1. Explaining the neglect of the intra-party dimension

Two main reasons explaining the imbalance between studies on the inter- and intra-party dimensions can be identified.

The first reason concerns the availability of suitable data to analyse the intra-party-dimension preventing scholars from performing the necessary analyses. In order to successfully study the intra-party dimension with observational data, it is necessary to find information on individual candidates from different countries. Compared to data on the performance of parties in the election, data on a large number of candidates is comparatively difficult to find (Benoit, 2006). It appears, however, that the larger availability of election data via digital sources has significantly reduced the magnitude of this problem. Particularly websites of the competent bodies for the organisation of elections provide substantial amounts of data on different elections. With this relatively recent flood of suitable data, research on the intra-party dimension has been facilitated⁵. In addition, the increase of experimental research in political science has opened the door to new research designs that make such research possible. Both of these factors appear to have solved a substantial part of the methodological issues. As a consequence – as subsection 1.1.3 will emphasise – the literature on the intra-party dimension could develop in recent years.

These recent developments can however not mitigate the second persisting reason. In addition to the methodological question, the underrepresentation of the intra-party dimension can also be attributed to the relative relevance that scholars

⁵ As some issues in the subsequent empirical analysis will show, some limitations still remain, particularly because there are substantial differences in the types of available data across different cases. I do therefore not argue that all the necessary data for all types of analyses is available, but that digital resources have substantially facilitated the realisation of research on the intra-party dimension.

allocate to each of these dimensions. In other words, the inter-party dimension is often perceived as the more important dimension (Herron et al, 2018: 2). The underlying assumption of such arguments is an alleged more important impact of the inter-party dimension on the political system as a whole compared to intra-party effects.

Moreover, scholars such as Holsteyn and Andeweg (2010) argue that partisanship usually has precedence over the individual candidates' characteristics when voters cast their votes.

Such assertions do however underestimate how these intra-party dynamics may well have repercussions affecting the entire party system as well as the political system at large.

1.1.2. The relevance of the intra-party dimension

Arguments on an alleged lesser relevance of the intra-party dimension underestimate the potentially significant effect of that dimension on the organisation of parties, legislatures and executives. These effects can - in turn - affect a country's entire political system in a serious manner and have a substantial impact on policy outcomes.

Three main arguments on the relevance of the intra-party dimension should be considered in particular.

First, the intra-party dimension is susceptible to have consequences on descriptive and substantive representation.

Regarding descriptive representation it appears straightforward that the question about which individuals occupy the seats in an elected assembly affects the socio-demographic composition of that assembly. With respect to this point, some democratic theories emphasise that elected assemblies should reflect the socio-demographic composition of the population (McLean, 1991). Consequently, studying the extent to which electoral systems affect descriptive representation should be considered an important research agenda.

Accordingly, scholars have analysed the impact of electoral systems on the representation of certain socio-demographic groups. Most of these are concerned with the representation of ethnic minorities or women (Benoit, 2006)⁶.

With regard to the impact on substantive representation, scholars have noted that descriptive representation can affect substantive representation. Specifically, they argue that the socio-demographic background of elected officials affects their policy positions. This in turn can have an impact on policy outcomes and therefore substantive representation. In fact, female or ethnic minority representatives have been observed to be more alert to issues that are important to these groups (Lowande et al, 2019). In other words, intra-party outcomes can well have an impact on a party's policy positions.

Sceptics of this argument may question whether the stances of individual legislators are particularly relevant, as one would often observe high levels of party discipline within parliamentary party. Such arguments seem however to perceive a party's stance as static rather than something that might evolve over time within certain limits imposed by the party's wider ideology. If, for instance, certain minorities were to gain more support in elections, one could reasonably assume that this may lead them to gain more influence within parties, giving them more leverage on the orientation of a party's policy positions. Passarelli (2020) argues that electoral systems giving voters more influence on the intra-party dimension should reduce party unity.

The second main argument relates the impact that the intra-party dimension can have on the behaviour of legislators and the wider consequences thereof. In short, the argument here is that the intra-party characteristics of electoral systems have the potential to affect the way in which political actors behave. Carey and Shugart (1995) argue, for instance, that some electoral systems incentivise candidates more

⁶ Some of these contributions will be discussed in chapters 2 (section 2.5) and 4 (section 4.1).

than others to seek personal votes rather than emphasising the party platform. For incumbents, this relevant importance of preferential votes may lead to incentives to pursue particularistic policies in favour of their constituents (Martin, 2011).

This impact on the behaviour of political actors can have wider implications including an impact on the general stability of a political system (Passarelli, 2020; Karvonen, 2004). Passarelli (2020) argues, for instance, that electoral systems that give voters the possibility to express intra-party preferences have less party fragmentation. While diverging views would not lead to such fragmentation, conflicts on policies would lead to more debates within parties, leading to higher cabinet instability and higher voter volatility.

The third main argument concerns the relevance of the intra-party dimension in the wider context of personalisation. In fact, scholars such as Arter in the case of Finland have observed a shift in the electorate resulting in a tendency 'to rate candidate over party in their vote decision' (Arter, 2013)

Some scholars (Karvonen, 2010; Renwick & Pilet, 2016) have therefore linked the literature on electoral systems to the literature on personalisation. This literature argues that politics is becoming more personalised in the sense that individuals become more prevalent in politics while the role of parties is declining. This trend is often related to a growing importance of the media, which favour a greater focus on individuals (McAllister, 2007). When linking electoral systems to personalisation it refers to a growing tendency of voters to base their vote choice more on individual candidates – as the Finnish example illustrates - and a trend in electoral systems reform to give voters a greater influence on intra-party choices. This personalisation of electoral systems can be observed across Europe over the last three decades (Renwick & Pilet, 2016; Renwick, 2018).

Nagtzaam (2019) argues that this personalisation will increase the relevance of the candidates' personal characteristics at the expense of party characteristics. Furthermore, he notes an increase of preferential voting in Belgium and the

Netherlands over the last elections. This trend can also be observed for national elections in Luxembourg since the 1970s⁷ (Poirier et al, 2014).

As the voters' influence on this second dimension grows, scholars should also engage more in analysing how these more personalised electoral systems affect the intra-party dimension.

1.1.3. Recent developments and open questions

Since Richards Katz's pioneering work in the 1980s (Katz, 1980) the study of the intra-party dimension has steadily expanded. While it still remains in a minority position, it is worth noting three developments in particular.

The first, development is the creation of major research projects on intra-party competition. To the best of my knowledge that are currently two projects implanted in Europe at the University of Helsinki (headed by Prof. Åsa von Schoultz) and the University of Namur (headed by Prof. Jérémy Dodeigne).

Second, the number of publications and conferences on the topic of intra-party politics has grown. In the context of this thesis, I would particularly emphasise the work of Renwick and Pilet (2016) who have analysed electoral systems in Europe in order to determine (1) whether the role of the intra-party dimension has grown and (2) what the consequences of this development are. While the focus of this thesis is slightly different, their work provides a useful framework for analysing preferential-list PR systems, as I shall outline in more detail in the subsequent section.

Finally, two doctoral theses also illustrate that the questions of the intra-party dimension and preferential voting have become more prevalent.

Van Erkel (2017) analysed the determinants of preferential voting in Belgium in order to determine what affects a candidate's ability to attract large numbers of preferential votes. The model presented in the thesis focuses primarily on the characteristics of the candidates including their media presence, socio-demographic

⁷ It should be noted that the 2013 and 2018 parliamentary elections have deviated from this trend; it remains however unclear about whether this is a reversal of the trend or a temporary occurrence.

variables as well as their policy positions. As I shall outline in the next chapter, Van Erkel's framework is particularly interesting to conceptualise different types of candidate characteristics.

Nagtzaam (2019) presents a comparison of the Dutch and Belgian cases in order to determine "the causes and consequences of preference voting" (Nagtzaam, 2019: 5). He presents a model, which takes into account the permissiveness of the electoral rules to express preferences votes as well as voter and candidate characteristics.

While both of these theses emphasise the importance of the electoral system for the intra-party dimension, the Van Erkel thesis (2017) does not analyse their relevance at all in the empirical chapters while Nagtzaam (2019) focuses on a few characteristics, which are relevant for the comparison between Belgium and the Netherlands.

The present thesis can be perceived as a logical continuation of this series of doctoral theses, as it builds on the existing work on preferential votes and focuses specifically on the impact of the differences in preferential list PR systems on the intra-party dimension. These differences will be outlined in the next section.

1.2. The heterogeneous field of preferential list PR systems

The previous section has provided an overview of the larger field within which this thesis operates. In this section, I provide a definition of preferential list PR systems, which will be the main independent variable in this thesis.

Most comparative research tends to regard these electoral systems as a unitary category. As I shall outline in the remainder of this section, the treatment of preferential list PR systems as a unitary group does not seem appropriate, particularly when analysing the intra-party dimension.

1.2.1. Defining preferential list PR systems

For the purpose of this thesis, I adopt Herron et al.'s definition who define electoral systems as a "set of rules taking votes in any given election and determining the seats in the representative assembly or other elected institution, including a presidency where one is elected" (Herron et al., 2018: 2). In other words, electoral systems define (1) how votes are expressed and (2) subsequently translated into representation.

Typologies of electoral systems typically focus on certain characteristics of electoral systems in order to divide them into more or less homogenous groups. The broad classification of electoral systems, divides them into three different groups: majoritarian/plurality systems, proportional representation systems and mixed systems (Farrell, 2011: 4; Gallagher & Mitchell: 5; Norris, 2004: 40). This distinction focuses on the general "philosophy" of allocating seats. Under majoritarian or plurality systems candidates are elected if they obtain a majority or a plurality of votes. Under proportional representation, the number of seats a party receives corresponds roughly to the proportion of votes the party receives. Mixed systems combine characteristics of the two other systems. While this trichotomy provides a relatively reliable distinction, each category does however also contain an extremely heterogeneous set of electoral systems.

The family of PR systems contains the vast category of list PR systems under which parties present candidate lists and where votes are distributed proportionally according to the vote share a list receives. The list systems are typically divided into three sub-groups (Norris: 2004: 51-55; Farrell, 2011: 77-88), which are defined in terms of the influence that the parties and voters exert over intra-party outcomes at the moment of the election.

In closed-list systems, parties present a list that is ranked and voters cannot change that order. In other words, voters have no possibility of affecting the intra-party dimension.

Under open-list systems the voters have complete control over the inter- and intra-party dimensions at the moment of the election. Parties select candidates for their lists, but voters solely determine the final rankings of the candidates at the moment of the election.

In between these two categories are hybrid systems that are commonly called flexible list systems. For these systems parties establish a ranking of candidates that can be altered by the electorate. The relative influence of these two actors varies strongly across different cases. For instance, affecting a party's ranking in Norway is virtually impossible while in Lithuania preferential votes fully determine the order for candidates receiving more than 70 of these votes.

Open- and flexible-list systems are also often referred to as preferential-list systems in the literature (Farrell, 2011), because of the possibility to cast one or more preference votes.

This thesis will focus on the diversity across the different preferential list systems in Europe. As the title of the thesis refers to open lists rather than preferential lists, one might raise the question about the focus of the thesis. As the introductory remarks to this chapter suggest, the thesis focuses on the voters' perspective; consequently, it analyses intra-party outcomes such as determined by preferential votes. In that sense, the thesis treats the candidate rankings as if the lists were completely open⁸.

A final question on the definition of preferential-list PR systems concerns the status of the Single Transferable Voting (STV) system. Like preferential-list systems, STV also (1) leads to proportional results and (2) gives voters the possibility to differentiate between candidates. One might therefore consider it as a preferential-list PR system.

⁸ It is of course possible that the relative weight of preferential votes affects voting behaviour with regard to the intra-party dimension. For this reason, the distinction between flexible and open lists will be considered in the theoretical model of this thesis.

This thesis follows however the assessment of several scholars (Farrell, 2011; Bormann and Golder, 2013; Norris, 2004) that despite these two commonalities do not justify to consider STV a preferential-list PR system. Two main reasons underlie this argument.

First, STV is generally less party centric and more focussed on individual candidates. In Ireland and Malta – the two European countries using STV for national elections – candidates are presented on the ballot as individuals (Farrell, 2011: 137). Australia where the systems is used for Senate elections is somewhat different in that respect because candidates are grouped by party and it is possible to express a list vote by which the party's order is confirmed (Farrell, 2011: 137), which may make the system more focused on party lists. Despite the Australian exception it is therefore clear that the impact of partisanship is different under STV compared to preferential-list PR systems.

In addition to the question on the general philosophy of competition, the way in which votes for candidates are tied are different in both cases. In preferential list systems, votes are typically pooled (Van Erkel, 2017: 38; Karvonen, 2004), meaning that a ballot with a preferential vote for candidate A indirectly also affects candidate B's chances of being elected because that vote affects the party's vote share, which in turn affects the number of seats. Under the single transferable vote, this bond between co-partisans does not exist. Hence, the single transferable vote is conceptually speaking not a preferential list system.

Therefore, STV cannot be included in the definition of preferential-list PR systems and is consequently not the subject of this thesis.

1.2.2. Differences in preferential list PR systems

One of the central arguments of this thesis is that one should not neglect the diversity of preferential-list PR systems. Currently, there are to the best of my knowledge 21 European countries in Europe that use some form of preferential-list

PR. Table 1.1 summarises these cases. While each system has its particular differences, one can identify certain common characteristics.

Since Rae's seminal work (1967) scholars have presented different classifications of different electoral systems in order to form meaningful groups. For the purpose of this thesis, I propose to distinguish six characteristics that have the potential to be relevant for the intra-party dimension. This classification is inspired from the work of Renwick and Pilet (2016) whose framework is a development of Carey and Shugart's framework (1995).

Table 1.1 – European countries with preferential PR systems for parliamentary elections

Country	N votes	Compulsory	Negative	Panachage	Openness⁹
Austria	1	No	No	No	Flexible
Belgium	M	No	No	No	Flexible
Bulgaria	1	No	No	No	Flexible
Croatia	1	No	No	No	Flexible
Cyprus	M	No	No	No	Open*
Czech Republic	M	No	No	No	Flexible
Denmark	1	No	No	No	Open
Estonia	1	Yes	No	No	Open
Finland	1	Yes	No	No	Open
Greece	M	No	No	No	Open*
Iceland	M	No	No	No	Flexible
Italy	M	No	No	No	Open
Latvia	M	No	Yes	No	Flexible
Lithuania	M	No	No	No	Open*
Luxembourg	M	No	No	Yes	Open
Netherlands	1	Yes	No	No	Flexible
Norway	M	No	Yes	No	Flexible
Poland	1	Yes	No	No	Open
Slovakia	M	No	No	No	Flexible
Sweden	1	No	No	No	Flexible
Switzerland	M	No	No	Yes	Open

Number of votes – The first characteristic concerns the number of preferential votes that a voter can cast. Across different preferential list systems, this number can vary rather strongly. In nine of the European cases, voters can only cast a single preferential vote; in the other cases multiple votes can be cast. This number of

⁹ Cases marked with "Open*" are technically not fully open. In Greece and Cyprus, leaders are protected. In Lithuania, preferential votes only change preference rankings if a candidate receives 70 or more preferential votes. These restrictions are however so minimal that they can be treated as open electoral systems.

preferential votes can vary from a small number of votes (typically 3 to 5) to systems where a voter can express as many votes as there are seats to fill in a particular electoral district.

The second dimension concerns *vote type*, which primarily distinguishes between categorical and ordinal votes. There are also however also other variations such as *cumulation* (the possibility to allocate more than a single categorical vote to the same candidate) or the possibility to cast *negative votes* with which a voter can express explicit disapproval for a candidate. The thesis will focus more specifically on negative votes. While it would also be interesting to assess the role of *cumulation*, however it coincides with the next variable in the case of the 21 European cases.

Third, one can distinguish between systems where preferential voting is restricted to a single party versus those that allow voting across party boundaries. Currently, such cross-party voting – also referred to as *panachage* – is possible in Luxembourg and Switzerland.

The fourth dimension of interest concerns the question whether it is optional or compulsory to cast preferential votes in order for a ballot to be valid. Currently, four European countries require voters to cast a preferential vote.

The fifth dimension relates to the number of seats to be filled in an electoral district. In fact, district magnitude is generally identified as one of the most important factors of electoral systems (Shugart and Taagepera, 2017; Carey and Shugart, 1995). The particularity of district magnitude is that it typically varies across different electoral districts within different countries.

Finally, distinction between flexible and open lists should not be discarded as a factor that affects the intra-party dimension. This variable concerns – as outlined in the previous subsection – the relative weight that voters and parties have over final party outcomes.

The potential impact of these six variables will be outlined in more detail in chapter 2 in response to the research questions that will be outlined in section 1.4 of this chapter.

Before discussing the potential effects that these six characteristics may have, it may first be beneficial to discuss the question why one should study this variation between different preferential list PR systems at all.

1.2.3. Why study preferential list PR systems?

Following the account of the diversity of preferential list PR systems, one may raise the question about why one should study the differences of these systems. One might even ask whether there is any reason to believe that they matter at all. While the existence of this thesis should leave no doubt on its author's position on that question, an objective answer to this question would be that at this stage it is simply not possible to exclude that differences in preferential list PR systems have an important impact. In fact, Shugart observes that "*Quite apart from the normative arguments in favour of one type of PLPR or another (...) we simply know too little at this stage about their empirical effects to provide meaningful answers to many of the trade-offs confronting electoral reformers who may seek our advice as 'experts'*" (Shugart, 2005: 45). While acknowledging some advances in the field, Passarelli observes that this argument is still valid 15 year later (Passarelli, 2020: 2-3). Considering an observed tendency of 'personalisation' of electoral systems (Renwick & Pilet, 2016) that may translate into a larger prevalence of preferential list PR systems in the future, it is important to provide a more conclusive answer to this question.

The main problem with the existing literature is a tendency to treat these systems as a rather homogenous group that is compared to other electoral systems. While this choice may be justifiable in some instances, there is a risk that significant differences are not sufficiently acknowledged when amalgamating systems with very

different rules on how voter can allocate preferential votes. I propose to consider four examples to illustrate this need for greater differentiation.

Blumenau et al (2016) show in a laboratory experiment that open lists have a tendency to reinforce the position of the mainstream. In their experiment, voters who would choose a UKIP candidate under closed lists choose a Eurosceptic candidate from the Conservative party under an open list setting. This suggests that more influence on the intra-party dimension can reduce levels of party fragmentation in the party system. The difficulty of this analysis is, however, that they test only the case where voters can cast a simple preferential vote. It is therefore not certain that the same results would hold if voters could cast multiple votes or even spread votes across different lists. The currently insufficient differentiation of preferential-list PR systems may therefore be problematic for the generalizability of such findings.

The second example concerns the effects of preferential list systems beyond elections. In fact, preferential votes can strengthen or weaken the position of candidates within the party, thus influencing decisions on cabinet positions (Meriläinen & Tukiainen, 2018), offices within the party hierarchy or qualification as a candidate for the subsequent elections. It would however be possible that these effects are affected by the design of preferential list systems.

Third, there is a question of descriptive representation. Van Erkel (2017) argues that preferential voting can have a beneficial effect on descriptive representation. Without testing whether such a proposition holds for different types of preferential list systems, one remains in a poor position to advise policy makers wishing to improve descriptive representation on potential steps that can be taken. The same problem arises when it comes to the question of whether electoral systems allow for sufficient turnover or whether they give such strong advantages to incumbents that there is almost no renewal in the composition of the legislative assembly.

Finally, by giving voters a more extensive say, preferential voting systems have been observed to be correlated with greater satisfaction in democracy (Farrell & McAllister, 2006). In other words, giving voters a greater say on the intra-party dimension, their satisfaction with the functioning of their country's political system might be increased. These results are however not universally accepted. Bosch and Orriols (2014) find, for instance, that higher satisfaction is only observable in more knowledgeable electorates while Bol et al. (2018) find that voters in Belgium casting a preferential vote experience less satisfaction than those who only cast a party vote. Given these conflicting results, it may be important to adapt a more differentiated view on the different types of preferential-list electoral systems. In order to achieve this, it is crucial to identify the electoral system characteristics that cause significant variation.

This selection of examples illustrates the diversity of areas that preferential list PR systems may affect. The difficulty is however that, at this stage, political scientists know too little about the impact of different electoral systems, which may be problematic. For this reason, research on preferential voting should focus more specifically on the different dimensions of preferential list PR systems in order to arrive at more precise conclusions.

1.3. The Voters' decisive moment

The two preceding sections have outlined the general context and main gaps in the literature that this thesis addresses. This section further specifies the scope of this thesis before proceeding to the presentation of the central research questions in the subsequent section.

With the particular focus on electoral systems and elections, one may perceive intra-party competition in terms of a cycle centred on elections. Within this

framework it is possible to divide intra-party competition into three stages: (1) the pre-election stage, (2) the election stage and (3) the post-election stage.

The *pre-election stage* concerns the selection of candidates, which is typically organised in accordance with internal party rules and which may therefore vary across parties within a same political system. In addition to the selection of the candidates, electoral campaigns also precede Election Day. During these campaigns candidates try to make an appeal to the voters through the promotion of their party or themselves. As Carey and Shugart (1995) highlight, different electoral systems provide different incentives to focus on personal attributes.

At the *election stage*, the voters are the decisive actors in intra-party competition through the expression of their preferential votes. These votes are subsequently used to determine the election result. This gives the *intra-party outcomes*, referring to the results within the candidate lists in terms of the number of votes each candidate receives and the rankings resulting from these preferential votes.

The post-election stage refers to all the implications that are a consequence of the intra-party contest at the election. As mentioned in the previous section, the election results may have an impact on cabinet positions, the allocation of major positions within parties or the prospects to be selected in future elections.

In that sense these three stages are part of successive election cycles.

While all of these three stages have a particular relevance and can thus play a crucial role, this thesis will focus specifically on the *election stage*. If one adopts a voter-centric view, this stage has to be considered most important because it is the only stage in which voters play the main role. In addition, the two other stages anticipate or react to the behaviour of voters. In fact, parties try to anticipate the actions of voters and to adapt accordingly by selecting candidates and campaigning in the pre-election stage. Following the election, parties take the results that voters have delivered to them and have to figure out what to make of it.

While it may of course be possible that parties are sufficiently skilled to anticipate voters in such a way that they can obtain behaviours that favour them, some degree of uncertainty always remains. Therefore, a voter-centric approach focussing on the election stage appears completely appropriate for the analysis of this thesis.

1.4. Three central research questions

Following the presentation of the areas of interest to and the scope of this thesis, this section outlines the general research questions of this thesis. Specifically, three interconnected research question will drive the entire analysis.

The overreaching question that this thesis raises is whether there is a causal relationship between preferential lists PR systems and the intra-party outcomes at the election stage. More precisely, it raises the question whether different preferential list PR systems cause differences at the level of intra-party election results. The term outcome can refer to the final ranking of candidates, the share of preferential votes each individual on the list receives as well as the distribution of votes within the list. While these three ways of measuring an outcome may be different, they are strongly connected.

This argument of causality can be rephrases in terms of imagining two hypothetical elections: if two elections were held in two identical worlds that use two different electoral systems, would the intra-party outcomes be different?

Research question 1: Do differences in preferential list PR electoral systems lead to differences in intra-party outcomes?

As I shall outline in the theoretical model of this thesis, such differences can be expected to result from mechanical effects that electoral systems have and from the adaptation of voting behaviour to the mechanisms of an electoral system.

For such differences to exist, electoral systems need to differ from one another in clearly defined characteristics. Hence, if there is a causal relationship between electoral systems and intra-party outcomes, it should also be possible to determine

the origins of this relationship. For this reason the second research question is concerned with identifying the relevant electoral system characteristics.

Research question 2: Which characteristics of preferential list PR electoral systems affect intra-party outcomes? How do these characteristics shape these outcomes?

More specifically, the thesis will look at the six electoral system characteristics that have been identified in subsection 1.2.2.

The third research question turns to the practical implications of the differences that electoral systems cause for individual candidates. Election candidates have certain characteristics that can be known by the electorate. These include depending on the traditions in different countries and parties the candidates' gender, their age, where they live, what their occupation is, their political experience or their own political views. While each candidate is a unique individual, one can assume that some of these characteristics systematically affect the candidates' likelihood of being elected.

This thesis analyses therefore - for a selection of candidate characteristics - whether the specifications of an electoral system affect the relevance of these characteristics. In other words, the third research question is concerned with an interaction effect between electoral systems and candidate characteristics on the electoral prospects of candidates.

Research question 3: Do the characteristics of preferential list PR systems impact the way in which the characteristics of candidates affect their situation in intra-party competition?

Obviously, these three research questions are interconnected and it may not always be possible to completely separate the empirical tests for these three questions.

Before outlining the plan for analysing these central research questions, the next section will briefly discuss the practical relevance of addressing the three questions.

1.5. Relevance - The question of electoral reform

Earlier in the chapter I have outlined to which areas in the literature this thesis contributes. Adding to our knowledge on the intra-party dimension and our understanding of preferential-list PR systems is however not only relevant for the academic literature; in fact, the insights of this thesis can also have significant implications in the area of public policy. More specifically, the findings of the thesis may potentially highlight important points to consider in the context of electoral reforms.

While electoral reform was long regarded as a rare occurrence, such reforms have become more frequent since the 1990s following the fall of the iron curtain (Renwick, 2018: 114). As such reforms have become more frequent, the interest in the effects of such reforms has also grown.

As outlined at the beginning of this chapter, electoral systems play an important role, and electoral reform therefore deserves an appropriate degree of attention. As Norris (2004: 5) emphasises, the relevance of electoral reform relies on the assumption that changing the formal rules results in political changes as they affect the behaviour of political actors.

While research on electoral system reform does not provide conclusive evidence on the general direction with respect to the inter-party dimension (Nunez, Simon & Pilet, 2017; Renwick, 2018), the evidence for a growing influence of voters on the intra-party dimension is apparent (Renwick and Pilet, 2016).

This tendency may seem somewhat surprising considering classical models that identify politicians as the sole actor in electoral reform and as primarily guided by self-interest (Benoit, 2004). While it is certainly true that politicians typically formally have the authority to pass such reforms, they may however be constrained or pushed by other actors. First, constitutional courts are in some instances at the origin of electoral reforms. In fact, there are instances such as in Italy (Passarelli, 2018) or Germany (Zittel, 2018), where court decisions have forced governments to

make changes to their electoral laws. Second, one should not forget the general public's role. According to Renwick (2018) fear of being sanctioned by voters for reforms perceived as being motivated by self-interest as well as beliefs that voters may reform certain types of reforms have the potential to influence the decisions of politicians. For Renwick, reforms that involve greater personalisation appear to be motivated by the hope of being electorally rewarded. In that sense, citizens as the ultimate principal of elected officials have some direct influence.

In addition to this, there is a tendency of directly involving citizens in electoral reform in more formal ways such as referenda or citizens assemblies (Renwick, 2018). This direct implication of citizens may be conceived as way to remove the stigma of self-interest from electoral reforms.

In addition, one should not assume that self-interest is the only pursued goal. In some instances negative experiences may lead to the wish to improve the overall situation (Renwick 2018). Furthermore, one should not neglect the role of value and the pursuit of social goals in the discussion of electoral reform (Bol, 2016). In other words, there may simply be an intrinsic wish to improve the electoral system that drives electoral reform.

While there have been attempts to determine an ideal electoral system that combines several positive qualities such as Carey and Hix's (2011) analysis of PR systems with low district magnitude, there is no universal agreement on an ideal electoral system since there are several points to be taken into consideration.

As the discussion in this chapter demonstrates, intra-party considerations ought to be considered an integral part of these discussions because they have serious implications on parties, party systems and the political system as a whole.

Making decisions about electoral systems necessarily involves trade-offs (Farrell, 2011: 3). Classic examples include the discussions about district magnitude and the representatives' local connection (Farrell, 2011:75) or the trade-off between the representation of minorities and the decisiveness of governments (Taagepera, 2007:

14). Greater district magnitude ensures greater proportionality and a better representation of minorities, however this proportionality is gained at the expense of a close local connection between the representative and his electorate as well as a higher burden to achieve decisive governments. Furthermore, there is the risk that rural areas are underrepresented in preferential list systems when rural candidates compete against candidates from large cities in the same district.

Adding considerations on the intra-party dimension may require including other trade-offs into reflections of electoral systems. The analysis of the three central research questions may therefore point at new aspects to be taken into consideration.

1.6. Structure of the thesis

This chapter has provided the general context of the analysis, thus underlining the relevance of studying the three research questions that have been outlined. The subsequent chapters will address these three questions.

The second chapter will look at the three research questions from a theoretical perspective. In particular the chapter presents a model, which explains how the electoral system affect intra-party results. This model is based on the idea that voters are rational in the sense of economic theory and that their vote choice occurs in two steps. The first of these steps is the consideration of candidate viability. In the second step, voters express their votes within this subset of candidates according to their preferences.

Different characteristics of the electoral system – including the number and nature of votes or the possibility of voting across different parties – affect primarily the step of viability considerations. In addition, they affect the assessment of the expressed voter preferences on the ballot. This part of the model addresses research questions 1 and 2.

Research question 3 is included in the model in a subsequent step. Different candidate characteristics are assumed to affect the voters' viability assessments and preferences. These assessments and comparisons are performed with the background of the electoral system that is being used.

In addition, the chapter will outline the empirical tests presented in subsequent chapters. In total the thesis will build on three complementary types of data that are analysed.

Chapters 3 and 4 are built on a comparative dataset using election result as well as candidate data for 15 of the 21 cases cited in table 1.1.

Chapter 3 focuses on the question on how the different electoral systems broaden or restrict the degree of intra-party competition. In other words, the question is whether competition within a party list is between a few individuals or all the candidates. This will allow inferring whether different electoral system characteristics lead to significant differences in the intra-party contest and therefore addresses the second research question in particular.

Chapter 4 moves from the general question of the distribution of votes to the question of the interaction between the electoral system and different candidate characteristics. More specifically, I raise the question about whether gender, political experience and subconscious ballot order effects impact a candidate's intra-party performance in terms of preferential votes differently under different electoral systems. The regression models in this chapter thus relate to the third research question.

This analysis of candidate characteristics will be continued in chapter 5, which specifically focuses on candidate ideology. In a study for panachage system that is used in Luxembourg and Switzerland, I raise the question about whether the political positions matter for a candidate's intra-party performance and whether the electoral system affects the relevance of these positions. For the latter purpose, my findings are compared to those of earlier studies on Belgium (Van Erkel, 2017) and

Finland (von Schoultz and Papageorgiou, 2019; Isotalo et al, 2020). The analysis will rely on candidate-based voting advice application data to measure the candidates' positions.

Chapter 6 will introduce the second method, the analysis of representative ballot samples. Such samples allow understanding how individual voters have voted and to analyse whether these voters follow specific patterns when making their intra-party choices. Due to the availability of data, the analysis can only be performed for the case of Luxembourg. This will nonetheless be of enormous value because of the diverse ways in which votes can be expressed in Luxembourg. This second approach is complementary to the first approach because it allows establishing the connection between individual voter behaviour and aggregate outcomes, which are analysed in the preceding chapters.

The data in these four empirical chapters should provide robust evidence for the connection between electoral systems and intra-party results across the different cases. One might however object that these approaches may not sufficiently deal with potential endogeneity problems, which only experimental approaches could decisively address.

For this reason, the final part of the empirical analysis will be based on experimental data from two in situ voting experiments conducted in the context of the 2018 parliamentary elections in Luxembourg. In these experiments, voters were asked to try different voting rules in order to assess the impact of these rules on intra-party results, which should provide robust information on the causal relationship. This data will be presented in chapter 7

One may raise the question about why the thesis does not completely rely on experimental data if it is better in explaining causal relationships. The main reason for combining different methods is potential objections regarding the external validity of the experiments. Furthermore, an experiment can only test a limited number of alternative scenarios. Therefore, combining different methods will

provide a more complete picture regarding the intra-party effects of open-list PR systems.

Finally, chapter 8 will discuss the general findings of the thesis as well as the routes for potential extensions of this thesis.

Chapter 2

Voters, candidates and the role of the electoral system

The purpose of this thesis is (1) to test whether there is a causal relationship between the specificities of a preferential-list PR system and intra-party outcomes, (2) to identify the characteristics that account for different intra-party outcomes and (3) to test whether this affects the impact of different candidate characteristics on the candidates' electoral prospects. The role of this chapter in response to these three research questions is twofold. First, it lays out the theoretical argument for the existence of this causal relationship, i.e. it explains how different components of electoral systems are expected to lead to significant variation in intra-party outcomes and how they can interact with candidate characteristics. Second, it discusses the different empirical tests that will be presented in the subsequent chapters.

The presentation of this model necessarily involves a certain degree of simplification of a complex world. Social phenomena and interactions are indeed extremely diverse and complex. In order to make sense of all of this, it is necessary to work with certain assumptions on human nature and to simplify the representation of this complex reality. In that context Katz reminds us that

In constructing and testing a theory, one is working simultaneously in two distinct worlds, the real world of everyday experience and a hypothetical model of that world. The hope is that the behaviors of real world actors, which one would like to explain or predict, will correspond to those of the hypothetical actors in the model (Katz, 1980: 12-13).

The main challenge will therefore be the determination of the right balance between the necessary simplification for a coherent argument and an accurate representation of the world. Particularly when the central questions revolve around

a topic as technical as electoral systems, it is challenging to find an appropriate balance.

This presentation of the theoretical model and the methodological roadmap for the subsequent chapters will be discussed in the five sections of this chapter.

The first section provides an overview of the electoral process from candidate lists to electoral outcomes. In short, the argument says that at the moment of the election there is one central actor – the voter – expressing a choice, which is subsequently aggregated to determine the electoral outcome. The electoral system imposes rules on how this choice can be expressed and how the outcome is determined, thus constraining the voter. The latter adapts to these rules to optimise the outcome. While elections also have a second key actor, namely parties and candidates, these do not play a major role in this model, as the scope of the thesis is limited to a period where they are relegated to the role of a passive observer¹⁰. In fact, candidates and parties can influence the process prior and during the election, while their fate lies in the hands of the electorate on election day.

Given the centrality of voters in this model, the second section discusses the conceptualisation of the “voter”. In line with rational choice theory, this model represents them as rational actors who intend to get their most favoured outcomes. This search for the best outcome presents voters with a trade-off regarding information seeking on parties and candidates. In addition, the large quantity of information constitutes a major cognitive challenge for the human brain, an issue thus far insufficiently taken into account in the context of electoral systems. All of these factors can be expected to affect the way in which voters assess candidates in a process involving different steps.

¹⁰ One might object that individuals standing for elections are not fully passive, because they can typically also cast a vote in the same election in which they appear on the ballot. This objection would however fail to acknowledge the meaning of candidate in the model, which does not designate the individual, but the role the individual plays. Someone standing in an election thus plays the roles of voter and candidate. The role of candidates is a passive one on election day.

From the voter, the model moves onto the main independent variable in our model, the electoral system. After briefly summarising the main components of electoral systems that are relevant for the intra-party dimension, I discuss how changes in these components are likely to affect intra-party competition and intra-party outcomes, both mechanically and psychologically through their influence on voter strategies.

The subsequent section establishes the link to the third research question by introducing candidate characteristics into the model. After presenting an overview of potential candidate characteristics that can influence preferential voting, I justify the selection of the characteristics analysed in this chapter and how these can be expected to interact with the electoral system.

Finally, I shall briefly outline the empirical tests presented in the subsequent chapters. Globally speaking, there will be three complementary empirical tests. First, a comparative analysis of aggregate election data will be performed in order to assess variation across the different cases. Second, I analyse candidate-level data for the case of Luxembourg in order to assess the connection between individual vote choices and the aggregate outcome. Finally, two experimental studies will be presented in order to gain more insights into the causal relationship at the centre of this thesis.

2.1. From candidate lists to an elected assembly

The central aim of elections is to determine the composition of a parliamentary assembly¹¹. The outcome – the composition of this assembly – is a result of a party-internal process as well as the intervention of the voters. In fact, the electoral system has the potential to influence the behaviour of parties, candidates and

¹¹ Alternatively, elections may also serve to determine the winner of a single office, such as a president. However, as the focus of this thesis is on proportional representation electoral systems for which one necessarily needs multiple seats to be allocated, such elections are not considered in the model.

voters (Passarelli, 2020: 4). All of these actors play a roll at an election, which can be conceptualised in four steps¹².

Step 1 – Parties establish their candidate lists & campaign to be elected – Parties determine the composition of their candidate lists in accordance with a procedure determined by themselves. Accordingly, the precise nature of this process can vary from party to party. Some parties may leave the composition of lists to the party leadership, while others have a stronger involvement of their local base and others may have a system of primary elections. Up to election day, parties and candidates can campaign to convince voters to support them at the election. As already outlined in the previous chapter, this process does not enter the scope of this thesis; consequently, candidate lists are treated as a given variable on election day.

Step 2 – Voters form their opinion on the parties and candidates – Once the parties have established their lists and made their case in the electoral campaign, the voters become the central player in the electoral game. In the theoretical model, we adopt the central assumption from economic theory that the voters are able to compare all of the parties and candidates and that they can express preferences or indifference between the parties and the candidates (Shepsle, 2010: 24). The former constitute the voters' inter-party preferences while the latter constitute their intra-party preferences. In accordance with this assumption, the voters form preferences over the different parties and candidates.

Step 3 – Voters cast their votes based on their preferences, expectations of other voters' behaviour and constraints of the electoral system – Voters cast their votes primarily based on their own preferences. In addition to their preferences, they are subject to two sources of constraints. First, voters may take the expected behaviour of other voters into consideration in order to make sure that they use their votes as efficiently as possible. Second, the electoral system imposes restrictions on the

¹² In reality these steps may overlap, in particular steps 1 and 2 as well as steps 2 and 3. This strict separation in the model is necessary to better conceptualise the entire process.

voters. Some of these constraints are necessary limitations that voters must comply with in order for their ballots to be valid. In addition to these formal constraints, voters may also take into consideration the expected effects of the electoral system when making a vote choice in order to maximise vote efficiency. A more detailed account of this argument will be provided in the subsequent section.

Step 4 – The cast votes are aggregated to determine the electoral outcome – In addition to this role of defining the rules on how votes are expressed, the electoral system also defines how the cast votes are subsequently turned into an electoral outcome (Herron et al., 2018: 2). The electoral outcome defines the inter-party distribution of seats between the candidates as well as the intra-party allocation of these seats to the candidates on their respective party lists.

Throughout these four steps, one can identify two different types of effects of electoral systems in accordance with a distinction findings its origins in Duverger's seminal work (1951). First, there is a mechanical effect, which results directly from the rules defined by the electoral system. In other words, the effect occurs without any human intervention (Benoit, 2002; Harfst et al, 2018). These rules define the extensiveness of the preferences the voter can put on the ballot as well as the limitations imposed on the voter. As a result the electoral system directly affects intra-party rankings. Other mechanical effects occur at the distribution of seats, these do however appear to affect only the inter-party dimension.

In addition to the mechanical effect, electoral systems also affect voters in incentivising them to adapt their voting behaviour. This second effect is commonly known as the strategic effect. On the basis of their expectations, voters may choose their voting patterns, choose to express votes which do not represent their sincere preferences or adapt their voting behaviour in another way. In other words, the psychological effect results from the voters' anticipation of the mechanical effect (Benoit, 2002; Harfst et al, 2018).

It should be noted that the strategic effect of the electoral system does not only affect voters; candidates and parties can likewise be expected to adapt their behaviour in order to achieve more favourable electoral outcome. For this reason, parties will anticipate the effects of the electoral system on voters and adapt accordingly (Blais&Carty: 1991). These choices do however precede the election stage and are therefore outside the scope of this analysis.

2.2. Conceptualising the voter

Media coverage of elections has a tendency of focussing on the candidates, the winners and the losers of elections, which suggests that they are the protagonists of the election. While they are clearly one of the two key actors at the election, candidates can only passively observe the outcome once the day of the election has arrived. Instead it is the voters who become active and cast their votes. This section presents a brief conceptualisation of what voters are and which basic assumptions are underlying the theoretical argument.

In short, a “voter” can be defined as a political actor who fulfils all the criteria imposed by the electoral law to enabling him or her to cast a vote in an election where representatives for an elected assembly or a single post are chosen. This definition focuses on individuals in a certain context and - as a result - the conceptualisation of the voter is restricted to his specific context. In other words, this conceptualisation of voters does not pretend to provide a full account of the complexity of human beings. It should rather be interpreted as a model, which aims at providing a parsimonious representation of voters as actors in the context of elections.

2.2.1 Rationality and preferences

To conceptualise the voter, the model builds on the concepts of rational choice institutionalism. The main reason for this choice is that this approach best accounts conceptually for the ability of voters to effectively adapt their voting behaviours to changes in electoral systems. In fact, the underlying idea of this approach is that political actors are rational actors, aiming at maximising their utility, i.e. they wish to obtain the best possible outcome for themselves. Institutions – including electoral systems – create incentives for these political actors to adapt their behaviour in a way, which will maximise their utility (Norris, 2004; Lowndes, 2010). While there is no unanimous consent on how accurately rational choice theory is explaining voter behaviour, there is evidence justifying the use of this model when discussing the effects of electoral systems (Van der Straeten et al 2010).

Within this framework, six main assumptions about voters can be expressed. I shall briefly discuss each of them as well as their relevance for the model.

Voters are aiming at obtaining the best possible outcome – As outlined above, rational choice models view actors as utility maximisers, whose aim it is to achieve the best possible outcome from their point of view. When applying this to voters, the best possible outcome can be defined in terms of the most desirable possible composition of an elected body that reflects the preferences of the voter.

Voters are able to compare candidates and express preferences – The ability to maximise utility presupposes the existence of preferences on which utility assessments can be based. It is therefore essential that rational voters be able to compare different candidates and that they can express preferences or indifference for different candidates. For instance, a voter may prefer candidate A to candidate B, prefer candidate B to candidate A or be indifferent between both candidates (Shepsle, 2010: 24). Without this crucial assumption one could not conceive of electoral choices as meditated. In fact, if voters were unable to compare different

candidates, one would need to conclude that any choice is random. This in turn would ultimately compel us to put into question whether elections ought to be considered a good approach to determine leaders if the outcome is derived from purely random decisions.

Voter preferences are transitive – Transitivity implies that if a voter X prefers A to B and B to C, that same voter also prefers A to C. This condition is essential to guarantee the logical consistency of the candidate rankings. In fact, transitivity is a necessary condition in order to be able to conceptualise preference rankings (Allingham, 2002; Shepsle, 2010: 25), which is necessary in order to develop the entire model. A violation of transitivity on the level of individual preferences - providing for the possibility of cyclical preferences - would mean that an individual does not have coherent preferences.

The preference relation between two candidates is independent from the assessment of a third candidate – Independence essentially requires that the disappearance of one option should not affect the preference ordering of the remaining choices. If there were, for instance, three candidates A, B and C and a voter preferred A to B, the disappearance of candidate C from the ballot must not result in that voter preferring B to A (Allingham, 2002). It should be emphasised that this assumption is referring exclusively to the voter's preferences between the different options and not the ultimate vote choice.

Voter preferences are single-peaked – Single-peakedness implies that voters have only one optimal point corresponding to their most preferred option; the further away an option (i.e. a candidate or a party) is from that optimal point, the least it is preferred to other options closer to that point. The idea of single-peaked preferences is particularly present in arguments in political science building on economic theory since Duncan Black's seminal work (1958). The assumption of single-peaked preferences is one of the most central assumption in almost any formal model on voting behaviour (Cox, 1990).

As the word *distance* suggests, this notion is best understood in a graphical setting. In fact, parts of the argument will for that reason be using spatial models as an approach. These are one of the main approaches to conceptualising political competition (Benoit & Laver, 2005).

The basic idea of these models is that one can plot different political actors within a geometrical space where preferences can be expressed in terms of distance. If one plots a voter X and a set of candidates within that space, more preferred candidates would be closer to that voter (Merrill, 1995). In that sense, spatial models ought to be primarily understood in a metaphorical sense (Benoit & Laver, 2012), helping us to graphically conceptualise a situation.

Spatial models are typically used when discussing proximity in terms of policy positions. We shall adopt these models in that sense in chapter 5. In this chapter, we adopt a more abstract notion incorporating different factors that could affect voter preferences.

Voters want to be as efficient as possible – The assumption that voters want to maximise their utility also implies that they want to be as efficient as possible in making their vote choices, i.e. they wish to make the best decision with the least effort possible. This has two major implications that will be discussed in the two subsequent subsections. First, there is a trade-off to be made in terms of information seeking when voters form their preferences because acquiring more information can improve one's choice while also being time-consuming. Second, in order to be efficient it is not only necessary to form preferences on the parties and candidates; furthermore, voters may have a strategic advantage over other voters when they understand how the rules of an election – i.e. the electoral system – work. This enables them to improve their choice and consequently obtain better outcomes.

2.2.2. The challenge of information seeking

Given the centrality of one's own preferences to establish good rankings of the candidates and of the rest of the electorate's preferences in order to assess candidate viability, seeking information becomes a crucial aspect of making efficient vote choices. This implies that voters gather information about the different qualities of the candidates, which they may consider relevant for their preferences and to assess the candidates' viability. This may include judging where they stand on certain policy issues, what experience they have, their gender, age, their party, local factors and several other characteristics.

Seeking information is however time consuming and a rational actor may conclude that beyond a certain point, the cost of collecting information exceeds the expected benefits from it (Brockington, 2003). This conflict can be assumed to become more apparent in situations where the number of candidates is high, either because of high district magnitude or because of a high number of competing lists. In such situations, voters may be more inclined to take shortcuts to make up their mind.

Besides the question about the appropriate time to invest in comparing the candidates one must also consider the actual capabilities of the human brain to effectively compare a large number of candidates. Research on human cognitive abilities demonstrates that comparisons beyond a certain number of options tend to be no longer well informed, but rather originate from the use of shortcuts (Muraoka, 2019). In other words, one needs to be aware of the cognitive challenge for the voters with respect to the available offer. Eppler and Mengis (2005) emphasise that the availability of more information is not always beneficial for making a good decision.

In fact, previous research from the areas of social psychology and rational choice emphasise that voters tend to look for shortcuts and rely on cues in complex information environments (McDermott, 2009, Peterson, 2017)

Voters can therefore be assumed to be in a conflict regarding the optimum amount of information they need to collect. Characteristics of the electoral system can be assumed to be a relevant factor because they affect the field of candidates that stand for election as well as the way in which voters need to express their preferences. Furthermore, this trade-off in combination with the cognitive challenge may affect the voters' responsiveness to the electoral system. Research by Seib (2016) underlines this point; in fact, his findings suggest that an increase in the complexity of the voting task leads voters to consult more information. The increase in the quantity of consulted information comes however at the cost of less attention to detail.

2.2.3. Voters and the electoral system

In order to most efficiently use their vote(s), voters need to well understand the rules of the game, i.e. they need to be informed about the electoral system. In fact, electoral systems set the rules that determine how votes can be cast and how these expressed preferences are transformed into seats. Understanding the mechanisms of the electoral system allows the voters to assess what is the best route to pursue in order to achieve the best possible outcome.

Understanding the ways in which electoral systems work may not be equally easy in each case due to the varying degrees of complexity of electoral systems. While there is no unanimous consent on what constitutes complexity, Müller and Jankowski's (2019) criterion that a more detailed voting task entails more complexity appears completely justified.

The degree of complexity has been shown to affect the efficiency and strategy of voters. In fact, Van der Straeten et al (2010) demonstrate that for electoral systems with relatively simple voting tasks voters can act relatively strategically. For more complex systems, on the other hand, acting strategically becomes more challenging, leading to a greater reliance on heuristics. Seib (2016) arrives at a similar

conclusion when arguing that voters try to focus more specifically on essential information in order to make their choices.

This centrality of the electoral system will be reflected in section 2.3, which looks at different characteristics of electoral systems and their effect on intra-party competition.

2.2.4. From preferences to votes

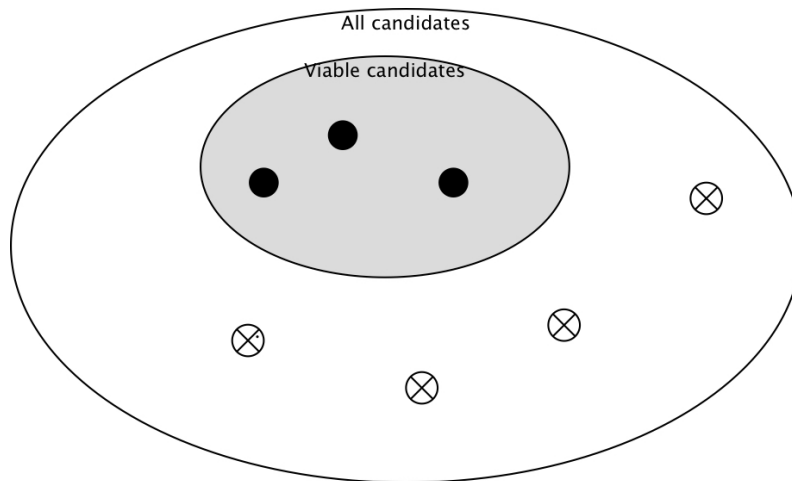
There appears to be an implicit assumption in the literature (for instance Riker, 1982) that voter preferences and vote choices ought to match. In other words, voters should vote for their most preferred candidates, i.e. those closest to them if one is reasoning in spatial terms. For instance, if a voter is given one vote, that vote should be expressed for the most preferred candidate; similarly, when given 10 votes, these should be cast for the 10 most preferred candidates.

This reflection of sincere preferences may however not always lead to the largest achievable utility for a voter. If a voter knew that he alone could make a decision, picking a first preference would be a rational choice; yet this is a scenario, which a voter in a free democratic election could not expect to occur. This creates the need for individual voters to include the expected decisions of other voters into their considerations in order to make their votes most efficient.

The literature refers to such voting patterns that do not reflect a voter's sincere preferences as strategic voting (Riker, 1982; Cox, 1997). Consider for instance, a single member plurality or "first past the post" system with three candidates on the ballot: a communist, a social democrat and a conservative candidate. A voter X has the following preference ordering for the candidates: communist > social democrat > conservative. If the voter followed his/her sincere preferences, knowing that the communist candidate has absolutely no chance of winning the election, a vote for the communist candidate should be cast; however this could increase the likelihood of the conservative candidate's victory. In order to prevent the conservative

candidate from winning, it may therefore be better to vote for the social democrat in order to increase the expected utility from the vote choice.

The distinction between *sincere* and *strategic* voting may however be perceived as containing a somewhat negative connotation, which suggests that strategic voters are morally inferior, while all they try to achieve is the best possible outcome considering the expected actions of the remainder of the electorate.



Graph 2.1 – Illustration of viable candidates as a subset of the full candidate set

Instead of attaching a stigma of being *insincere* or an act of *manipulation* to strategic voting one should rather view it as a way of combining one's own preferences and knowledge about outside factors such as the likely behaviour of other voters to achieve the best possible outcome. In order to take into account these outside factors, voters proceed to an auto-restriction in the domain of available candidates from the total set of candidates $C=\{A, B... N\}$ to a subset $V= \{F, G, ... M\}$ which contains only those candidates a voter perceives as being viable, where viable means that a candidate has a chance of being elected.

In that sense one can rephrase the central assumption about the relationship between candidates and voters as follows: *Voters cast their vote(s) for their most preferred candidates, which they conceive to be viable.*

This reformulation implies that a voter's choice occurs in two steps, the formulation of preferences between candidates and a filtering stage in which unviable candidates are excluded.

The models of scholars of strategic voting - such as that of Riker (1982) who builds his reasoning on social choice theory - typically argue that the formation of preferences precedes the exclusion of unviable candidates. However, their arguments are often based on plurality electoral systems with a limited set of candidates where this sequence of steps appears to be relatively reasonable.

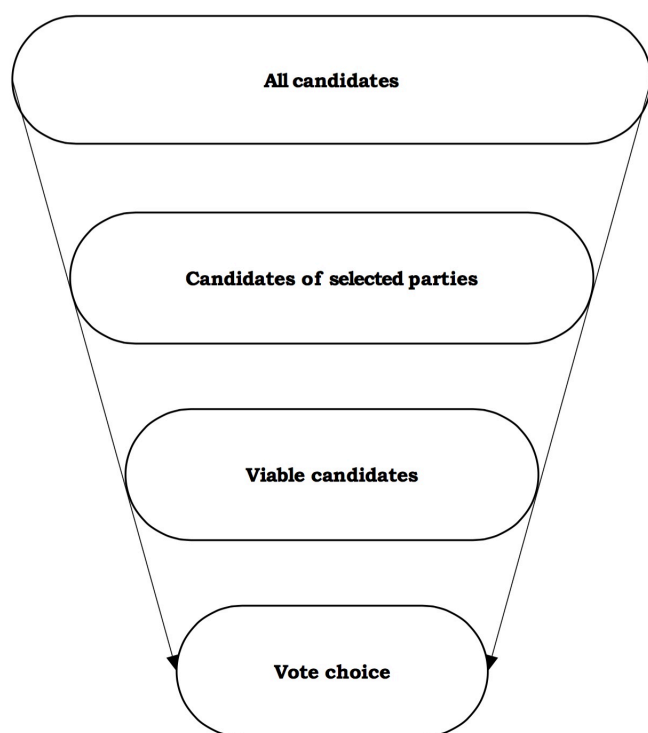
On the other hand, when the number of candidates is high - which is often the case in elections under preferential-list PR systems - one may question whether it would really be an efficient approach for a rational voter to compare 100 or more candidates in detail and to subsequently exclude candidates that are not viable. In addition, under a typical plurality electoral system, a distinction between the inter- and intra-party dimensions is more difficult to make because there is usually only a single candidate for each party on the ballot. For these reasons, I propose to opt for an approach that inverts the sequence of these two steps¹³.

A promising approach to conceptualise vote choices with this sequence of steps is Consideration set models. Consideration set models represent the process of choosing a certain option in terms of at least two stages: first, individuals select a subset of all the available options that they consider personally viable; subsequently, they proceed to a more detailed selection within this subset. While they originate in studies on consumer behaviour, they have subsequently been

¹³ In actual situations, the sequence between the two steps might be blurred in several instances. The intention of this choice is to adopt an approach that would appear most efficient in terms of the effort that a voter would need to use. In the end, the sequence of the two steps does not appear to be consequential for the outcome of the reasoning; as for other parts of the argument a choice needs to be made in order to be able to construct a model that explains the behaviour of voters in a systematic way. A theoretical model is always a simplification of a complex reality, which however aims at being as loyal as possible to reality.

adapted to theories on voting (Oscarsson & Rosema, 2019)¹⁴. In terms of voting, voters first create a consideration set consisting of viable option¹⁵ and subsequently proceed to a vote choice within this set (Oscarsson & Rosema, 2019; Rekker & Rosema, 2019). In fact, conceptualising vote choices in terms of these stages appears to be particularly promising for elections with multiple parties and candidates (Rekker & Rosema, 2019), making this approach particularly well-suited to the study of preferential-list PR systems.

The present model stipulates that a voter's intra-party choice is the result of a three-step-process. The process is illustrated in graph 2.2.



Graph 2.2 – Path from a full candidate set to the final vote choice

¹⁴ One should remind oneself that the same is true for rational choice models, which have also been first employed to study choices of economic actors.

¹⁵ The notion of viability in this context is slightly different from that of the strategic voting literature. In the strategic voting literature, the term refers to candidates that have a realistic chance of being elected. In consideration set models, viability has a broader meaning because it refers to the subjective preferences of an individual. Thus, when referring to a viable candidate in this model, I am referring to a candidate that is considered acceptable to a particular voter. A candidate's prospects of being a competitive candidate may well influence a viability assessment, but it is only one factor among a larger set of possibilities. Considerations about future elections rather than considerations on the current election might also enter into such viability assessments. Finally, Nagtzaam (2019) highlights that preferential votes may also be used against other candidates. While this option is straightforward in systems with negative voting such as in Latvia, such negative motivations should not be neglected in other systems.

Step 1 – Inter-party choice – Partisanship is one of the strongest cues that voters can use to be guided in their choice (Kirkland & Coppock, 2018). Consequently, it would also be the most efficient approach for rational voters to perform a first major limitation of the number of candidates by selecting one or potentially more parties that they intend to support. This is also in line with Holsteyn and Andeweg’s findings (2010) that the choice of a party usually precedes the choice of a candidate for which one wants to cast a preferential vote. The model does however not exclude that this subset of candidates will contain candidates from more parties than a voter can vote for. In fact, it may be possible that a voter is indifferent between two parties and makes a final choice based on intra-party preferences. This would be in line with the results of Blumeneau et al (2015) who find in their experimental study on the difference between open and closed list systems that the available intra-party choice may well have an influence on the voters inter-party choice. However there are structural factors that ensure that inter-party competition is not totally irrelevant under preferential lists (most importantly selection procedures) (Samuels, 1999; Cheibub & Sin, 2020)

Step 2 – Determination of viable candidates within the chosen party/parties – After restricting the number of potential candidates through partisan cues, the voter further delimits the number of candidates to a subset of candidates deemed viable. This second selection is assumed to be a relatively crude comparison only aiming at eliminating candidates that a voter definitely does not want to support.

Step 3 – Final intra-party choice – To arrive from the set of viable candidates to a vote choice, voters proceed to a more detailed comparison to assess the relative merits of the different candidates. In order to do so, they rely on the information about the candidates at their disposal. This can include a large set of candidate characteristics, which will be discussed in more detail in section 2.4.

As I shall outline in the next section, the impact of different electoral system characteristics can be primarily conceived as influencing the voters’ assessment of

candidate viability. In fact, as a rational actor, the voter should take the rules of the game into consideration when making such assessments.

2.3. The influence of electoral systems on the intra-party dimension

The design of open-list PR systems constitutes the main independent variable of this thesis. The aim of this section is to present a theoretical argument that explains the causal relationship between these electoral systems and the intra-party outcome. As the previous sections illustrate, electoral systems condition the behaviour of voters, restrict their options of expressing votes and determine how vote choice are translated into results. All of these qualities are expected to affect what happens at the inter- and intra-party levels, which can then have repercussions on the political system as a whole.

In the subsequent sub-sections I shall discuss the implications of the different electoral systems characteristics discussed in subsection 1.2.2 of chapter 1: the *number of votes*, the *type of vote*, the question about whether it is *compulsory to express such votes*, the possibility of *panachage*, *district magnitude* as well as the *degree of openness* of a preferential voting system.

In this analysis of the general effects of the different electoral system characteristics, the dependent variable will be the concentration of intra-party competition. In other words, it will be discussed whether these characteristics reduce effective competition within the candidate lists to a few individuals or whether a large field of co-partisans are effective competitors.

2.3.1. The impact of the number of votes

A first major difference across the 21 countries identified in chapter 1 is that voters are given different number of preferential votes that they can cast. In 9 of these European countries voters can only cast a single preferential vote while multiple votes may be cast in the 12 remaining countries. Three main effects can result from this difference.

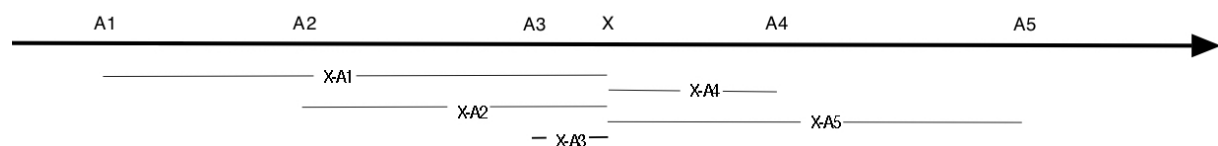
Difference in the relative cost of a vote and its effect on viability assessments – The first argument is based on the assumptions underlying the model of the rational voter and the aim of voting as efficiently as possible. Within this framework, the number of votes that can be cast is expected to affect the relative cost of each vote.

To understand how this occurs, let us consider first electoral systems where only a single preferential vote can be cast. The implication of this system is that once this vote is allocated to a candidate, it is no longer possible to express support for another candidate. Giving one's preferential vote to one candidate could thus lead to spoiling the vote if it is not used efficiently. For this reason, a rational voter should be extremely careful about whom to allocate this vote. As a consequence, relatively strict criteria should be applied when performing viability assessments in order to minimise the risk of spoiling a vote. Hence, one can reasonably expect within the framework of the rational voter that consideration sets will be smaller as the candidates' prospects become of greater interest.

With multiple votes on the other hand, spoiling one preferential vote does not result in having no chance to support a candidate with reasonable chances of winning or whom a voter might consider worth supporting. Hence, the voter does not have the same necessity to reduce the consideration set to candidates with strong electoral prospects. Empirical data from Belgium supports this point. In fact, Nagtzaam (2019: 20-21) observes that a part of voters cast votes for the list leader plus a couple of local candidates. In other words, they support both candidates with a reasonable chance of winning and local candidates whose prospects might be more

limited. One can thus infer that they are less concerned with the prospects of candidates than they might potentially be if they only have a single vote.

The spread of the individual voter's votes - For the second part of the argument, let us consider a voter X who votes for party A, which has five candidates labelled A1 to A5. As explained in the previous section, one can plot X as well as the five candidates on a same geometrical space. For this example, I shall plot them on a one-dimensional space illustrated in graph 2.3.



Graph 2.3 – Distance of voter X to five candidates

Candidates who are closer to X are preferred to those further away. In other words, candidate A3 is X's most preferred candidate because the absolute distance between both $|A_3 - X|$ is smaller than that for any other candidate $|A_k - X|$.

If all five candidates belong to X's consideration set, i.e. they are all viable, X will vote for A3 if he has a single vote. When the number of votes increases, X should move further away from his ideal point and give votes to those candidates that are closest to him/her. As for a single vote, the central assumption is that the voters vote for the closest candidates to their own position. In other words, the first vote goes to closest candidate, the second vote to the second closest and so on. As a consequence, the individual voters votes are more spread out compared to the scenario of a single vote.

If most voters use more than a single vote when their number of available votes $k \geq 2$, this would result in a more spread out distribution of votes. Empirical evidence appears to support the expectations that voters would use their multiple votes (Nagtzaam, 2019).

Increase of complexity – Müller and Jankowski (2019) identify the increase of the number of votes as one factor that can be assumed to increase electoral system

complexity. As discussed in the previous section, increased complexity reduces the efficiency of voter strategies and leads them to rely more on cues. The smaller role of strategies may lead to a more random outcome, potentially being translated into a more equal candidate field.

Overall expectations – All three arguments on the number of votes arrive at the same conclusion, namely that increasing the number of votes should have an equalising effect and extend the field of competitive candidates.

2.3.2. Negative votes

While rejection of candidates may motivate preferential voting in some instances (Nagtzaam, 2019), systems that have institutionalised rejection through the possibility of *negative votes* are rare. Negative votes mean that a voter cannot only express preferences for candidates but also those they reject. Latvia is an example where the scale in terms of preferential votes is $[-1, 0, 1]$.

The addition of the possibility to cast negative votes can be expected to have three effects.

Second subset at consideration stage – In providing voters with the possibility to divert from a neutral position (0) into two different directions (rejection or support), this system alters the stage of viability assessments as voters can think in terms of two subsets of the candidate list. In addition to the consideration set they will also have a second subset representing the potential candidates for which they may cast a negative vote. We will call this second subset the rejection set.

Neutralisation of strong support – Polarising candidates – candidates who are highly appreciated by a part of the electorate while another part strictly rejects them - have a weaker position compared to systems where negative votes are not possible. In the latter case, they will receive votes from voters who support them, while voters who reject them have limited means to influence their rankings. Negative votes will change this as those voters who reject a polarising candidate can directly affect their ranking. As a consequence, mechanically, the addition of negative votes may

lead to more narrow gaps between the different candidates on the party list if the probability to receive a positive vote and that to receive a negative vote are positively correlated.

Increase of the consideration set – As outlined in the section 2.2, the idea of the psychological effect is that voters anticipate the impact of the electoral system. The realisation that negative votes provide them with the possibility to weaken candidates they do not support implies that the strength of these candidates needs to be taken into consideration to a lesser extent. For this reason, voters can choose their favourites more freely from considerations of the prospects of other candidates, removing a factor that would influence the formation of consideration sets. As a consequence, the set of viable candidates for the individual voter should be larger.

Overall effect - As a consequence of the above effects, negative votes should lead to a more fragmented competition within the party list.

2.3.3. Forcing voters to cast a preferential vote

In addition to the number and nature of votes, the simple question about whether it is compulsory to express preferential votes may affect intra-party competition. At least in the European context, such a compulsion exists only in cases where voters can only cast a single preferential vote. Out of the nine systems with a single vote, four have compulsory preferential votes and five optional votes.

In order to conceptualise the impact of making preferential votes compulsory, one should start by considering what motivates a voter to cast a preferential vote in the first place. Based on the model of the rational voter the abstract answer would be that such a voter would need a sufficiently strong intra-party preference in order to cast such a vote; in absence of such a preference the costs of expressing a preferential vote would outweigh the benefits.

Within the literature on preferential voting, different theories on which factors influence a voter's probability of casting preferential votes have been proposed. Two

main models that explain the likelihood of casting a preferential vote on the basis of voter characteristics can be identified.

The *resources model* predicts that people with more resources in terms of education, political knowledge or experience are more likely to cast a preferential vote (André et al, 2012). The underlying assumption is that preferential voting is a more sophisticated way of expressing a vote than simply casting a vote for a party (Marsh, 1985).

The *proximity model* emphasises the importance of identity and direct contact with candidates (André et al, 2012). It is based on the idea that the existence of a common bond is a motivating factor to express a preferential vote. It should be noted that some scholars distinguish between proximity and identity. Nagtzaam (2019) makes such a distinction, emphasising the higher probability of underrepresented minorities to cast preferential votes.

In short, the decision to cast a preferential vote can be expected to be conditioned by political knowledge, personal contact with candidates and a common identity.

If preferential voting becomes compulsory, a voter must cast a preferential vote in order not to spoil his/her vote. As a voter does not abstain, one can assume that (s)he wants to express at least an inter-party preference and will consequently cast the preferential vote in order to have a valid vote.

Therefore people with less political knowledge, common identifier or clear preferences will cast a vote that will affect intra-party outcomes. Such voters will be expected to rely more on cues, shortcuts that help them to cast a valid vote.

This can result in ballot order playing a greater role. Research on electoral systems has shown that the order in which candidates appear on the ballot affects the likelihood of receiving preferential votes (Lutz, 2010; Schmit, 2015; Miller and Krosnick, 1998). The main reason for this are subconscious psychological effects, which come into effect in the case of weak preferences (Miller and Krosnick 1998).

The second expectation is that most visible candidates will benefit, not because of their qualities, but because these voters without strong preferences know them. Nagtzaam (2019) argues that list-pullers, the leaders on the list, should benefit from this. One might also conceive that such an effect could also benefit incumbents for similar reasons.

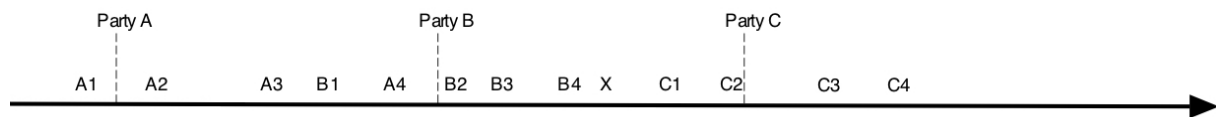
The implication of this is that the increase of preferential votes due to compulsory voting is expected to narrow the field of competitive candidates on the list.

2.3.4. Voting across different party lists

Luxembourg and Switzerland's particularity is the possibility to express categorical votes across party lines, an option known as *panachage*. This opens three potential ways in which voters can cast their vote. First, voters can support a candidate list as it stands. In doing so, the voters express an inter-party preference but no intra-party preference. Second voters can attribute preferential votes within a candidate list with the possibility of *cumulation*. Here voters express a unique inter-party preferences as well as intra-party preferences. Finally, voters can express preferential votes across different lists. The degree to which an inter-party preference is expressed depends on the number of lists on the ballot: the smaller the number of lists across one's votes the more influence voters exert on the inter-party dimension. The interesting question remains how these voters affect the intra-party dimension within the lists they select.

Three main implications are expected to result from this possibility of *panachage*.

Diminishing role of inter-party dimension – One can assume that a voter expressing votes across different lists (except for voters expressing votes within a single party and giving a few votes to selected candidates) have weak or non-exclusive inter-party preferences. The main implication of this is that the number of potential candidates among which the voter can choose encompasses the candidates from several or all parties.



Graph 2.4 – Distance of voter X to three parties and their candidates

Considering a voter with intra-party preferences and no inter-party preferences, the voter should select the candidates closest to his/her own position in the one-dimensional space.

A voter with some partisan preferences would have a somewhat more restricted set of candidates reduced to the candidates from parties that are considered viable. This set remains however still larger than under a system that restricts the voter to a single party.

I presume that two main implications result from the removal of a restriction to vote on a single list.

Viability assessments – The disappearance of the restriction to vote within a single list entails that the first stage of the consideration set model (outlined in subsection 2.2.4) is less reductive. As a consequence, voters either need to restrict their choices more strongly in either stage 2 or stage 3 of the process.

If an additional reduction is meant to occur in the passage from the set of candidates from the inter-party choice to the set of viable candidates, voters need to be more rigorous in excluding candidates based on cues that exclude a large number of candidates. As a consequence, less visible candidates that would have been considered viable under a non-*panachage* system may risk to be excluded from the consideration set under a *panachage* system.

If the restriction occurs only when a final vote choice is made, voters are facing a larger set of candidates that they would need to compare in a more detailed manner, which will raise the complexity of the task. While existing research has shown that voters would in such a case try to consult a wider range of information, they would also do so less thoroughly (Seib, 2016).

Hence, regardless of the stage at which voters reduce the number of candidate, the weakened role of partisanship as a cue increases the cognitive challenge for voters. Considerations on the appropriate timeframe to engage in comparisons as well as natural cognitive limits will favour the use of shortcuts, which will favour either candidates with higher visibility or politically irrelevant cues (Muraoka, 2019).

In other words, the result will be less detailed comparisons between candidates leading to a smaller set of candidates within the party having a chance of being competitive.

Spread of votes – In addition to making choices more complex, the diminished role of partisanship may also favour candidates more remote from the party mainstream that may be appealing to electorates of other parties. One can assume that party positions are distributed across the same one-dimensional line as voters and candidates. Party candidates can be assumed to be clustered around their party's position¹⁶, while there are overlaps, where the candidates on their respective parties' are close to each other. While candidates on the extremes of their parties may benefit little when a categorical party choice precedes the intra-party choice, these candidates may be appealing to voters relatively close to such positions.

Candidates at the extremes of parties may of course also attract votes when cross-party voting is not allowed. The difficulty here is however that voters in positions in the overlapping areas of two parties must choose candidates from one of the overlapping parties, i.e. it is not possible for candidates from different parties in these positions to benefit simultaneously. In other words, the potential number of preferential votes that such voters can collect is much more restricted.

Overall effects – The argument on *panachage* suggests that one should view a larger advantage for party leaders and incumbents, an increase of the relevance of non-

¹⁶ As the results in chapter 5 will show, candidates tend to be clustered at least in terms of their ideological positions.

partisan cues as well as higher levels of intra-party polarisation as a result of removing the restriction to vote within a single party.

The *panachage* system is a complex system to analyse and the effects appear to vary greatly for different candidate characteristics. Studying the interaction with these characteristics might therefore be particularly important in order to better understand the intra-party effects of *panachage*.

2.3.5. District magnitude

The literature on electoral systems identifies district magnitude as one of the main explanatory variables. It has, for instance, been identified as one of the main important – if not the most important – determinants of the party system (Shugart & Taagepera, 2017).

With respect to the intra-party dimension, Carey and Shugart (1995) highlight the importance of district magnitude as a variable that determines the incentive to cultivate personal votes. More precisely, they argue that district magnitude interacts with other variables in influencing such an incentive. Under electoral systems where voters have an intra-party choice, increasing district magnitude reinforces the incentives for candidates to emphasise personal attributes to voters; under systems where such a choice is not available, increasing district magnitude has the opposite effect (Carey and Shugart, 1995).

In most cases, there is a relationship between the number of seats to be allocated and the number of candidates on a list. In other words, there is an increase of the available choice to the electorate. At least in purely theoretical considerations of probabilities, an increase of the offer of candidates on the ballot should increase the likelihood that voters will find a candidate more aligned with their preferences.

However as already highlighted an increasing number of candidates adds new challenges for the voters. For a large proportion of voters the task of seeking information will be too costly or too challenging while a small proportion, which might engage in such a process, can be relatively fragmented.

For this reason, existing research (Müller & Jankowski, 2019; Seib, 2016) suggests that larger district magnitude would also lead to a larger increase of the relevance of cues.

Furthermore, there could be an important interaction effect between district magnitude and the number of votes. In fact, one may raise the question about whether an increase in district magnitude has similar effects in single and multiple vote systems. An increase in the number of candidates would increase the cost of each vote if their number were constant. If the number of votes is flexible and increasing with district magnitude, the cost of each vote is not affected.

2.3.6. Degree of openness

In addition to the before-mentioned resources and proximity models, there are also models that explain the probability of casting a preferential vote as a result of institutional settings. Indeed the instrumental model of preferential voting highlights the importance of the institutional setting on a voter's probability to cast a preferential vote (André et al, 2012). As discussed in the preceding chapter, not all electoral systems give voters the same degree of influence over intra-party outcomes. Under open lists voters hold the monopoly over these outcomes while voters and parties share influence over the intra-party dimension under flexible lists.

This distinction may affect the number of preferential votes. In fact, Passarelli (2020) argues that voters are more likely to cast preferential votes if these have more weight. This would also be consistent with the assumption of rational voters, since expressing a preferential vote is an extra effort. If that extra effort has no influence and the primary goal of voters is to have their choices elected, the costs of casting the preferential vote exceed the benefits of it.

While this thesis treats intra-party outcomes as the sole result of preferential votes and therefore treats electoral systems as if they were fully open, it is nonetheless important to take this difference into consideration. In fact, it may well be possible

that this difference in who casts preferential votes under either system may affect the results.

2.4. The impact of candidate characteristics

The argument thus far has focused exclusively on the mechanisms of the electoral systems, which affect either directly or through their influence on the voters intra-party outcomes. While this argument is necessary to understand the causal relationship between electoral systems and intra-party outcomes, one needs to go one step further to understand the practical repercussions of this relationship. More precisely, one needs to consider the interaction between the electoral systems and candidate characteristics. This step corresponds to addressing the third research question of this thesis.

According to the literature on preferential voting candidate characteristics play an important role because (1) candidates use their personal attributes to increase their share of preferential votes (Carey & Shugart, 1995; Dodeigne & Pilet, 2019), (2) voters use candidate characteristics as cues in their vote choice (Lau & Redlawsk, 2001; McDermott, 2009) and (3) that certain candidate characteristics can explain electoral success (Coffé & Von Schoultz, 2020).

Scholars have analysed a multitude of different candidate characteristics, which has resulted in a rich body of literature that looks on these different characteristics. Some scholars – including Van Erkel (2017) – have tried to construct comprehensive frameworks on the impact of candidate characteristics. I shall briefly discuss different candidate characteristics in terms of his framework before specifying the argument related to the third research question of this thesis.

2.4.1. Four categories of candidate characteristics

Van Erkel (2017) has analysed preferential voting in Belgium and provides a model of candidate characteristics that distinguishes four categories of candidate characteristics: party-related characteristics, individual-based characteristics, media characteristics and campaign effects.

Party-related characteristics include most importantly party-related characteristics, which include party affiliation as well as a candidate's list position. For party affiliation, Van Erkel essentially emphasises the interaction between the two dimensions of electoral systems in arguing that candidates from larger parties benefit from an advantage compared to those from smaller parties (Van Erkel, 2017: 20). As larger parties can be expected to win more seats, the intra-party contest can be perceived as more important if the main objective of voters is to have their favourite candidates elected.

Individual-based characteristics include all the personal attributes of a candidate such as gender, political experience as well as candidate ideology. This vast body of characteristics has given rise to a large body of literature emphasising two ways in which certain characteristics can affect voting behaviour. First, these characteristics serve as cues that they assume to inform them about traits and positions of these candidates (Pedersen et al, 2019). Second, research demonstrates that voters are more likely to vote for candidates that resemble them (Marien et al, 2017; Bailenson et al., 2008).

Examples of individual-based characteristics that have been analysed in the literature include gender (Marien et al, 2017; Krook, 2018), incumbency at the national (Natzaam, 2019, Karvonen, 2011) as well as subnational or local levels, ethnicity (Negri, 2018; McDermott, 1998; Devra & Controy-Krutz, 2016), age (Maddens et al, 2007), local factors (Arzheimer & Evans, 2012; Jankowski, 2016; Shugart et al, 2005; Tavits, 2010).

Media characteristics refer to the impact that the media can have on preferential voting, most importantly in giving more visibility to candidates. Van Aelst et al (2008) emphasise that media presence has a significant impact on the intra-party performance of candidates.

Campaign effects relate to the impact of electoral campaigns on a candidate's intra-party competition. Existing research has shown that candidate appearance on flyers affects the perceptions of voters on candidates (Rosenberg et al., 1986). Maddens et al. (2006) demonstrate that also financial considerations play a role; more specifically, they show that the budget of personal campaigns affect preferential vote shares.

Unlike Van Erkel's work, this thesis is not aiming at constructing a comprehensive framework, but at determining the impact of the electoral system. Hence, the primary focus is the question of how the electoral system affects the relative importance of candidate characteristics. For this reason, the thesis will focus more specifically on four different characteristics to test whether they interact with the electoral system.

2.4.2. Characteristics considered in the thesis

In this thesis, I will focus on the roles of candidate gender, national incumbency, ballot order and candidate ideology. These choices are motivated by the particular relevance of these characteristics as well as the possibility of collecting data for these characteristics¹⁷.

Regarding gender, the main rationale is the question of descriptive representation. The underlying idea is – as mentioned in chapter 1 – a normative argument that elected assemblies should roughly resemble the population they represent in terms of their socio-demographic characteristics. In practice, this is however rarely the case. One may therefore be interested in whether some electoral system

¹⁷ Particularly for information related to media presence and electoral campaign it is difficult to collect the necessary data in a comparative context, making it not possible to consider these categories in the context of this thesis.

characteristics are better at ensuring the representativeness of elected bodies than others.

Discussing the effect of national incumbency on electoral success can be associated with two major questions. First, there is the question of democratic renewal. Change is an inherent feature of democratic systems and the question of legislative turnover should thus be regarded as an important factor. A key characteristic of representative democracies is the potential of replacing parties and candidates, leading to a continuous renewal of political personnel. While all systems witness a change of the composition of elected assemblies, some systems see fewer turnovers and a greater advantage for incumbents. This chapter analyses whether the electoral system influences the strength of this incumbency advantage.

Since the main objective of legislators is the implementation of policy, ideology is always a crucial characteristic to be taken into account. Accordingly analysing whether ideology affects a candidate's intra-party prospects and to which extent the electoral system plays a role is an important question.

Finally, the position of a candidate on a list is not a random variable, not even in candidate lists, which is technically unordered. Empirical research has well established a connection between list positions and the number of preferential votes candidates receive (Lutz, 2010, Schmit, 2015). The effect of ballot order constitutes a subconscious effect, which has no rational basis (Muraoka, 2019). In that sense, ballot order can serve as an indicator for the random and subconscious aspects of intra-party competition at the election.

2.4.3. General argument

The preceding subsections illustrate that scholars have studied how candidate characteristics affect a candidate's electoral prospects. For some of these characteristics, the connection with electoral systems has also been explicitly addressed. Such examples include the literature on gender (Krook, 2018) and the question of localness (Jankowski, 2016). In this subsection, I shall briefly address

the question on how the electoral system can be expected to interact with certain candidate characteristics.

In order to understand how certain electoral system characteristics may interact with candidate characteristics, one needs to consider the overall effects of the former that have been outlined in section 2.3.

For the number of votes, for instance, the model argues that increasing the number of votes has an equalising effect on the candidate field. As a consequence, one should also expect that the role of most candidate characteristics is reduced .

As the precise nature of the effect could depend on the candidate characteristic that one analyses and as the model includes six different electoral system characteristics, I shall discuss the individual interaction effects in the respective chapter. The advantage of this approach will be that the arguments will immediately precede the empirical analysis, which facilitates the reading of the respective chapters.

2.5. Testing the theoretical model

The main aim of this chapter has been to outline a theoretical framework that addresses the three research questions presented in chapter 1. This framework's purpose is to explain how a causal relationship between preferential-list PR systems and intra-party outcomes can be conceptualised to emerge. This implies explaining (1) how different electoral system characteristics may affect these outcomes and (2) how differences in electoral systems may affect the relevance of certain candidate characteristics. In the subsequent chapters, this model will be put to different tests. Before proceeding to these tests, it may be beneficial to reflect on the methodological considerations underlying the choice of empirical tests and how they are related.

The primary consideration when deciding on the appropriate methodology is the nature of the research questions. The three research questions at the centre of this

thesis relate to a systematic impact of electoral systems on intra-party outcomes. The theoretical framework associates a significant part of the effect of the electoral system with its impact on the voters' decision process. This leads however to a major challenge, because vote choices are – as I have outlined at the beginning of the thesis – driven by a multitude of different factors among which the electoral system constitutes according to the present argument a key factor. In fact, as Taagepera argued “any general scientific laws in politics, if they exist at all, are bound to be hidden, submerged underneath considerable random scatter in data” (Taagepera, 2007: 9). Accordingly, I propose to rely on three different types of data to arrive at robust conclusions about the relationship between electoral systems and the intra-party performance of candidates.

2.6.1. A complementary trio

Due to the large interest in elections from the general public as well from scholars, it is not surprising that one can find a multitude of data sources on different elections.

Among all of these sources the election results themselves constitute one of the most basic and at the same time one of the most informative types of data. They inform us about the voters' verdict and the relative strength of the different parties and candidates. For this reason, a major part of the analysis will rely on a dataset with data from 15 different countries that is based on election results as well as information on the different candidates.

The use of such a comparative database will be able to inform us about variation in actual elections. Through this comparative approach, it is possible to observe variation across a large set of candidates and to check whether real world data corresponds to the theoretical explanations. Due to the many variables in which electoral systems can vary, such a comparison has also the advantage that one can observe the effects of a multitude of electoral system characteristics within the same analysis.

On the other hand, the approach has a few shortcomings. First, aggregate data does not allow understanding precisely how individual voter behaviour leads to potential effects. In addition to the inability to exactly trace how the overall effects develop, there is a potential problem if different types of individual behaviour cancel each other out. Second, such comparative studies are always open to potential criticisms on endogeneity. In order to address these criticisms, I propose two additional tests that should reinforce confidence in the results.

In order to address the first criticism, I propose the analysis of ballot samples, which allow tracing the individual decisions of voters, allowing for the identification of different voting patterns. This will allow understanding precisely how one arrives at the aggregate results.

While providing this additional advantage, an analysis of ballot samples alone is not a perfect substitute for the analysis of aggregate results, primarily because of the limited cases where this data source is available. In fact, the only country with a systematic tradition of drawing such sample is that of Luxembourg. The case study of the Luxembourgish ballot samples will however provide useful complementary insights.

To address the scepticism of causality, one needs a controlled environment only experimental studies can provide. For this purpose the thesis contains a chapter that looks at two experiments conducted in the context of the 2018 parliamentary elections in Luxembourg. These experiments have been specifically designed for the purpose of this thesis, while the data appears to be useful beyond the scope of this analysis.

While addressing the issue of causality, relying solely on experiments does not appear to be a viable approach, since one would require several experiments to test sufficient variation in electoral systems characteristics. Furthermore, experimental approaches are open to questions regarding their external validity (Barabas & Jerit, 2010; Mutz, 2011). Hence, a combination of observational and experimental data

appears to be the most promising approach because one can benefit from the respective benefits of each approach.

The use of these three methods therefore appears to be the most promising approach to entering this new line of inquiry in the intra-party effects of preferential list PR systems. Each analysis constitutes a piece of a puzzle, which – once assembled – will provide a much clearer picture on the impact of electoral systems on the performance of candidates. Before presenting each analysis in the following chapter, it may be useful to consider the principle information on each type of data at the end of this chapter.

2.6.2. The observational comparative dataset

The centrepiece of the first part of the empirical analysis will be a large comparative dataset for the 15 countries listed in table 2.1. In cooperation with colleagues connected from the University of Namur and the *Université libre de Bruxelles*, I have researched data on the different candidates and their electoral performance in these 15 countries for one election in the time period between 2015 and 2020¹⁸.

The 15 countries are representative of the variety of preferential list PR electoral systems in use across Europe and can be split into six different groups based on the number of votes, the question about whether preferential votes are compulsory, whether one can cast negative votes and whether one can cast votes across different lists.

Group 1 contains the countries where a voter can cast one optional preferential vote. In the dataset, Austria, Bulgaria, Croatia and Denmark belong to this group.

In contrast, in countries of *group 2*, casting one's single preferential vote is compulsory. This requirement exists in Estonia, Finland, the Netherlands and Poland.

¹⁸ For most cases, the chosen election corresponds to the most recent election at the time when this thesis was written. The data for Croatia, Finland and Lithuania comes from the penultimate election. At the time when this thesis was written, three more recent elections had occurred in Croatia, Finland and Lithuania.

In the four remaining groups the number of votes is larger than one. Countries in *group 3* (Czech Republic, Lithuania and Slovakia) give voters a small number of votes (five or less) that they can optionally cast within their preferred list.

In Belgium, which represents *group 4*, voters have as many votes as there are seats.

Group 5 containing Luxembourg and Switzerland distinguishes itself from that last group by the possibility of *panachage*, while in Latvia, which constitutes *group 6*, it is possible to express approval as well as disapproval of the candidates.

Table 2.1 – Summary of cases included in the comparative dataset

Country	Group	Openness	Election year	Lists	Candidates
Austria	1	Flexible	2019	344	6345
Belgium	4	Flexible	2019	116	1412
Bulgaria	1	Flexible	2017	155	1802
Croatia	1	Flexible	2016	163	2282
Czech Republic	3	Flexible	2017	343	7521
Denmark	1	Open	2019	122	879
Estonia	2	Open	2019	107	1073
Finland	2	Open	2015	158	2122
Latvia	6	Flexible	2018	77	1459
Lithuania	3	Open*	2016	14	1386
Luxembourg	5	Open	2018	35	547
Netherlands	2	Flexible	2017	27	875
Poland	2	Open	2019	206	4566
Slovakia	3	Flexible	2020	6	896
Switzerland	5	Open	2019	496	4630

The degree of openness is not included in determining these categories; instead, it is reported separately in the table. In this analysis, we make a dichotomous distinction between open lists, where voters can fully determine the list order and flexible lists, where voters and parties both influence that order. Ideally, a more detailed distinction for the latter group should be included in order to provide a better understanding of their respective powers. The problem in doing so however is order changes are performed with different methods and different thresholds across the 15 cases, which are not really comparable. There does not seem to be a widely accepted approach for such a categorisation. Renwick and Pilet (2016) have for instance avoided such a differentiation due to the inherent difficult and have only focused on the question whether any electoral reform has strengthened or weakened the impact of voters.

Finally, district magnitude has not been included since it varies considerably within the different district of most cases. A more detailed account of the variation of district magnitude will be provided in subsequent chapters.

The analyses using this dataset are presented in three different chapters.

Chapter 3 addresses research questions 1 and 2 of this thesis in raising the question about whether one can observe systematic differences in intra-party outcomes based on different electoral system characteristics. For this first test, different indices of vote fragmentations will be used. The literature proposes two main measures to assess the concentration of preferential votes within party lists. The first is the effective number of candidates, a variation of Taagepera's effective number of parties index. The second is the Gini coefficient, an index from the area of welfare economics that scholars of intra-party competition have employed to measure the distribution of preferential votes. The primary purpose of this first test is to determine whether electoral system characteristics can account for the distribution of preferential votes, indicating an impact of these characteristics on the intra-party dimension. The advantage of relying on indices of vote fragmentation is that they allow to relatively easily quantify differences across different cases.

The two subsequent chapters will build on these results and raise the questions about the practical implications of the observed differences for individual candidates. In doing so, these respond not only to the two first research questions but also to the third research question on the potential interaction between electoral system characteristics and candidate characteristics on intra-party outcomes.

Chapter 4 focuses more specifically on the roles of candidate gender, incumbency and ballot order effects, which have been discussed in the preceding section. More specifically, I will present different regression models in order to assess the variation across the 15 cases in the dataset.

Chapter 5 turns to the question of ideology, a variable that is difficult to determine for individual candidates due to the lack of data. This chapter will use the data for Luxembourg and Switzerland in combination with voting advice application data to analyse the impact of candidate ideology. Subsequently, the results will be compared to earlier findings for Belgium (Van Erkel, 2017) and Finland (von Schoultz and Papageorgiou, 2019; Isotalo et al, 2020).

At the end of these three chapters, I will have tested several hypotheses in relation with the three main research questions. Subsequently, the findings will be subjected to additional tests in two exploratory chapters using ballot samples and experimental methods.

2.6.3. Ballot sample analyses

Chapter 6 aims at better understanding how one arrives from individual voters' votes to these effects on the aggregate level. For this purpose representative ballot samples from Luxembourg for the 2018 legislative elections will be analysed in order to trace individual voting patterns.

Using Luxembourg for this particular case study has two main reasons. First, the electoral system provides voters with a variety of options, which allows analysing the impact of several of the characteristics described in section 2.3. In fact, the system allows for multiple votes, there is the option of cumulation, it is possible to vote across different parties and the size of the four electoral districts varies considerably. Due to this variety the *panachage* system provides a promising case to analyse a variety of factors. Most importantly, the analysis allows to compare intra- and cross-party voters, which allows to draw relatively robust conclusions on the impact of *panachage* because cross-party voters are the main particularity of that system.

Second, Luxembourg has a long tradition of drawing representative ballot samples for its election studies. Hence, the availability of data is also a motivation for this choice.

While this approach allows tracing back the origins of observed aggregate effects, it would not be sufficiently robust by itself because we can only perform the test for a single case. One should therefore regard it as a complementary method.

2.6.4. Experimental data

The final empirical chapter aims at further corroborating the argument with regard to the causal relationship between electoral systems and intra-party outcomes. For this reason, chapter 7 will present results from two *in situ* experiments conducted in the context of the 2018 parliamentary elections in Luxembourg. In these experiments, voters were asked at the exit of their polling stations to complete a second ballot with the same candidates, but with different voting rules. More specifically, two systems with negative votes were provided due to the scarcity of such systems in reality. This study therefore allows for a closer analysis of this type of votes. In total, approximately a third of the voters present in the polling stations agreed to cast their votes in this study. In addition to testing the causal relationship at the centre of this thesis, this chapter provides an additional opportunity to focus more specifically on two types of electoral systems that are relatively rare in Europe: the *panachage* system and the negative voting system.

The presentation of these different empirical tests highlights that they are connected and that they complement one another. The first three chapters constitute the core analysis using the classical tool of linear regression models to study the association between electoral systems and intra-party outcomes. The two subsequent chapters look at two alternative approaches and data sources. These complementary exploratory approaches are expected to strengthen the claims on the causal relationship that this thesis analyses and to look closer at more unusual configurations of electoral system.

Chapter 3

Preferential List PR and the Concentration of Preferential Votes

The preceding chapter has set out the theoretical reasoning explaining why six central characteristics – the number of votes, the compulsion to express such votes, vote type, the possibility of *panachage*, voter influence over candidate rankings and district magnitude – may affect the election results within party lists. This part of the theoretical model addresses the first two research questions of this thesis that raise the questions about (1) the existence of a causal relationship between preferential-list PR systems and intra-party outcomes and (2) the electoral system characteristics that account for such a relationship.

This chapter will directly build on the argument of the previous chapter in putting the first part of the theoretical model to an empirical test. More specifically, the analysis in this chapter aims at determining systematic differences across a large variety of European electoral systems. For this purpose, a dataset containing election results from 15 European countries using different forms of preferential list PR systems will be analysed.

The challenge in doing so is that one faces a multitude of contexts with different electoral systems, which each have their particularities. Hence, the central question is how to measure potential systematic differences. This chapter proposes the use of indicators of preferential vote distribution as an appropriate measure of these differences.

In other words, the chapter aims at demonstrating the causal relationship between electoral systems and intra-party outcomes by testing whether the electoral system affects how broad or narrow the field of competitive candidates within party lists is. In order to measure this degree of vote concentration, I propose to build upon the existing literature on intra-party competition that proposes three main indices.

The first approach transposes Taagepera and Laasko's (1979) effective number of parties index from the inter-party dimension to the intra-party dimension. This effective number of candidates (or co-partisans in Arter's (2013) terms) captures the fractionalisation of intra-list preferential votes and informs about how many candidates obtain electorally significant vote shares (within their party lists).

The second index is the Gini coefficient, a measure of inequality originating from the field of welfare economics. Applied to the context of intra-party competition, the GINI coefficient measures how equally votes are distributed within the list.

The third approach measures intra-party competition in terms of the proportion of re-elected incumbents (Katz, 2003). This index does however connect intra-party competition directly to one candidate characteristic – national incumbency – in saying that the re-election of incumbents is the norm. For this reason, this index does in contrast to the two previous indices not allow disentangling the second and third research questions. One aim of this chapter is however to perform an empirical test of the two first research questions independently of the question of candidate characteristics before including them as an important variable in the subsequent chapter.

For this reason, the analysis of this chapter will use the effective number of candidates index and the GINI coefficient to test the relationship between electoral systems and intra-party outcomes.

One might, at this stage, question whether testing for differences in preferential vote concentration equates to testing differences in intra-party outcomes. Such objections do however neglect that the overall concentration of preferential votes is already a measurement of the strength of different candidates. If this concentration varies, the prospects of different candidates can also be inferred to be affected. In fact, the argument in the theoretical models demonstrate this point, as this model says that differences in intra-party outcomes result from the impact of electoral system characteristics on candidate competitiveness.

The remainder of this chapter is divided into five sections.

The first section presents the effective number of candidates index and Gini coefficient in more detail. In addition to presenting how they are calculated and how they can be interpreted in the context of intra-party politics, the section also addresses criticisms of these indices. The question about whether better alternatives may be available will also be raised, leading to the proposition to use a third indicator to complement the analysis.

The second section will connect the indices to the theoretical model outlined in chapter 2. It will briefly revisit the main aspects of the model and present several hypotheses on how different characteristics may affect the concentration of preferential votes.

The third section discusses the data that is used in the empirical analysis of this chapter. As indicated, the analysis uses data from 15 European countries using preferential list PR systems. Furthermore, I shall provide additional detail on some of the variables.

The fourth section presents and discusses the results of this analysis. These results show a clear association between different electoral system characteristics and the three indices. Some of these characteristics do however play a larger role than others.

Finally, the chapter concludes with an assessment on the relevance of different electoral system characteristics as well as on the viability of the three indicators introduced at the beginning of the chapter. In addition, it points to the challenges ahead in the subsequent chapters as well as to some hints that the analysis of the indicators provide for refining the tests in these chapters.

Hence, the aim of this chapter is both substantive and methodological, because it is not only concerned with answering the research questions but also with the best way of doing so.

3.1. Measuring the concentration of votes

While the literature on intra-party competition – as highlighted in chapter 1 – still presents several substantial gaps, there are a few studies that have proposed different indicators to measure levels of intra-party competition.

Such studies are generally case studies, focussing for a substantial part on the Finnish case (Villodres, 2003; Arter, 2013). To my knowledge, there exists only one study at this stage that looks at more than a single case as well as several elections (Dodeigne and Pilet, 2019). These different studies introduce three main indices aimed at measuring the degree of intra-party competition: the effective number of candidates index, the GINI coefficient as well as the turnover rate. For reasons previously outlined, the turnover rate is not suitable for this analysis because it makes a normative statement on a characteristic that will be analysed in chapter 4. I shall therefore focus on the two first of these indicators. In the following, the effective number of candidates index as well as the GINI coefficient will be considered in more detail.

3.1.1. The effective number of candidates index

The first index has been labelled as the effective number of candidates (ENC) (Dodeigne&Pilet, 2019) or effective number of co-partisans (ENCP) index (Arter, 2013)¹⁹ and is an adaptation of Taagepera and Laasko's (1979) effective number of parties index.

The latter is one of the most commonly used approaches to determine the number of parties present in a political system. In contrast to approaches that aggregate all parties that fulfil certain qualitative criteria, such as coalition and blackmailing potential (Sartori, 1994), this index is independent from any subjective assessment on certain criteria because it takes the parties' relative size at the election or within an elected assembly into account.

¹⁹ For the remainder of the analysis, I shall employ Dodeigne and Pilet's terminology.

In other words, the index expresses the number of parties in terms of their actual size. Large parties affect the size of the ENP more than small parties (Shugart&Taagepera, 2018: 42).

Mathematically, the effect number of electoral parties is determined by dividing the number 1 by the squared vote shares of each party:

$$ENP = \frac{1}{\sum_{i=1}^n p^2}$$

where n denotes the number of parties who receive at least one vote and p the respective parties' vote share, expressed as a number between 0 and 1. The result of the formula yields a non-integer positive number.

This effective number indicates the degree of electoral fractionalisation in a given case and can be interpreted “as a proxy for the number of electorally viable parties” (van de Wardt, 2017).

The effective number of candidates index transposes this index commonly used in the electoral systems literature on the inter-party dimension to the intra-party dimension. As for the ENP, the ENC informs about how fractionalised votes are. More specifically, it indicates how many equally matched candidates are on the list. It is worth highlighting, that this application to intra-party competition does not represent the original use of the index. The first transposition of the ENP to individual candidates was performed to non-list elections in single member districts, presidential elections, party primaries or for systems such as the single non-transferable vote (for instance Kenig, 2009). It does however not appear this use of the index has inspired its subsequent use to preferential list systems, since none of the scholars (Arter, 2013; Dodeign&Pilet, 2019) who have transposed it to these systems have acknowledged this strand of the literature.

The ENC is determined in the same way as the effective number of electoral parties. To obtain the effective number of candidates for one party list one divides the number 1 by the sum of the intra-party vote share of each candidate:

$$ENC = \frac{1}{\sum_{i=1}^n p_i^2}$$

where n = number of candidates on the list receiving at least one preferential vote

p_i = vote share of candidate i , where $0 < p_i < 1$

Consider, for instance, a party list with 4 candidates that obtains 100 preferential votes. Candidate A obtains 50 votes, candidate B 20 votes, candidate C 20 votes and candidate D 10 votes. First, one needs to determine the vote share of each candidate by dividing a candidate's number of preferential votes by the total number of preferential votes on the list:

- Candidate A: $\frac{50}{100} = 0.5$
- Candidate B: $\frac{20}{100} = 0.2$
- Candidate C: $\frac{20}{100} = 0.2$
- Candidate D: $\frac{10}{100} = 0.1$

Subsequently, the above formula is used to determine the effective number of candidates:

$$ENC = \frac{1}{0.5^2 + 0.2^2 + 0.2^2 + 0.1^2} = \frac{1}{0.31} = 3.23$$

In this case, the effective number of candidates is 3.23.

A low ENC indicates that a very small number of candidates split the vast majority of preferential votes among themselves, while a large number indicates that a larger number of candidates each have a significant vote share. In other words, in cases with low ENCs intra-party competition effectively happens between a tiny subset of the candidate list, while an ENC close to the total number of individuals on the list would indicate a level playing field among all candidates. In that sense, the ENC informs about the number of candidates that are relevant in an intra-party context in a mathematically relatively straightforward way.

While the ENC has the significant advantage that it can relatively easily be determined, two main limitations should also be stressed.

First, the assertion this measure of intra-party relevance cannot be confounded with a measure on the likelihood of a candidate to be elected. This is primarily a matter of the inter-party dimension, which determines the number of elected candidates for each party. Except for the *panachage* system, it is usually possible to completely separate the inter- and intra-party result determinations from one another²⁰. The ENC's role is to inform us about how the preferential votes are distributed, which has an incidence on the candidate rankings.

If one uses the ENC exclusively as a measure related to the intra-party dimension in preferential list systems, one does therefore not encounter the same difficulties that Niemi and Funs-scheng Hsiah (2002) identified for plurality electoral systems. For these systems, they object that the ENC fails to take the number of posts to be elected into account, limiting the index's usefulness. When applying the ENC to candidate lists with the described purpose, this is of lesser concern due to the clear analytical distinction of the inter- and intra-party dimensions.

A second potential problem with the ENC index concerns a potential sensitivity to district magnitude, or more precisely the assumed increase of the number of candidates resulting from higher district magnitude. In fact, Dodeigne and Pilet argue that '[w]hen there are more candidates, voters behave accordingly spreading their preference votes over more candidates' (Dodeigne&Pilet, 2019).

²⁰ This separation between the inter- and intra-party dimensions in the analysis should neither be understood as a statement on the irrelevance of the inter-party dimension nor as the claim that there is no potential connection between a list's strength in the intra-party contest and its ENC. It would in fact appear rather unlikely that there are no connections between these two dimensions. The potential interaction between both dimensions will however be considered in the empirical part of the chapter, since party size will be used as a potential explanation for variation in this index.

This strict separation in the present argument is rather a reflection of the analytical focus of the thesis, which is concerned with the intra-party dimension. In this context, one should consider what the purpose of the ENC would be in this study; in fact, the aim is to use this indicator as evidence that there is systemic variation across cases due to the differences in electoral system characteristics.

In order to control for a potential impact of the increasing number of candidates, one may therefore consider controlling for this variation. For this purpose, I propose to complement the ENC in dividing the ENC by the number of candidates on the list. This would yield a modified index that I shall label the Effective Proportion of Candidates (EPC):

$$EPC = \frac{ENC}{n} = \frac{\frac{1}{\sum_{i=1}^n p_i^2}}{n} = \frac{1}{n * \sum_{i=1}^n p_i^2}$$

Rather than indicating the number of electorally viable candidates within a candidate lists, it indicates their share. The same approach has been proposed by Kenig (2009) in his analysis on party leadership elections, who has labelled it as $\frac{ENC}{N}$. The EPC will provide values between 0 and 1, where 1 would mean that all candidates receive the same vote share, i.e. they are all viable competitors in the intra-party contest.

However Ghergina and Tseng (2011) have objected that this index is also problematic because there is technically speaking a difficulty related to the interaction between n and $\sum_{i=1}^n p_i^2$. Based on an analysis of their argument the identified difficulty does however appear to be mostly problematic in contests for a single post (single district elections, primary contests or presidential elections) and when the aim of using the EPC is to measure levels of competitiveness where the number of individuals entering the race is relevant. In our case the maximum number of individuals is typically determined in a given electoral district and our aim is only to determine the share of candidates who matter. The simple version of the EPC is therefore a defensible indicator for the present analysis.

Moreover, potential further improvements proposed by Ghergina and Tseng's (2011) would not have the desired effects of neutralising a potential impact of district magnitude. In fact, all of their proposed solutions would lead to scales that are no longer independent of district magnitude. They would therefore have exactly the

same potential disadvantage in terms of comparability as the original ENC index. Hence, these alternatives would be effectively redundant.

3.1.2. The GINI coefficient

While the first index is inspired by the literature on electoral systems, the second index is inspired by the field of welfare economics. The Gini coefficient is typically used to measure how equal resources are distributed within a society.

More specifically, the Gini coefficient compares the actual distribution of wealth compared to a situation in which resources are perfectly equally distributed. The result of this comparison is expressed as a value bound between 0 and 1, where 0 would mean a perfect distribution of resources while 1 would mean that one individual own everything.

Several authors have used this index to measure the distribution of votes within parties (Wildgen, 1985; Villodres, 2003; Arter, 2013; Dodeigne&Pilet, 2019, Passarelli, 2020). In the context of intra-party competition, a value of 0 would signify complete equality between all the candidates, while in a case where it were 1 one candidate obtains all the preferential votes. In that sense, the Gini coefficient is a measure of how equally preferential votes are distributed within a party (Passarelli, 2020: 211)

In contrast to the ENC, the Gini coefficient is not a measure of weight, but only of the concentration of votes, which completely removes the sensitivity to district magnitude that Dodeigne and Pilet (2019) identify for the former. For this reason, they conclude that the GINI coefficient would represent the better measure for theory-testing across different electoral systems.

However the conclusion of the advantages of the Gini coefficient over the ENC are not fully shared. For instance, Arter (2013) prefers to use the Gini coefficient only as a “back-up” measure, pointing at the fact that for small lists the scale of the coefficient is not between 0 and 1. While Dodeigne and Pilet (2019) acknowledge this point, they do however present the issue as less problematic than Arter.

3.1.3. Comparing ENC, EPC and GINI

After the discussion of the three different indicators (ENC, EPC and Gini), one might expect a verdict regarding the best index for the purpose of the analysis. At least based on the literature, such judgement cannot be made, as it appears that there is some level of disagreement among scholars. In fact, Dodeigne and Pilet (2019) seem to have a slight preference for the Gini coefficient, while Arter (2013) highlights its problems for small N comparisons and finds higher praise for the ENC. As for the effective proportion of candidates, it does not appear to have been used in the context of intra-party competition and I have already outlined that one should regard it is complementary to the ENC.

In the absence of a clearly identifiable winner and an obvious superior alternative in the existing literature, the best strategy at this stage appears to be to test all three indicators and to reassess their merits and weaknesses at the end of the chapter. In other words, empirical evidence will be the best judge to solve this question.

Furthermore, this approach appears to be most promising because the three indices are different. Dodeigne and Pilet (2019) note that the ENC and Gini are “mathematically different constructs” which are only weakly correlated and that they measure different things. In their assessment, the ENC allows a better assessment of how many candidates are relevant in the intra-party contest while the Gini coefficient better captures the distribution of votes. Following the empirical test, it will be possible to either determine the superiority of one index or their complementarity.

3.2. Electoral system characteristics and the concentration of votes

In section 2.3 of the previous chapter, I have discussed in general terms how different electoral system characteristics can be expected to affect intra-party outcomes. In short, the theoretical model argues that voters are rational and that they take the electoral rules into account when making their electoral choice. Each of the six characteristics can affect the voter's behaviour in some way when making a vote choice.

In this section, I shall discuss the expected differences in terms of the three indices that were introduced in the previous section. Repeating the full rationales explaining how each electoral system characteristics should affect intra-party outcomes would make the developments of the previous chapter rather redundant. This section will thus focus on the main points of the previously outlined arguments. For the full account of the arguments, one should thus refer to section 2.3 of that chapter.

3.2.1. Compulsory preferential voting

While most electoral systems only give voters the option of casting preferential votes, countries such as Finland, the Netherlands, Estonia and Poland make casting a vote for a particular candidate mandatory. In other words, a ballot would not be valid unless a preferential vote is cast in the latter case. This difference may lead to a substantial difference between voters under the two different types of electoral systems.

Under optional preferential voting, one does not need to cast a preferential ballot if one does not have an intra-party preference; under compulsory preferential voting, one must cast a vote if one does not want to spoil it. As a consequence, one can expect that the share of voters without strong intra-party preferences is larger in the latter case.

This may not have an overall impact at all, if the voting behaviour of voters with and without strong intra-party preferences is similar or if the preferential votes cast by voters with weak intra-party preferences cancel each other out. If, however, these voters have a specific voting pattern different from the one of voters with strong intra-preferences, they affect the intra-party outcome.

Hence the crucial question is whether there would be something that would guide voters with weak or no intra-party preference when casting their vote. Existing research (McDermott, 2009) would suggest that such voters are more susceptible to cues that help them finding an efficient way of casting their preferential vote. This can be expected to benefit the most visible candidates or to reinforce subconscious factors related to ballot positions.

In other words, if the introduction of compulsory voting has an impact, it should be expected that it is a concentration of preferential votes within the different party lists.

Assuming that not every voter has well-defined intra-party preferences, one can expect that a larger proportion of voters would resort to cues when casting preferential votes. Particularly in the presence of list leaders this should result in a concentration of votes.

Since a smaller number of candidates would attract a substantial proportion of preferential votes in that scenario, it would translate into a reduction of the effective number of candidates index.

Hypothesis 3.1a (compulsory preferential votes – ENC): Compulsory preferential votes lead to a reduction of the effective number of candidates index compared to electoral systems with optional preferential voting.

As for the effective proportion of candidates, this expected concentration of preferential votes, would signify that the share of candidates with a substantive proportion of votes would decrease, i.e. smaller values for that index should be observed.

Hypothesis 3.1b (compulsory preferential votes – EPC): Compulsory preferential votes lead to a reduction of the effective proportion of candidates index compared to electoral systems with optional preferential voting.

For the GINI coefficient, on the other hand, a higher concentration of preferential votes would translate into an increase of this index since values closer to 1 correspond to a more unequal distribution.

Hypothesis 3.1c (compulsory preferential votes – Gini coefficient): Compulsory preferential votes lead to an increase of the Gini coefficient compared to electoral systems with optional preferential voting.

3.2.2. Increasing the number of votes

In chapter 2, the reasoning regarding the impact of expanding the number of votes has been outlined in reference to the idea of consideration sets. In essence, the underlying idea is that the fewer preferential votes a voter can cast, the more care must be taken in order not to spoil one's preferential votes. As a consequence, since voters can be expected to judge the viability of candidates, one can expect that voters restrict the sets of candidates they consider in their vote choice when they have fewer votes at their disposal.

Certain cues and expectations about how other voters will act, should lead to a relative overlap of the viability assessments of a large proportion of voters.

In terms of the concentration of votes, this should mean that a small number of preferential votes results in a small number of candidates receiving substantial vote shares; the expansion of the number of votes, on the other hand, should lead to a more equal distribution of these preferential votes. This general hypothesis about the equalising effect of increasing the number of votes on intra-party competition, would lead to different directions for the three indicators.

For the ENC, the equalising effect will translate to an increase of “effective candidates”.

Hypothesis 3.2a (multiple votes – ENC): An increase in the number of preferential votes at the voter's disposal will lead to an increase of the effective number of candidates index.

This increase of the ENC means that the EPC should increase accordingly.

Hypothesis 3.2b (multiple votes – EPC): An increase in the number of preferential votes at the voter's disposal will lead to an increase of the effective proportion of candidates index.

Since the direction of the GINI coefficient is different – i.e. that smaller values mean more equality – I hypothesise that the GINI coefficient should be higher when the number of preferential votes increases.

Hypothesis 3.2c (multiple votes – Gini): An increase in the number of preferential votes at the voter's disposal will lead to a decrease of the Gini Coefficient.

3.2.3. Negative votes

As outlined in the previous chapter, the Latvian electoral system gives voters the possibility to express negative votes for candidates. In chapter 2, I have argued that giving voters the possibility to cast negative votes equalises the field of candidates.

The main rationale for this is that highly visible candidates are not only more likely to attract positive votes but also negative votes, reducing their advantage over other candidates. Voters, on their side, are also expected to adapt to this by considering a larger number of candidates as viable.

As a consequence intra-party competition should be more competitive, leading to a larger effective number of candidates index.

Hypothesis 3.3a (negative votes – ENC): Negative votes will lead to an increase of the effective number of candidates index.

Accordingly, the effective proportion of candidates should also be higher.

Hypothesis 3.3b (negative votes – EPC): Negative votes will lead to an increase of the effective proportion of candidates index.

Due to the inverse scale of the Gini coefficient, its values should decrease in comparison to electoral systems without negative voting

Hypothesis 3.3c (negative votes – Gini): Negative votes will lead to an decrease of the Gini Coefficient.

3.2.4. *Panachage*

The question about whether a voter under a multivote system is restricted to voting within a single candidate list primarily affects the number of potential candidates among which one can choose. More precisely, the number of potential candidates becomes larger, which I hypothesise to result in two effects that lead to a larger concentration of preferential votes.

First, such an increase in the number of potential candidates leads to a greater scarcity of preferential votes. Consider for instance a case where there are three parties with 20 candidates each competing in an electoral district where voters can cast 10 preferential votes. With no option of *panachage* and under an assumption that each voter had exactly the same probability of attracting a preferential vote, there would be a $\frac{1}{2}$ theoretical probability that a candidate would get a vote. This probability decreases to $\frac{1}{6}$ under a *panachage* system. Discarding the unrealistic assumption that the probability of attracting a preferential vote is equal for all candidates, the question is what happens with the preferential votes. There are two options: (1) the probability of receiving a preferential vote decreases equally for all candidates or (2) the probability decreases more for some candidates.

While it may be possible that the probability decreases equally for all candidates, the second scenario appears more likely due to the more likely reference to cues when the number of candidates increases. In fact, such an increase would impose a greater cognitive effort on the voter, which leads to this higher probability of using cues. As a consequence, a small group of candidates on each list can be expected to

benefit from the possibility of *panachage*, increasing the concentration of preferential votes within party lists.

Therefore, the effective number of candidates index should be smaller under *panachage* systems compared to other multivote systems that do not provide for this possibility.

Hypothesis 3.4a (panachage – ENC): Panachage leads to a reduction of the effective number of candidates index compared to electoral systems with multiple votes within a single list.

As a consequence, the effective proportion of candidates should be smaller under *panachage* systems.

Hypothesis 3.4b (panachage – EPC): Panachage leads to a reduction of the effective proportion of candidates index compared to electoral systems with multiple votes within a single list.

Since higher values for the GINI coefficient mean a more unequal distribution, the values of this coefficient should be higher under *panachage*.

Hypothesis 3.4c (panachage - Gini coefficient): Panachage leads to an increase of the Gini coefficient compared to electoral systems with multiple votes within a single list.

3.2.5. Variation of the degree of openness

Unlike other information such as how many votes one can cast or across how many parties these can be spread, the degree to which voters can influence the result is not a piece of information as easily available to voters. One may therefore be sceptical about whether this characteristic has any effect at all on voting behaviour. On the other hand, one may also operate with an assumption that voters know to some extent whether preferential votes are solely decisive or whether the party has some influence.

While I do at this stage not have any evidence substantiating which of these potential assumptions is accurate, only the latter would justify an argument that

this degree of influence matters at all. I therefore present the argument at this stage under this scenario in order to formulate testable hypotheses that may subsequently inform us about the validity of the basic underlying assumptions.

Hence, if one assumes that voters have some understanding about how much they can realistically influence the outcome, one should infer from this an effect on the voters' viability assessments of the candidates. Under flexible lists, voters know that the party has pre-ordered the list and that this order can only be altered under certain conditions. As a consequence, a more coordinated effort is necessary to influence the order of candidates, which means that voters should focus on a small subset of candidates that they wish to support if they want to alter the rankings established by the party. If they fail to coordinate, no change can occur.

The logical consequence from this argument is that under flexible lists preferential, votes should be more concentrated than under open lists.

The basic assumption with respect to the degree of openness is that voters understand approximately how high the threshold is for their preferences to have an impact and that this knowledge affects their viability assessments.

In other words, increasing the influence of voters over intra-party rankings would increase the number of candidates, which is expected to result in a higher effective number of candidates index.

Hypothesis 3.5a (list openness – ENC): For two electoral systems that are otherwise completely identical, the system that gives more weight to preferential votes when determining the intra-party result should have a higher effective number of candidates index.

Given the relationship between ENC and EPC, the effective proportion of candidates is hypothesised to be higher under open lists.

Hypothesis 3.5b (list openness – EPC): For two electoral systems that are otherwise completely identical, the system that gives more weight to

preferential votes when determining the intra-party result should have a higher effective proportion of candidates index.

Since the EPC and the GINI coefficient work in two different directions, GINI coefficients closer to 0 should be observed if the theoretical argument just outlined is accurate.

Hypothesis 3.5c (list openness – Gini): For two electoral systems that are otherwise completely identical, the system that more weight to preferential votes when determining the intra-party result should have a smaller Gini coefficient.

3.2.6. District magnitude

A variable that varies significantly in the various cases considered in this chapter is district magnitude. Since district magnitude and the number of candidates on a list are typically correlated in most cases, a general argument for the impact of district magnitude appears to follow the same trajectory as the one for the impact of *panachage*.

If district magnitude increases with an unchanging number of votes, one can in theory either observe that the concentration of votes remains constant with an increase of the effective number of candidates. This assumption does however appear to be relatively unrealistic, because it presupposes that the vote share of an additional candidate comes in equal parts from the other candidates.

However in consideration of a greater weight of cues when there are more options on the table, a more realistic scenario would be that the most visible candidate groups keep roughly the same vote share while the remaining candidates would each get a smaller share of the remaining preferential votes. This would result in a higher concentration of votes.

The main challenge here is however that not only does the number of candidates on the ballot increase in some cases as district magnitude increases, but also the number of votes that can be cast. Hence, there is also an interaction between

district magnitude and the number of votes that necessarily needs to be considered in this argument. If the number of votes increases, there is a larger number of preferential votes that the candidates can share. Therefore, it would be a logical conclusion that under such systems one would observe no overall change in vote concentration and an increase in the overall number of candidates.

Hence, one will need to make a distinction for all three indicators between electoral systems where the number of votes and district magnitude are correlated and those where there is no (or insignificant) variation. For this reason, the hypotheses need to take into consideration not only one candidate characteristic.

Hypothesis 3.6a (district magnitude – ENC): An increase of district magnitude only leads to an increase of the effective number of candidates index if the number of votes increases as well; otherwise it remains constant.

Hypothesis 3.6b (district magnitude – EPC): An increase of district magnitude leads to a decreasing effective proportion of candidates index if the number of votes does not increase; an increase of the number of votes leads to a constant value for that index.

Hypothesis 3.6c (district magnitude – Gini): An increase of district magnitude leads to an increase of the Gini coefficient if the number of votes does not increase; an increase of the number of votes leads to a constant value for that index.

Considering the significant role that the electoral systems literature has found for district magnitude, one may raise the question about whether there might be other interest interactions between district magnitude and the other electoral system characteristics. In contrast to the number of votes, the relationship does however

not appear that apparent. I shall therefore not formulate corresponding hypotheses, but including interaction terms in the analysis²¹.

3.2.7. Summary

In this section, I have presented a short explanation on how each of the six characteristics I have previously identified in chapter 2 can be expected to effect the concentration of preferential votes within candidate lists and how the three indicators introduced in the preceding section should reflect this variation.

The result of this is a relatively large number of hypotheses, with the indicators taking opposing directions. For this reason, table 3.1 provides a comprehensive summary of all hypotheses that will be tested in the subsequent sections with the expected direction of each of the indicators.

Table 3.1 – Summary of the hypotheses tested in chapter 3

Hyp.	ES characteristic	Direction of variation	Index	Change
3.1a	Compulsory preferential votes	Optional	→ ENC	-
3.1b		compulsory	EPC	-
3.1c			Gini	+
3.2a	Number of votes	1 vote → multiple	ENC	+
3.2b		votes	EPC	+
3.2c			Gini	-
3.3a	Negative votes	Negative votes =	ENC	+
3.3b		possible	EPC	+
3.3c			Gini	-
3.4a	Panachage	1 list → multiple lists	ENC	-
3.4b			EPC	-
3.4c			Gini	+
3.5a	Degree of openness	Almost closed → fully	ENC	+
3.5b		open	EPC	+
3.5c			Gini	-
3.6a	District magnitude & number of	DM increases, N votes	ENC	0
3.6b		fixed	EPC	-
3.6c			Gini	+
3.6a		DM increases, N votes	ENC	+
3.6b		increases	EPC	0
3.6c			Gini	0

²¹ I have also tested potential interaction between other characteristics in preliminary tests, these tests have however not yielded any significant results. For this reason, they are not included in the results.

3.3. Data and methods

To test the different hypotheses outlined in the preceding section, I shall analyse a dataset with data from 15 different European countries that use preferential list PR systems for their parliamentary elections. Before presenting the results in the next section, I shall provide some background on the data as well as the different variables used in the analysis.

3.3.1. Dataset

The data for 15 countries has been coded by myself and colleagues in the context of a larger project on intra-party competition. The data has been obtained via the websites of the authorities responsible for the organisation of elections in the respective countries and where necessary via the websites of the different parties competing in the elections.

Table 3.2 – Summary of the cases in the dataset

Country	Group	Openness	Election year	N lists
Austria	1	Flexible	2019	344
Belgium	4	Flexible	2019	116
Bulgaria	1	Flexible	2017	155
Croatia	1	Flexible	2016	163
Czech Republic	3	Flexible	2017	343
Denmark	1	Open	2019	122
Estonia	2	Open	2019	107
Finland	2	Open	2015	158
Latvia	6	Flexible	2018	77
Lithuania	3	Flexible	2016	14
Luxembourg	5	Open	2018	35
Netherlands	2	Flexible	2017	27
Poland	2	Open	2019	206
Slovakia	3	Flexible	2020	6
Switzerland	5	Open	2019	496
Total				2369

The main parameters for the different countries are summarised in table 3.2. In total, the dataset contains 2369 different candidate lists for elections held between 2015 and 2020. For each country a single recent election has been considered.

As outlined in sub-section 2.6.2 of the previous chapter, the 15 countries in the dataset can be divided into six different groups based on the number of votes that can be cast, the necessity of casting a preferential vote, the possibility of *panachage*

as well as the possibility of allocating negative votes. Six of the cases have fully open lists²² and nine have flexible lists.

The summary in table 3.2 highlights strong variations in the number of candidate lists across the different cases. Two main factors account for this difference: (1) the number of electoral districts and (2) the number of competing parties. In the three cases with the smallest number of observations – Lithuania, the Netherlands and Slovakia – elections are run in nationwide electoral districts.

For Austria and Switzerland where the largest number of lists can be observed there are two different explanations for these high numbers. In the Austrian case, elections are performed in three different tiers (regional, *Land* and national) and voters can cast a preferential for each of these list levels within their chosen party. The analysis contains the lists at all three levels. For the Swiss case, the explanation for the high number of lists lies in the possibility of *apparenting* lists, i.e. declaring an alliance between different lists which will then be considered as one unit at the allocation of seats (Farrell, 2011: 74). Unlike other cases, where two different lists from a same party would risk harming a party at the inter-party level, this possibility of *apparentement* creates an incentive for parties to run with different lists which may address specific socio-demographic groups such as young voters, women, linguistic groups in multilingual cantons, voters with an immigration background or specific professional groups. In fact, each of these examples has been observed at least once during the coding of the Swiss data.

²² Strictly speaking, Lithuania does not have fully open lists since the order established by the party is decisive for candidates receiving fewer than 70 preferential votes. The number of candidates under this threshold is however relatively low in practice except for the smallest party in the dataset and the threshold so low, that it is justifiable to identify Lithuania as a case with open lists in absence of more precise criteria to distinguish flexible list systems.

3.3.2. Dependent variables

The dependent variable for the analysis will be the three indicators that have been discussed in more detail in section 3.1. Hence, only a brief summary of the formulas or packages that have been used as well as the some descriptive statistics will be provided at this stage.

For the ENC and EPC indexes the formulas outlined in section 3.1 have been used to determine the indicators for each list ($ENC = \frac{1}{\sum_{i=1}^n p_i^2}$ and $EPC = \frac{ENC}{n}$). For the calculations of the Gini coefficient, there are several functions available for most conventional statistical softwares to determine it. For this analysis, the STATA package *egen_inequal* has been used.

Table 3.3 summarises the main descriptive statistics for each of the indicators. On average, a candidate list contains 6.69 effective candidates; the minimum is at 1.00 while the maximum is at 33.92. The analysis of the data has revealed that the distribution of the values of the ENC is positively skewed. This may be problematic because there is a high risk that the condition of normally distributed standard errors will be violated (Agresti & Finley, 2014). To avoid such difficulties, I have therefore resorted to using a logged variable.

Table 3.3. – Summary statistics of the three dependent variables

Variable	Mean	Median	Minimum	Maximum
ENC	6.69	5.26	1.00	33.92
Log(ENC)	1.69	1.66	.29	3.52
EPC	.54	.53	.01	.99
Gini	.44	.43	0.00	.97

The mean value for the EPC and the Gini coefficient highlight that on average preferential votes appear to be moderately concentrated. However the data in table 3.3 also reveals that there are very strong differences across the 2369 lists.

3.3.3. Independent variables

The main independent variables are the six electoral system characteristics that have been introduced in detail in chapter 2 and whose expected effects have been outlined in section 3.2.

Number of votes – Three different groups of electoral systems within the 15 cases can be identified. The first group comprises electoral systems with a single preferential vote; the second group consists of cases with a small and unchanging number of preferential votes (generally between 3 and 5 preferential votes); the third group corresponds to cases where the number of votes corresponds to the district magnitude in the respective electoral district. In the dataset 1359 lists belong to group 1, 363 lists to group 2 and 646 lists to group 3.

Compulsory preferential voting – a dummy variable identifies cases where preferential voting is compulsory. 498 candidate lists in the sample are from cases where voters must cast a preferential vote.

Panachage – A dummy variable informs about whether a list competed in a situation where panachage is possible. 531 lists in the sample fall within this group.

Negative votes – A dummy variable identifies the 77 lists in Latvia where voters can allocate negative votes to candidates.

Degree of openness - A distinction between flexible- and open-list systems is made. Ideally, there would be a sub-division of flexible-list systems, but there is currently no uniform criterion on how to rank the different cases that would not be contentious. 1230 lists in the dataset are flexible while 1138 lists are open.

District magnitude – the final independent variable captures the number of seats to be allocated in a district. The average district magnitude in the dataset is 14.83 and the median district magnitude 11.

3.3.4. Control variables

Several factors might influence the variation the three indicators. For this reason, it is necessary to control for such variables in order to remove potential distorting effects.

First of all, candidate lists do not always contain the same number of individuals, even within the same district with the same district magnitude. In addition, the number of allowed candidates on a list and district magnitude are not always perfectly correlated. A typical example for this is Austria, where the maximum number of candidates on a list is set at 12 even in small districts. For this reason, a variable accounting for the number of candidates on the list is included. One potential problem one might face in linear models is that variables should not be too strongly correlated (Agresti & Finley, 2014). However, regression diagnostic tests (variance inflation factor) and tests for the correlations between district magnitude and the number of candidates on the ballot (.62) have not revealed any problems resulting from including both in a model.

In addition, differences in party size may also be problematic. In fact, it would be possible that voters take a party's size into consideration when deciding on candidate viability. In a large party, more candidates may be expected to have a chance of winning a seat, which may affect the voters' strategic considerations. To control for party size, I include a variable for the number of incumbent candidates. Alternatively, one could also control for the number of seats won at the last election or the number of seats actually won at the election in question. The disadvantage of the former is that voters might not recollect exactly how many seats had been won, while the number of incumbents appears to be a number that can easier be grasped. With regard to the latter, the use of this variable would presuppose that voters could accurately project the expected size of a party. Using a variable looking at past performance appears more accurate.

Third, some lists have official lead candidates while others do not. A dummy variable controlling for this is hence supposed to capture a concentration that is merely due to the presence of a candidate with heightened visibility and media presence, who would obtain a substantial part of the preferential votes.

Finally, the models contain a control variable for the number of female candidates on the list. As I shall outline in more detail in the next chapter, scholars argue that a candidate's gender can influence their obtained shares of preferential votes. If this is the case, a higher proportion of women on a candidate list may affect the distribution of preferential votes, captured by the three indicators.

3.3.5. Method

The different hypotheses will be tested through a series of multivariate regression models for each of the three independent variables. The details of these models have to take two points into account: (1) the scale of the three indices and (2) the risk of potential clustering.

Since the three dependent variables have different scales, the choice of the appropriate regression models had to be adopted accordingly. For the effective number of candidates index, OLS regressions are the best option since this index is a continuous variable. While the EPC and the GINI coefficient are also continuous variables, they are both bound between 0 and 1. Here beta regressions are a better choice because they take into consideration these boundaries.

Since the data compares data that is clustered in different districts and countries, there is a risk that the standard errors are correlated, which would violate one of the central assumptions underlying linear regression models. In fact, the consequence of using simple OLS regression models for clustered data is the risk that standard errors are underestimated, increasing the probability of type I errors (McNeish, 2014), i.e. the rejection of true null hypotheses (Agresti&Finley, 2014: 120).

One of the standard solutions to deal with this problem is the use of hierarchical linear models or multilevel models. The use of multilevel models is relatively widespread, it tends however to acknowledge that there are available alternatives, which may sometimes be more appropriate. Most of these alternatives accommodate potentially nested data in the design of simpler regression models rather than resorting to multilevel models (Stapleton et al., 2016). In particular, the latter argue that multilevel models are only necessary when the research question is specifically concerned about the differences between the different clusters.

In the current case, this is not the case as the focus is in the difference in electoral systems rather than the difference in the geographical areas where voters cast their votes. It is therefore perfectly appropriate to resort to alternative measure aiming at controlling for the potential differences arising from the clusters.

As the models control for district magnitude as one of the key electoral system characteristics, we are controlling for differences between different districts within the same country. In order to capture potential country-specific variations, clustered standard errors will be used. This option is available for both OLS and beta regression models, allowing for the greatest possible consistency between all regression models.

3.4. Results

Section 3.2 has presented 18 different hypotheses corresponding each to the interaction between one of the six electoral system characteristics with one of the indices introduced earlier in the chapter. To test these different hypotheses, one first all needs to determine whether the relevant variations are best tested on the full sample of 15 countries or on a sub-sample. In fact, the number of votes, district magnitude and the degree of list openness vary across the different cases included

in this sample and it is therefore appropriate to test the impact of these variables for the full dataset. The corresponding models are represented in table 3.4.

The distinction between optional and compulsory preferential voting, on the other hand, is only relevant for electoral systems where voters can cast a single preferential vote because preferential voting is optional across all of the cases where multiple votes can be cast. For this reason, this test will only be performed for the relevant sub-sample of cases. The models to test the impact of compulsory preferential voting are represented in table 3.5.

Similarly, negative voting and *panachage* can only be observed within the subgroup of cases where the number of votes corresponds to district magnitude. Thus, these two tests are conducted in a third step for a subsample only considering lists from countries with this rule for the number of votes. The models for these two variables are shown in table 3.6.

The models shown in this section are the final models obtained after a process of testing different configurations of the regression models. A set of these models is provided in the appendix.

3.4.1. Number of votes and district magnitude

According to the theoretical model and the hypotheses derived from it increasing the number of votes leads to a more equal distribution of preferential votes within candidate lists, i.e. more competitive situations. Accordingly, the ENC (hypothesis 3.2a) and the EPC (hypothesis 3.2b) should be higher in the under electoral systems with multiple votes while the estimates for the Gini coefficient should be smaller (hypothesis 3.2c). In addition, I have hypothesised that there is an interaction effect between the number of votes and district magnitude. If the number of votes remains constant, preferential votes are expected to be more concentrated; a conjoint increase of the number of votes and district magnitude, on the other hand, is expected result in a stable concentration of preferential votes.

Table 3.4 – Tests for the number of votes, open lists and district magnitude

	Model 1a	Model 1b	Model 1c
<i>Index</i>	<i>Log(ENC)</i>	<i>EPC</i>	<i>GINI</i>
<i>Model</i>	<i>OLS</i>	<i>Beta</i>	<i>Beta</i>
Number of votes			
- <i>Small number of votes</i>	.957** (.095)	.784* (.349)	-.555** (.135)
- <i>Number of votes = district magn.</i>	-.091 (.122)	1.026** (.307)	-.914** (.192)
Open lists	-.543** (.119)	-.215 (.327)	.124 (.216)
District magnitude	-.010** (.002)	-.002 (.004)	.003 (.003)
Number of votes & dist. magn.			
- <i>small number of votes</i>	-.006* (.002)	.027 (.028)	-.016 (.012)
- <i>number of votes = district magn.</i>	.044** (.005)	.007 (.012)	-.011 (.009)
District magnitude & open lists	.019** (.005)	.025 (.017)	-.015 (.010)
Compulsory preferential voting	.430** (.088)	.043 (.289)	-.028 (.214)
Panachage	.218 (.103)	-.029 (.308)	.202 (.183)
Negative votes	-.057 (.033)	-.082 (.100)	.193** (.071)
Number of candidates	.014* (.006)	-.061** (.019)	.035** (.012)
Number of incumbents	-.012 (.016)	.020 (.018)	.009 (.013)
Number of women	-.001 (.006)	-.008 (.013)	.005 (.010)
Leader(s) on the list	-.060** (.094)	-.317** (.221)	.245* (.123)
Intercept	1.397** (.083)	.676** (.256)	-.525** (.169)
Scale - Intercept		1.962** (.170)	2.606** (.178)
Observations	2374	2374	2374
R ²	.565		
Log likelihood		1056.54	1591.30

* p<.05; ** p<.01, (.) clustered standard errors

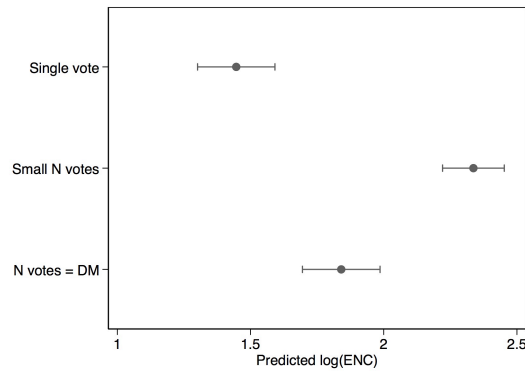
Model 1a, which uses the logged effective number of candidates index as the dependent variable, predicts statistically significant higher values for the index for cases where voters can cast a small number of preferential votes. For the third category, where the number of votes and district magnitude match, the model does not find statistically significant effects at the 95% confidence level. One should however not make any assessment with regard to hypothesis 3.2a without taking into account the interaction effect between the number of votes and district magnitude.

In fact, the estimates for the interaction effect for the latter type of electoral system is positive and statistically significant, there is a linear relationship between the ENC and district magnitude when the number of votes increases with district magnitude. For both electoral systems where the number of votes is stable, on the other hand, the ENC either stagnates or decreases slightly, supporting our initial expectations. The marginal effects of this interaction are illustrated in graph 3.1(b). These marginal effects also illustrate the reason for the non-significant coefficient for the effect of electoral systems where the number of votes is variable. At low district magnitude, the number of votes under these systems is very small; for this reason, the ENC is the same as for single vote systems.

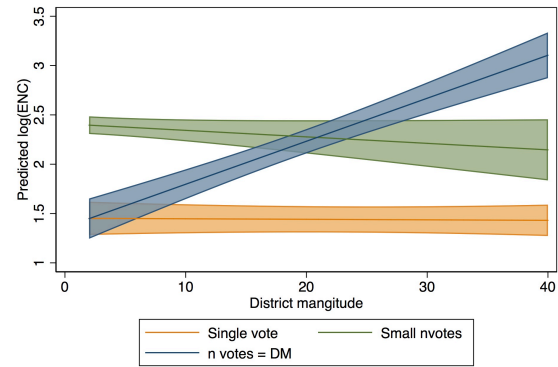
In order to assess whether hypothesis 3.2a should really be rejected because of this non-significant coefficient, I propose to consider estimates for the logged ENC at the median district magnitude in the sample (11). Graph 3.1(a) illustrates the estimated logged ENC by vote type. The graph clearly shows that the estimated values for multiple vote systems are significantly higher for electoral systems where multiple votes can be cast. We can therefore reject the null hypothesis that the number of votes does not affect the effective number of candidates index.

In model 1b, the effective proportion of candidates index is significantly higher for both configurations of multivote systems compared to electoral systems with only a single vote. In other words, the results correspond to the expected outcome in hypothesis 3.2b.

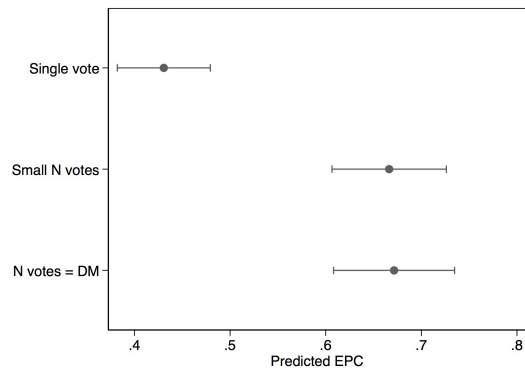
Unlike the results for the ENC, the results for the EPC do not show any statistically significant impact of district magnitude. While hypothesis 3.6b predicted that changes in district magnitude should have no impact when the number of votes changes with district magnitude, it also predicted that the EPC should decrease for cases with a constant number of votes. The findings for this hypothesis are thus not fully conclusive.



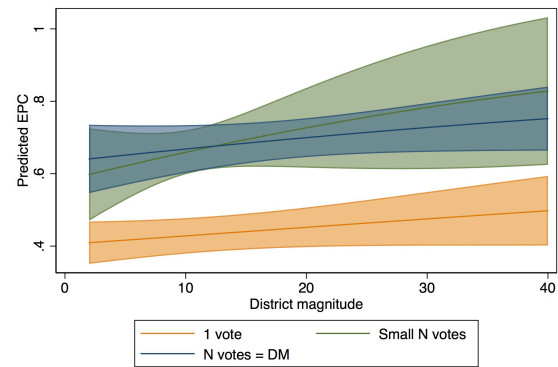
(a) ENC at median district magnitude



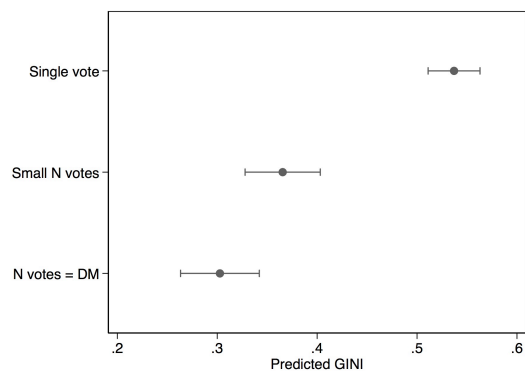
(b) ENC – interaction N votes and DM



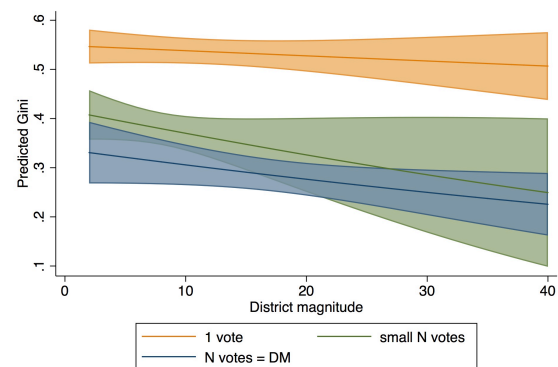
(c) EPC at median district magnitude



(d) EPC – interaction N votes and DM



(e) GINI at median district magnitude



(f) GINI – interaction N votes and DM

Graph 3.1 - Marginal effects of the number of votes for each indicator

For the Gini coefficient, the results correspond to those for the EPC. The only different is that the coefficients are negative rather than positive due to the inverse scale of the two indices.

To sum up, the results for all three indicators are in line with the argument that a higher number of votes leads to a more equal distribution of votes.

For the interaction effect between district magnitude and the number of votes, only the results for the effective number of candidates index correspond to our initial

expectations. While one could expect that the EPC and Gini coefficient would reflect the effects observed for the ENC in showing increasing vote concentration with increasing district magnitude when the number of votes remains constant, the results do not corroborate these expectations. In other words, hypotheses 3.6b and 3.6c can only be partly confirmed.

This first substantial difference between the ENC and the two other indices also leads to a first reflection on the relative merits of the three indices. As noted earlier, Dodeigne and Pilet (2019) argue that a major difference between the ENC and the Gini coefficient is their sensibility to district magnitude. More specifically, they identified this difference as an argument in favour of the Gini coefficient. The present analysis would however also permit the opposite conclusion, because the ENC has highlighted an interesting interaction effect between the number of votes and district magnitude. Rather than merely increasing with district magnitude, the ENC shows that such variation is conditioned by other factors, thus pointing at this important effect. As the results for the impact of the number of votes are the same for all indices, the ENC appears to provide a more nuanced in this instance.

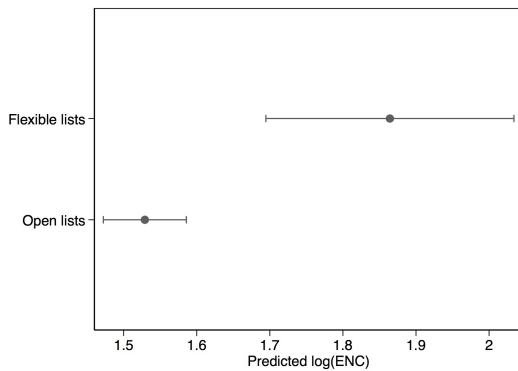
3.4.2. Open lists

According to the theoretical model, open lists should lead to a more equal distribution of preferential votes than flexible lists. Accordingly, the ENC and EPC should be higher under open lists while the Gini coefficient should be smaller. However the results of neither model confirm this.

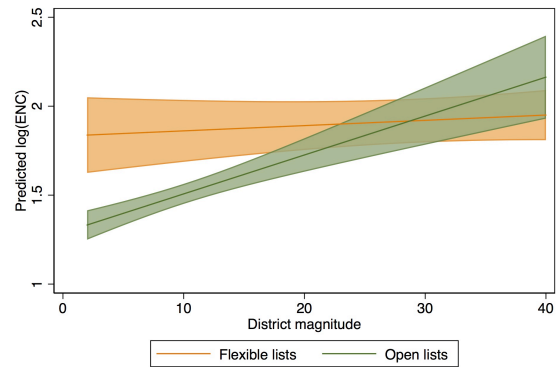
In fact, model 1a predicts that the effective number of candidates is in fact statistically significantly smaller under open lists – at least for small district magnitudes. Furthermore, the model predicts that this gap between flexible and open lists shrinks. For district magnitude larger than 15, there is no statistically significant difference based on list type.

Models 1b and 1c do not find any statistically significant difference between open and flexible lists for the EPC or the Gini coefficient.

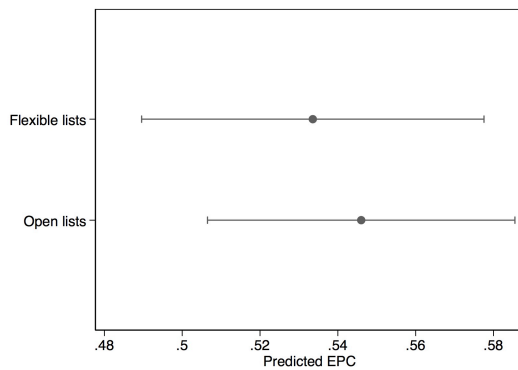
Based on these results, all three hypotheses relating to the distinction between open and flexible lists (hypotheses 3.5a, 3.5b and 3.5c) have to be rejected.



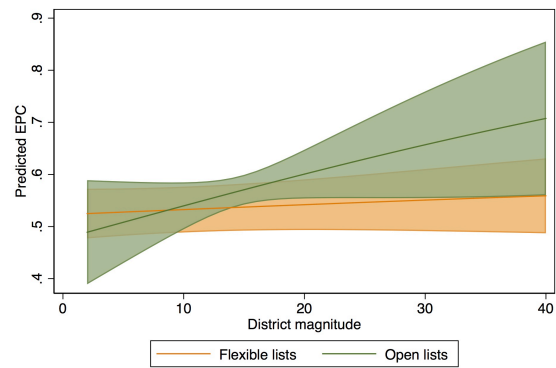
(a) ENC at median district magnitude



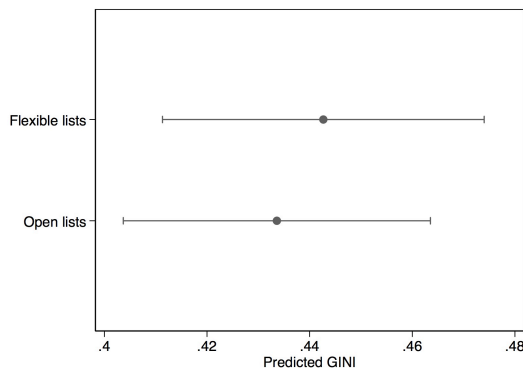
(b) ENC – interaction open lists and DM



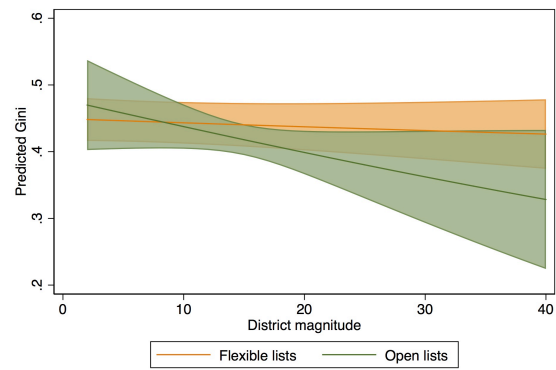
(c) EPC at median district magnitude



(d) EPC – interaction open lists and DM



(e) GINI at median district magnitude



(f) GINI – interaction open lists and DM

Graph 3.2 – Marginal effects effect of open lists

With regard to the significant difference between flexible and open lists for the ENC that shows the opposite effect compared to the hypothesis, one needs to raise the question whether these results inform us about an important effect or whether they might be incidental. In consulting the preliminary models in the appendix, one can observe that the statistically significant difference only appears when the

interaction term with district magnitude is included. When taking all of the elements into consideration, it appears that the detected difference might be a type I error. This possibility appears all the more likely because there does not seem to be an argument for why voters should spread their preferential votes more evenly when parties have a larger impact over final rankings.

Hence, these results suggest that the difference between open and flexible lists has no direct effect on the behaviour of voters that would influence intra-party outcomes due to changes in how preferential votes are cast. This does not mean that this distinction has no effect. In fact, there is a strong mechanical effect due to the rules that determine the relative weight of parties and voters in shaping final outcomes. This is however outside the focus of this analysis, which focuses exclusively on differences that occur at the level of preferential votes.

A final question to be raised is whether these results provide any evidence regarding the quality of the three indices. While the results for the ENC deviate again from those for the two other indices, one cannot infer from them any arguments regarding the superiority of either index.

3.4.3. Compulsory preferential voting

According to the three hypotheses on compulsory preferential voting, forcing voters to cast a preferential vote in order for a ballot to be valid should result in a higher concentration of preferential votes, i.e. smaller values for the ENC and the EPC and higher values for the Gini coefficient. Models 2a, 2b and 2c show the results for the analysis of electoral systems where only a single vote can be cast, the only subgroup in which the distinction between optional and compulsory preferential voting can be observed.

For the effective number of candidates index, model 2a estimates that there are more effective candidates under compulsory preferential voting at the 95% confidence level. In other words, the results predict exactly the opposite effect of the one in the hypothesis.

Table 3.5 – Test for compulsory preferential voting

	Model 2a	Model 2b	Model 2c
<i>Index</i>	<i>ENC</i>	<i>EPC</i>	<i>GINI</i>
<i>Model</i>	<i>OLS</i>	<i>Beta</i>	<i>Beta</i>
Compulsory preferential voting	.367* (.130)	.304 (.414)	-.220 (.246)
District magnitude	-.007 (.003)	.019 (.020)	-.010 (.006)
Comp. pref. voting & District magn.	-.001 (.004)	-.021 (.021)	.014* (.006)
Open list	-.241 (.109)	.009 (.187)	-.006 (.096)
Number of candidates	.007 (.005)	-.069** (.017)	.040** (.012)
Number of incumbents	-.004 (.023)	.023 (.025)	.017 (.018)
Number of women	.005 (.007)	-.002 (.024)	.001 (.018)
Leader(s) on list	-.018 (.115)	-.191 (.248)	.178 (.148)
Intercept	1.398** (.008)	.544* (.273)	-.448** (.146)
Scale - Intercept		1.840** (.224)	2.436** (.208)
Observations	1284	1284	1284
R ²	.136		
Log likelihood		442.60	710.08

* p<.05; ** p<.01, (.) standard errors

For the EPC, the model does not predict any significant results, indicating that the concentration of preferential votes is not affected by the question about whether a voter can or must cast preferential votes.

While the results for the Gini coefficient do not yield a statistically significant result for the dummy variable that controls for compulsory preferential voting, this model suggests that there is a statistically significant interaction effect between district magnitude and compulsory preferential voting. More precisely, these results indicate that an increase in district magnitude leads to an increase of the Gini coefficient when preferential voting is compulsory. In other words, the distribution of preferential votes becomes more unequal in larger electoral districts.

To sum up, the conclusions on the effect of compulsory preferential voting are different depending on which index one chooses. The ENC produces the opposite results of what hypothesis 3.1a predicted. In addition to rejecting this hypothesis one should raise questions regarding the reasons for these results. At this stage, three potential explanations may be considered.

First, it would be possible that the theoretical reasoning underlying the hypothesis is wrong and that compulsory preferential voting actually leads to more candidates getting a higher vote share. Second, the model may be problematic. In fact, R^2 is relatively low compared to the other models. Third, there might be a problem with the index for this analysis. At this stage, it would however be purely speculative to make any definite assertions regarding one of these potential explanations.

Since the EPC does not yield any statistically significant results, hypothesis 3.1b must be rejected.

For the Gini coefficient, the results are more mixed compared to the two other indices. In fact, the statistically significant results for the interaction term appear to partly confirm hypothesis 3.1c.

Overall, the results are not as strong as one could have expected based on the theoretical argument. At this stage of the analysis, it would however be premature to make any definite conclusions on the status of compulsory preferential voting. In fact, the final verdict on the role of compulsory preferential voting should only be made after additional tests in the remainder of the thesis.

3.4.4. *Panachage*

For the *panachage* system, the hypotheses predict that it results in a higher concentration of preferential votes compared to other multivote systems, because some candidates are assumed to benefit more from cross-party voters than others, counteracting the equalising effect of an increased number of votes.

The results of all three models comparing the cases where the number of votes corresponds to district magnitude show such a tendency of preferential vote concentration. Model 3a estimates that the logged ENC is statistically significantly smaller under *panachage* systems. Likewise, the estimates for the EPC are significantly smaller according to model 3b while the Gini coefficient increases due to the differences in the scale of the index.

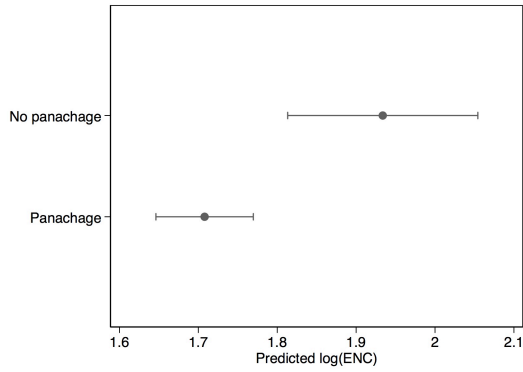
Table 3.6 – Test for panachage and negative voting

	Model 3a	Model 3b	Model 3c
<i>Index</i>	<i>ENC</i>	<i>EPC</i>	<i>GINI</i>
<i>Model</i>	<i>OLS</i>	<i>Beta</i>	<i>Beta</i>
Panachage	-.339** (.017)	-1.101** (.083)	.704** (.067)
Negative voting	.245** (.008)	-.817** (.022)	.731** (.014)
District magnitude	.000 (.007)	-.021 (.011)	-.009 (.005)
Panachage & District magnitude	.013** (.001)	.054** (.003)	-.027** (.001)
Negative voting & District magn.	-.020** (.001)	.047** (.002)	-.031** (.001)
Number of candidates	-.061* (.010)	-.068** (.014)	.033** (.005)
Number of incumbents	-.001 (.021)	.024 (.040)	.005 (.027)
Number of women	.001 (.003)	.005 (.006)	-.000 (.005)
Leader(s) on lists	-.172** (.024)	-.820** (.087)	-468** (.065)
Intercept	1.303** (.018)	2.581** (.086)	1.852** (.062)
Scale - Intercept		2.010** (.090)	2.759** (.137)
Observations	726	726	726
R ²	.732		
Log likelihood		427.46	597.28

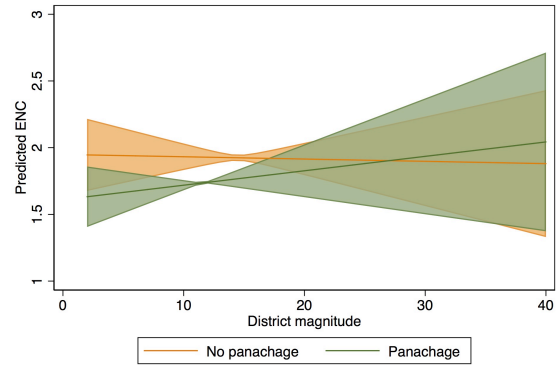
* $p < .05$; ** $p < .01$, (.) clustered standard errors

In addition to this effect, the three models also predict a statistically significant interaction effect between *panachage* and district magnitude for each of the indices. In each of the cases, the estimates reduce the effect of panachage with increasing district magnitude. In other words, the gap between *panachage* and non-*panachage* systems decreases as district magnitude increases.

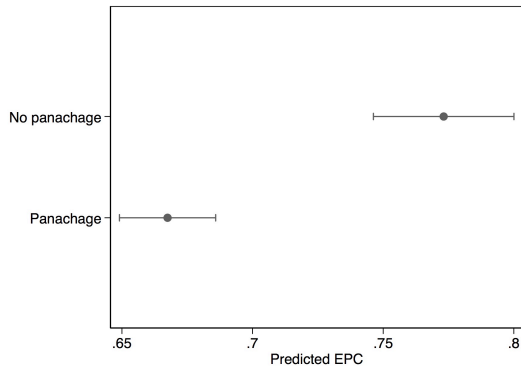
This interaction effect appears to follow a certain logical consistency. In smaller districts voters have fewer votes. If these are spread across parties and if certain voting patterns are consistent, a small group of candidates can be expected to benefit. If district magnitude increases, voters can also cast more votes. If there is no significant increase in the average number of lists on which voters cast their preferential votes, the average number of votes to be allocated per list increases, leading overall to a more equal distribution of preferential votes. Thus, the concentrating effect of panachage is smaller in large district.



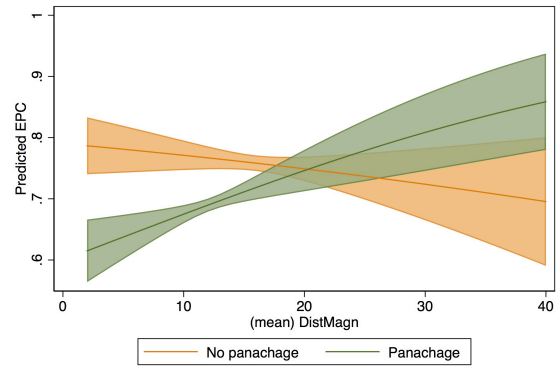
(a) Impact of panachage on the ENC (DM=9)



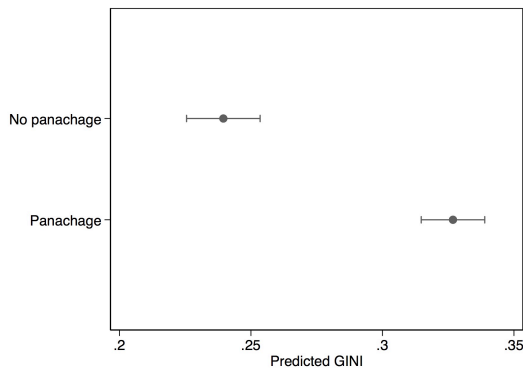
(b) ENC – interaction of panachage and DM



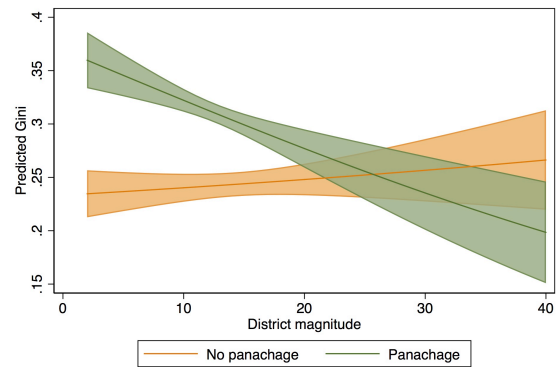
(c) Impact of panachage on the EPC (DM=9)



(d) EPC – interaction of panachage and DM



(e) Impact of panachage on Gini (DM=9)



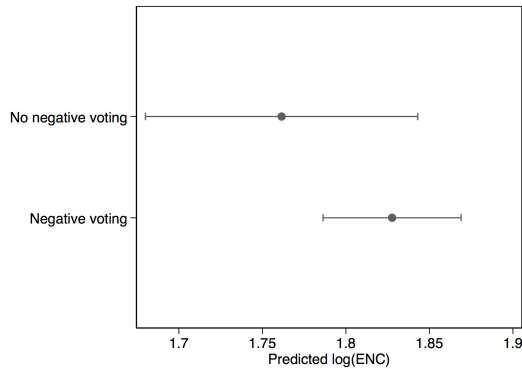
(f) Gini – interaction of panachage and DM

Graph 3.3 – Marginal effects of panachage for each indicator

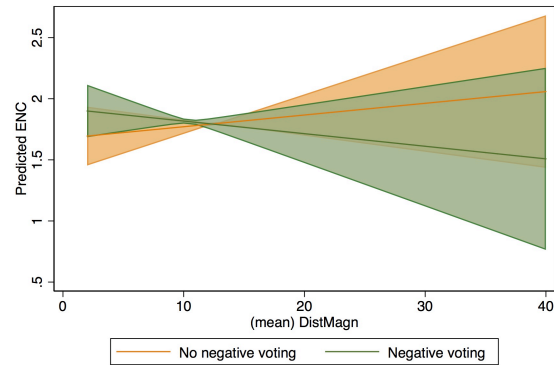
Overall on can thus conclude that these results strongly confirm the theoretical model's expectations on the impact of *panachage*, while also highlighting that district magnitude has an impact on how strong this effect is at the aggregate level.

3.4.5. Negative voting

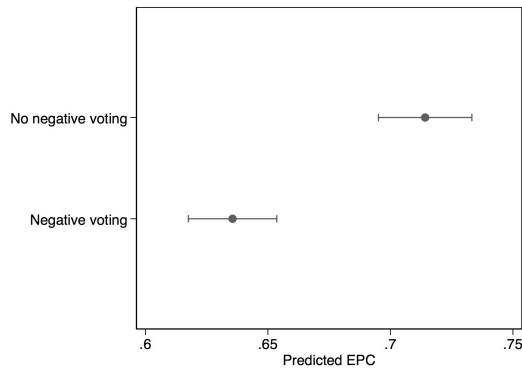
While *panachage* has been hypothesised to result in a higher concentration of preferential votes, the opposite effect has been predicted for negative votes.



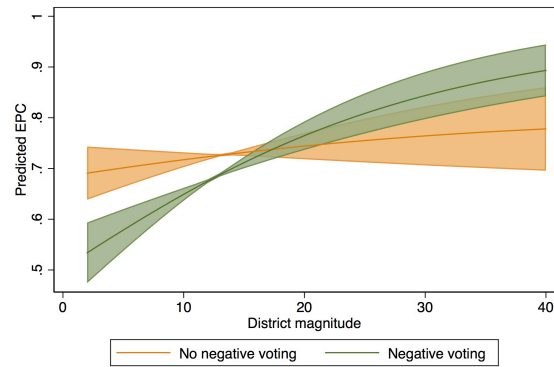
(a) Impact of negative votes on tENC (DM=9)



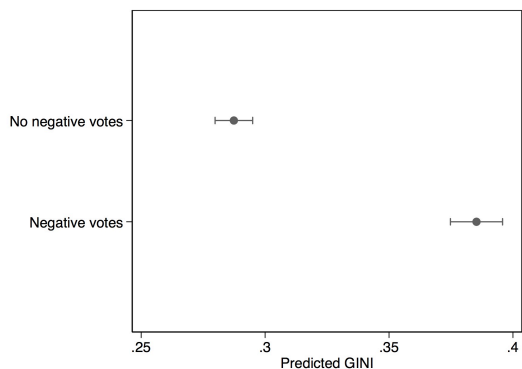
(b) ENC – Interaction negative votes and DM



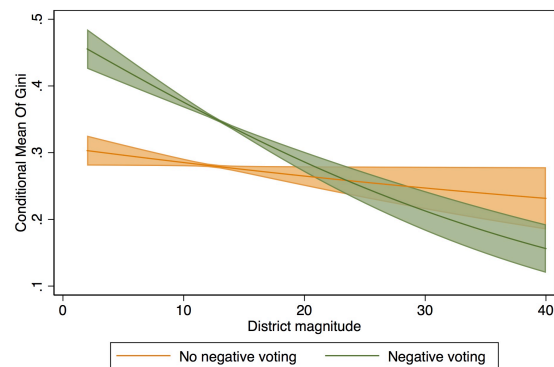
(c) Impact of negative votes on EPC (DM=9)



(d) EPC – Interaction negative votes and DM



(e) Impact of negative votes on GINI (DM=9)



(f) Gini – interaction negative votes and DM

Graph 3.4 - Marginal effects of negative votes for each indicator

For the effective number of candidates, model 3a predicts in fact a statistically significant positive effect at the 95% confidence level. In addition, there is a negative interaction effect between negative votes and district magnitude, meaning that the

gap between systems with and without negative votes closes. The predicted marginal effects at the median district magnitude for the sample sample (DM=9) illustrated in graph 3.3a suggest that the gap closes relatively quickly, since no statistically significant difference is illustrated in this graph. Hence, while a statistically significant difference is measured, its impact appears to be limited.

For the EPC and the Gini coefficient, the results point at the opposite effect compared to the model for the ENC. In fact, the EPC is estimated to be smaller under negative voting while the Gini coefficient is predicted to be larger. Both results mean that negative votes would actually lead to a less equal distribution of preferential votes. In other words, they contradict the hypotheses for these two indicators.

Additionally, there is an interaction effect similar to the one observed in the case of *panachage*, suggesting that the gap between negative voting system and multivote systems closes progressively.

In terms of the hypothesis presented earlier in the chapter, one would need to conclude that only the one for the ENC is confirmed by the data while those for the EPC and the Gini coefficient need to be rejected. These results pointing at a different effect than the one that I had initially predicted appear to point at a different impact on voter behaviour. In order to be sure about this point, further tests in the remainder of the analysis would however be necessary.

3.4.6. Summary

After having tested the relationship between six different electoral system characteristics and the three different indices introduced earlier in this chapter, the overall assessment is mixed. The results suggest that the number of votes, *panachage* as well as district magnitude play a major role in shaping the intra-party distribution of preferential votes in the ways that we have suggested in the hypotheses.

Table 3.7 - Comparison between the findings and the hypothesis

Hyp.	Variable	Index	Hypothesis	Result	Verdict
3.1a	Compulsory preferential votes	ENC	-	+	Disproved
3.1b		EPC	-	0	Disproved
3.1c		Gini	+	Mixed	Mixed
3.2a	Number of votes	ENC	+	+	Confirmed
3.2b		EPC	+	+	Confirmed
3.2c		Gini	-	-	Confirmed
3.3a	Negative votes	ENC	+	+	Confirmed
3.3b		EPC	+	-	Disproved
3.3c		Gini	-	+	Disproved
3.4a	<i>Panachage</i>	ENC	-	-	Confirmed
3.4b		EPC	-	-	Confirmed
3.4c		Gini	+	+	Confirmed
3.5a	Degree of openness	ENC	+	-	Disproved
3.5b		EPC	+	0	Disproved
3.5c		Gini	-	0	Disproved
3.6a	DM & 1 vote	ENC	0	0	Confirmed
3.6b		EPC	-	0	Disproved
3.6c		Gini	+	0	Disproved
3.6a	DM & multiple votes	ENC	+	+	Confirmed
3.6b		EPC	0	0	Confirmed
3.6c		Gini	0	0	Confirmed

For compulsory preferential voting, negative votes and the degree of openness, there is at least a majority of indicators yielding either no statistically significant results or the opposite effects of what has initially been expected. It is noteworthy that the conclusions of the different indicators do not go exactly into the same direction for all three indices in the case of these electoral system characteristics. This leads to the question about the reasons for these differences and the qualities of the indices. Overall, these findings invite us (1) to reflect on the reasons for these differences, (2) the validity of the indices used in this chapter and (3) the route ahead in the remainder of the thesis.

3.5. Conclusion

The goal set out in this chapter was to test whether it is possible to observe systematic differences across different preferential-list PR systems based on their differences in 6 key characteristics. In order to test for such variation, three different indices have been used: the effective number of candidates index, the effective proportion of candidates index and the Gini coefficient. On the basis of the theoretical model presented in the earlier chapter, hypothesis expressing the expected effect of the six electoral system characteristics have been formulated. Subsequently, these hypotheses have been tested in a set of regression models.

The results of this analysis have provided some clear indications supporting the initial assumption of this thesis that the electoral system has an impact on intra-party outcomes and that some electoral system characteristics appear to play a greater role in this than others.

At the same time, the results have pointed at some interesting results, which appear to contradict – at least partially – some of the reasoning underlying the effects of certain electoral system characteristics.

In addition, the results have also highlighted that the different indices do not always behave in exactly the same way. The question about the insights on the merits and weaknesses of the respective indices appears to be another important aspect that needs to be considered at the end of this first empirical analysis.

I shall briefly discuss each of these lessons from this chapter in more detail.

3.5.1. The relevance of different electoral system characteristics

In chapter 1, I have introduced six different electoral system characteristics – number of votes, compulsory preferential voting, *panachage*, negative votes, the degree of openness and district magnitude – for which it may be conceivable that they affect intra-party outcomes. Subsequently, a theoretical case based on the

model of the rational voter has been presented for each of these variables to explain how one could expect these variables to matter in the intra-party context.

From the outset, it appeared rather unlikely that all of these six characteristics would matter to the same extent or matter at all. One might have considered focusing only on some of these variables, anticipating that some variables might in the end play a smaller role. However, this opens the possibility of missing important information if one's intuitions were wrong; therefore, a strategy to let the empirical tests highlight the most promising variables appears to be far superior.

In this chapter, the empirical tests have identified three main characteristics that appear to play a significant role. First, the number of votes at the disposal of voters has been demonstrated to matter: the more preferential votes a voter can cast, the more equal preferential votes are distributed. Second, the possibility of spreading multiple votes across different lists has a concentrating effect on preferential votes. Third, district magnitude affects the impact that any other variable has.

One question one may raise at this stage is whether this first analysis justifies discarding the three other electoral system characteristics for which the results are not as clear. At the present stage, it would be unwise to completely disregard these variables for two main reasons. First, the results are not completely insignificant and it is worth discussing some of these findings in more detail. Second, even if these characteristics may not be important for the overall distribution of preferential votes, they might nonetheless play an important role for the prospects of some candidates.

In the results, there are three instances in which the results have yielded opposite effects from those expected based on the theoretical model, which should be considered in more detail.

Regarding the impact of compulsory preferential voting, I have hypothesised that forcing voters to cast preferential voting should favour visible candidates, as casting a vote for these candidates is the easiest shortcut for voters without strong

intraparty preferences. As a consequence, one should expect an overall concentration of preferential votes. However, the results show that compulsory preferential voting does not have a statistically significant effect on the EPC. For the ENC the results even show in the opposite directions. Only for the Gini coefficient, the results point to some extent in the expected direction as increasing district magnitude under compulsory preferential voting is predicted to lead to a higher concentration of preferential votes. In order to assess whether this distinction between optional and compulsory preferential voting really has so little effect, it is necessary to further assess the question in the next chapter.

For negative voting, the results of the analysis suggest that the possibility of allocating negative votes narrows the field of competitive candidates rather than widening it. While the precise reasons for this need to be analysed in the remainder in the analysis, these findings open up the possibility that the initial assumptions of the theoretical model on negative voting have not been accurate.

With regard to the distinction between open and flexible lists, the findings of this thesis suggest that it does not affect the way in which preferential votes are allocated in a significant way. In other words, this distinction does not appear to have a major impact on voting behaviour. This does not mean that the distinction between flexible and open lists is irrelevant, but only that potential effects appear to be caused by other factors than changes in voting behaviour.

3.5.2. Verdict on the indices

In addition addressing the question on how certain candidate characteristics affect intra-party outcomes, this chapter has also raised the question about how to best measure these differences. For this purpose, three different indices have been put to the test: the effective number of candidates index, the effective proportion of candidates index and the Gini coefficient.

While the results show a relative consistency between all three indices, there are a few instances in which there are differences in the results. Particularly, the results

for the ENC sometimes differ from the two other indices. One explanation for this could be that the difference in scale, because the ENC has unlike the two other indices no standardised scale. As outlined in the chapter, one criticism of the index is that the number of candidates standing for election affects it. While this characteristic may be problematic in some instances, particularly the analysis for the relationship between the number of votes and district magnitude has shown that this index can also provide useful insights. Hence, the ENC should be regarded as a useful alternative index to be considered in conjunction with another index.

With regard to the EPC and the Gini coefficient, they are globally providing similar results. There are however two points that would favour the Gini coefficient. First, the EPC has the disadvantage that it is directly derives from the ENC. If one chooses to rely on two indices among which the ENC, it may be preferable to select two indices that are not directly connected. Second, the statistics for model fit suggest that the Gini coefficient performs better than the EPC in the analyses.

My conclusion on which index should be used for future research is therefore that one should opt for the conjoint use of the ENC and the Gini coefficient, at least up to a point where future data would suggest that one of these indices is superior or that a potential alternative proofs to combine the merits of both indices.

3.5.3. The route ahead

As outlined, the main purpose of this chapter was to test for systematic differences in intra-party outcomes across a wide variety of electoral systems in order to test whether such difference can be attributed to the electoral systems and whether one can identify specific characteristics that account for these differences.

This analysis has the advantage that one can test for these systematic differences without a wide range of different data sources and that it was possible to address the first two research questions without the need to consider the third research question on candidate characteristics. This seemed important in order to be able to disentangle the entire puzzle of this analysis.

The advantages of this analysis based on the ENC, EPC and Gini coefficient do however also represent a disadvantage at the same time. While it has been possible to systematically compare the effects of different electoral systems, the analysis does not provide any indication about the practical repercussions of this for individual candidates. For this reason, the two subsequent chapters will build on the findings from this chapter in order to test for the interaction between electoral systems and candidate characteristics.

Chapter 4

Candidate characteristics and electoral system dynamics

The results from the previous chapter have highlighted that different preferential list electoral systems affect how preferential votes are distributed, and – as a consequence – influence the degree of competitiveness within candidate lists. In so doing, the previous chapter has provided a first set of comparative evidence on the relationship between electoral systems and intra-party competition. This chapter will build on the insights from this analysis and respond to a question that the preceding chapter did not yet address.

While the data from chapter 3 clearly shows that electoral systems affect the competition within candidate lists, the analysis of the three indices does not enable us to infer what these differences mean for the individual prospects of candidates, and more specifically how the electoral system affects these prospects.

Even though, each election possesses its particularities and specific circumstances, scholars have analysed the extent to which certain candidate characteristics affect their potential to attract preferential votes. An underlying idea here is that one can conceptualise candidates as bundles of different characteristics including – among other things – their ideological positions, age, gender or political offices they occupy. These characteristics are known at least to some extent to voters who can use the available information to compare the different candidates in order to select those for which they wish to cast a preferential vote. These characteristics can serve as cues to voters on the candidates' personality traits, their stance on different policy areas or how they would react under certain circumstance (Pedersen et al, 2019; Coffé and von Schoultz, 2020).

Several case studies – and to a lesser extent comparative analyses – have investigated the impact of different characteristics on a candidate’s likelihood of success. The analysed candidate characteristics include examples such as gender (Krook, 2018), incumbency (Nagtzaam, 2019; Karvonen, 2011), ethnicity (Negri, 2018; Lijphart, 2004), age (Maddens et al, 2007) or geographical factors (Arzheimer & Evans, 2012; Jankowski, 2016; Shugart et al, 2005; Tavits, 2010). Finally, some studies (Van Erkel, 2017, Coffé and von Schoultz, 2020) have tried to provide a comprehensive framework that explains why some candidates receive more preferential votes than others²³.

While some analyses have also considered the impact of the electoral systems on the prospects of certain candidates – such as female candidates (Krook, 2018) – there is to best of my knowledge no study that has aimed at analysing the potential interaction between different characteristics of preferential list PR systems and different candidate characteristics in a larger comparative analysis.

As outlined in the theoretical model in chapter 2, the purpose of the present analysis is not to provide a comprehensive framework on which characteristics matter for a candidate’s intra-party success. Instead, the aim is to test whether the relevance of candidate characteristics is conditioned by the specificities of the electoral system. Specifically, this thesis will look at the interaction of electoral systems with four different characteristics: gender, incumbency, ballot position and policy positions. The present chapter will look at the first three of these variables.

As outlined in chapter 2, the importance of these three candidate characteristics justifies this particular choice. Since the full rationales have already been provided in section 2.4, I shall only briefly reiterate these arguments.

With regard to gender the principal reason for discussing its impact is the question of descriptive representation of elected bodies. In fact, the persisting gap in the

²³ An extended discussion on this point is provided in section 2.4 of chapter 2.

representation of women in legislatures²⁴ has given rise to a large body of literature on the question and this thesis aims at understanding whether the specificities of preferential-list PR systems can affect the relevant of gender.

The question of democratic renewal motivates the analysis on electoral systems and incumbency effects. In other words, the question of interest is whether electoral systems affect the extent to which incumbents benefit from an advantage over other candidates.

Finally, the inclusion of ballot order aims at capturing the subconscious effects related to fatigue and complexity of the electoral system. While ballot order is technically speaking not revealing anything about the true qualities of a candidate, existing research that will be considered in more detail in this chapter demonstrates that ballot order can account for a candidate's vote share even in situations where this order is clearly random. The main question with regard to ballot order is whether the magnitude of these effects is conditioned by electoral system characteristics.

This analysis of the interaction between electoral system characteristics and candidate characteristics is divided into five different sections.

The aim of the first two sections is formulating the hypotheses that will be tested in this chapter. The argument builds on the general theoretical model from section 2.4, which will be specified in response to the three candidate characteristics at the centre of this chapter. For this purpose, section 4.1 will briefly review the relevant literature for each of these three candidate characteristics. Subsequently, section 4.2 will briefly present the theoretical reasoning underlying the different interactions between the six electoral system characteristics and the three candidate characteristics considered in this chapter, leading to the formulation of 18 hypotheses on the interaction between these different characteristics.

²⁴ According to the Interparliamentary Union (2020) there are only a handful of national parliaments where women are equally represented. In the national parliaments of EU member states women only constitute 32% of the legislators.

Section 4.3 discusses the data used to test these hypotheses. In addition, some specifications regarding the key variables and the regression models will be provided.

The results of the analysis of this dataset from 15 European cases will be presented in section 4.4. Overall, these results show that there are clearly identifiable interaction effects between certain electoral system characteristics and the three discussed candidate characteristics while other electoral system characteristics do not appear to have an impact.

Finally, the fifth section will discuss the implications of these findings and how they relate to the main purpose of this thesis.

4.1. Candidate characteristics and preferential votes

This section will briefly review the existing literature on the roles of candidate gender, incumbency and ballot order.

4.1.1. Gender

The persisting underrepresentation of women has led to a vast body of literature on female representation. I shall briefly discuss the key arguments relevant to the analysis in this chapter.

One of the central questions in the literature is whether the underrepresentation of women results from a negative bias against female candidates. Nagtzaam (2019: 68) observes that there is no unanimous consent on this question among scholars. A first group of scholars clearly identify a negative effect for women (Fulton, 2014; Fridkin Kahn, 1994; Erzeel & Caluwaerts, 2015²⁵). Fulton (2014) finds, for instance, that a female candidate would need to be perceived more competent than a male candidate in order to obtain the same number of votes. Explanations for this

²⁵ The latter attribute a large part of the disadvantage of female candidates to structural disadvantages, but find that even controlling for those a negative bias would persist for parts of the electorate.

disadvantage include, for instance, media perception of female candidacies (Fridkin Kahn, 1994).

A second group of scholars find no negative effect for female candidates *per se*; according to these scholars lower vote shares for female candidates would find their origins in structural disadvantages that female candidates have. One of these structural disadvantages is the higher share of male incumbents. In fact, Allik (2015) finds no significant effect for gender once one controls for incumbency. Similarly, Smrek (2020) does not identify any disadvantage for female incumbents compared to their male counterparts. Wauters et al (2010) identify a smaller presence of female candidates in the media and smaller campaign budgets as a structural disadvantage for women.

This last example points to the relevance of party support as a crucial structural factor. In fact, Sanches Correa and Souza Chaves (2020) argue that “women have accessed legislatures at lower rates than men, because their candidacies have been presented to voters in a symbolically depreciative manner”. Cunha Silva and Crisp (2020) as well as Sanches Correa and Souza Chaves (2020) identify ballot positions as one of the key ways in which parties could highlight their appreciation or depreciation for female candidates.

Finally, a third group of scholars find that once one controls for all other factors, female candidates actually have an advantage over their male counterparts (Black & Erickson, 2003; Aguilar, Cunow & Desposato, 2015).

Hence, the literature does not provide a conclusive answer with regard to the question of a bias on the basis of candidate gender. Potentially, one explanation for these conflicting findings is that a large proportion of the studies on the fate of female candidates focus on single cases, where cultural values might strongly vary. In fact, Valdini (2012) argues that a bias against female candidates should be more pronounced in countries with strong traditional values.

Another major question that the literature on the representation of women has raised concerns the impact of the electoral system. In fact, Krook argues that “comparative research on gender similarity highlights electoral systems as an important – if not *the* most important – variable explaining cross-national difference in terms of women’s access to elected positions” (Krook, 2018: 175).

One of the key findings in this strand of the literature is that women tend to perform better in PR systems in contrast majoritarian systems (Norris, 2004). One explanation for this is that PR systems have attributes that mitigate a systemic bias against women. In fact, PR systems have higher turnover rates favouring the entry of new candidates including women and the existence of multi-member districts would also incentivise more balanced lists than single-member districts under majoritarian systems (Krook, 2018).

Within the category of PR systems, there exists a body of literature that analyses the differences between closed list systems and preferential list systems (Golder et al. 2017; Jones, 2009). The overall findings of these contributions are however mixed on the question about whether women have a disadvantage when it comes to preferential voting. In fact, some contribution do not see an effect, while others identify either a negative or positive effect for female candidates, while other scholars have argued that the prospects of women are not decided at the voting stage, but rather at the selection process (Krook, 2018).

On the other hand, there are also analyses that suggest that electoral systems and gender have no overall effect (McElroy & Marsh, 2010; Pedersen et al, 2019). Schwindt-Bayer, Malecki and Crisp (2010) find, for instance, in a comparison of the three countries using the Single Transferable Voting System that the performance of women varies. This leads the authors to the conclusion that the effects are country-specific rather than being conditioned by the electoral system. Similarly, Pedersen et al (2019) argue that the neutral positions toward gender observed in

their experimental study may be due to the fact that the study was performed in a region that strongly emphasises gender equality.

The analysis on the interaction between the specificities of preferential-list PR systems and gender will contribute to this discussion in two ways. First, it addresses the more detailed differences within this group of the literature. Second, the comparative analysis allows accounting for differences in terms of gender bias.

4.2.2. Incumbency

The literature arrives at a quasi-unanimous consent that incumbents have an advantage over their non-incumbent co-partisans (Nagtzaam, 2019, Karvonen, 2011, Maddens et al 2007, McElroy & Marsh, 2010). The disagreement among scholars is whether it is incumbency *per se* that motivates voters to cast their vote for an incumbent or whether there are other factors resulting from an incumbency status such as higher visibility that contribute to this difference (Nagtzaam, 2019: 73).

A theoretical argument on a pure incumbency advantage would argue that voters value incumbency for factors such as the incumbents' existing experience. Kirkland and Koppock (2018) argue for instance that political experience is particularly valuable to candidates in situations where no partisan cues are available, i.e. also in situations where voters make intra-party decision.

Brown (2014), on the other hand, argues that voters do not care about incumbency *per se*, but that there are structural advantages from which incumbents benefit. Nagtzaam (2019) cites the enhanced media as one of these potential advantages that could explain such variation.

While addressing this question on what exactly creates this advantage for incumbents is certainly a question that ought to be addressed in order to better understand the causal mechanisms that lead to it, it is not the primary focus of the present analysis. The central question of interest in this thesis is whether the

observed advantage for incumbents is a uniform phenomenon or whether it varies across different electoral systems.

4.2.3. Ballot positions

Since the beginning of the 20th century, one could particularly in the United States observe the emergence of papers that aimed at determining whether a candidate's likelihood of election was dependent on their position on the ballot paper, findings which even led to litigation cases and changes in electoral laws in some areas of the United States.

Approximately 30 years ago, Darcy and McAllister (1990) reviewed the existing literature up to this point and observed that the different studies arrived at different conclusions. In their opinion, this diversity of conclusions is primarily the result of methodological flaws in many of these studies.

Since their review, the studies of ballot order effects have however benefitted from advances in terms of improved theoretical models, more stringent methodologies and an expansion of the considered cases.

The improvements of theory led the literature away from the mere question about whether there are systematic effects resulting from ballot order to questions about how these effects could actually occur. A seminal contribution with this respect is Miller and Krosnick's analysis (1998) that builds on insights from psychological research. This research shows that the order in which different options are presented to a person affect the likelihood of the option that will be ultimately chosen in absence of a clear preference. In a written setting – such as elections – first options are typically preferred, leading to *primacy effects*. However, *recency effects*, i.e. preferences for the last options, can also occur. In other words, ballot order effects are a subconscious effect in situations where voters are indifferent or only have weak preferences.

In this context, Brockington (2003) argues that ballot order effects occur primarily due to the lack of primary information provided from campaigns or acquired

through voter research as well as the absence of sufficient secondary information on the ballot paper that builds on voter stereotypes. Marcinkiewicz and Stegmaier (2015) also adopt a theoretical framework based on the availability of knowledge in arguing that ballot order is used as an important cue that compensates for the lack of knowledge on individual candidates. As voters have no partisan cues at their disposal when casting a preferential vote within a candidate list, one can expect that such systems favour ballot order effects.

In earlier work (Schmit, 2015), I have also argued that the complexity that voters face may also affect ballot order effects, because voters would compensate for the increased intellectual effort by resorting to the subconscious cue.

In terms of methodology, regression analyses have become more thorough and experimental analyses have been embraced to some extent.

Empirically, an important step has been the expansion of cases that are used for these analyses. Most importantly, preferential list PR systems have been progressively included in the analyses, giving rise to studies on cases such as Belgium (Geys & Heyndels, 2003; Van Erkel & Thijssen, 2016), Finland (Villodres, 2003) or Switzerland (Lutz, 2010).

First comparative work has also emerged, including my own analysis on the cases of Luxembourg and Switzerland (Schmit, 2015) and Marcinkiewicz and Stegmaier's (2015) analysis of Poland and the Czech Republic in which they intend to test the impact of compulsory preferential voting. They hypothesise to reinforce ballot order effects. It should however be noted that a potential flaw in their analysis is that the requirement to cast a preferential vote is not the only difference in the electoral system between both countries. A thorough analysis for a larger set of countries is therefore necessary.

4.2. Impact of electoral system characteristics on the relevance of candidate characteristics

In this section, I shall introduce the 18 hypotheses that will be tested in this chapter. Each subsection presents the hypotheses for one of the three candidate characteristics. The arguments presented in this section build on the theoretical arguments outlined in sections 2.3 and 2.4 in chapter 2.

4.2.1. Gender

The main focus of the present analysis is to test whether there is an interaction effect between candidate gender and four characteristics in which preferential list PR systems differ from one another. I shall provide a brief discussion for each of these characteristics. At this analytical stage, it appears plausible that there may be a relationship for the number of votes and negative voting, while the argument for an impact of compulsory preferential voting and *panachage* appears unlikely.

Number of votes - As we have seen in the previous chapter, multiple votes lead to a more equal distribution of votes. As a consequence, it appears plausible that increasing the number of votes will result in a reduction of any effect for a candidate characteristic that either gives candidates an advantage or disadvantage. In other words, if there is a negative or positive bias vis-à-vis female candidates, that effect should decrease as the number of votes increases.

Hypothesis 4.1 (Gender & number of votes): An increase in the number of preferential votes results in a reduction of an effect of gender on a candidate's vote share.

Negative votes - Negative votes provide voters with the possibility to clearly express the rejection of a candidate. Hence, if there is a negative bias against some type of candidate, this should be visible through a systemically higher share of negative votes for this group of candidates. Thus, a potential negative bias against female

candidates would result in a worse electoral performance of women under electoral systems with negative voting.

Hypothesis 4.2 (Gender & negative voting): A negative bias based on gender is reinforced under electoral systems that allow for negative voting.

Compulsory preferential voting – The effect of compulsory preferential voting is that a higher proportion of voters will cast a preferential vote in order to ensure that their ballots are valid. While findings cited in section 2.3 argue suggest that there might be differences between voters who would always cast preferential votes and those who only do so if it is compulsory, the arguments of these resources and proximity models (André et al, 2012) would not explain why there would be an impact on gender. For this reason, I hypothesise that compulsory preferential voting does not affect preferential voting on the basis of gender.

Hypothesis 4.3 (Gender & compulsory preferential voting): Compulsory preferential voting has no direct effect on a candidate's electoral performance on the basis of their gender.

Panachage – The only reason way in which the *panachage* system could have an impact on the role of gender would be via cross-party voters. There does however not seem to be a rationale why cross-party voters would have a different approach to candidates on the basis of gender. For this reason, one should expect that *panachage* does not affect the relevance of gender in the intra-party contest.

Hypothesis 4.4 (Gender & panachage): *Panachage* voting has no direct effect on a candidate's electoral performance on the basis of their gender.

District magnitude – While district magnitude is associated with higher shares of elected women (Matland, 1998), it appears that this effect results from the higher probability of women of having a chance of being elected when the average number of candidates per party increases. In other words, it seems unlikely that a change in voting behaviour would result from district magnitude. Hence, the impact of district magnitude on vote shares on the basis of gender should be neutral.

Hypothesis 4.5 (Gender & District magnitude): Variations in district magnitude have not direct effect on a candidate's intra-party vote share on the basis of their gender

Open lists – While Golder et al (2017) argue that women benefit from more open lists, it is not clear whether this change results from an effect on voting behaviour which would affects a candidate's vote share. For this reason, I do not expect that the distinction between flexible and open lists interacts with gender.

Hypothesis 4.6 (Gender & open lists): The extent to which voters can influence intra-party rankings does not influence voter behaviour in such a way that it would influence the prospects of candidates based on their gender.

4.2.2 Incumbency

As discussed in the preceding section, incumbency advantages have been attributed to different factors, which all have in common that incumbents should benefit from an enhanced visibility. This visibility may have different effects for different electoral system characteristics.

Number of votes - In the previous chapter, we have seen that increasing the number of votes leads to a more equal distribution of preferential votes within the candidate list. Since incumbents are among the most visible candidates on the candidate lists, it can be assumed that they attract more votes in a setting where the number of available votes is scarce. When moving to systems with more votes, other candidates also receive more votes, which should translate into a narrowing gap between incumbents and non-incumbents.

Hypothesis 4.7 (incumbency/number of votes): The incumbency advantage is smaller in electoral systems where voters can express multiple preferential votes.

Compulsory preferential voting - The central assumption for compulsory preferential voting in our model is that this requirement leads to a higher number of voters with

weak intra-party preferences casting a preferential vote. As a consequence, certain cues can be expected to play a more significant role, among which one should count incumbency according to Kirkland and Koppock's (2018) argument. Hence, compulsory preferential voting should improve the situation of incumbents.

Hypothesis 4.8 (incumbency/compulsory preferential voting):

Incumbents perform better under electoral systems where preferential voting is compulsory compared to systems with optional preferential voting.

Negative votes - Negative votes provide voters with the opportunity to specifically punish certain candidates. This also entails the possibility of clearly expressing their rejection of disappointing incumbents, who can consequently be expected to perform worse under systems where this option is available. In addition the enhanced visibility may also increase the probability of being considered for negative votes.

Hypothesis 4.9 (incumbency/negative votes): Incumbent candidates perform worse if voters have the possibility of expressing negative votes.

Panachage - *Panachage* systems broaden the available choice to voters because they are not restricted to a single party. As a consequence, they face a larger number of potential candidates, which creates an additional degree of complexity. The role of cues such as incumbency may therefore become more important. Furthermore, there is the possibility that voters may simply wish to express a more complex inter-party preference by casting votes for a coalition of lists without any specific intra-party preferences in mind. Casting votes for the respective parties incumbents may be an easy strategy to pursue for these voters. All of these effects are expected to result in a stronger advantage for incumbents under *panachage* systems.

Hypothesis 4.10 (incumbency/panachage): The advantage for incumbent candidates is stronger under electoral systems that allow spreading votes across different party lists.

Open vs. flexible lists - Passarelli (2020) argues that more open electoral systems should see higher degrees of turnover. One must however question whether such effects result from an effect of this electoral system characteristic on preferential voting or whether this effect is connected to the relative role of candidate placement on the ballot. In fact, the lower turnover rates may simply be a reflection of the weight of parties on candidate rankings under flexible list systems compared to fully open setting. At this stage, the hypothesis will nonetheless be tested in order to assess whether the observed variation in turnover rates is really due to the variance in the relative impact of voters and parties on final candidate rankings.

Hypothesis 4.11 (incumbency/degree of openness): The more open an electoral system is, the smaller the advantage for incumbents becomes in receiving preferential votes.

District magnitude - Larger district magnitude can be expected to lead to more incumbents being on a same list. However it does not seem likely that such a variation in district magnitude would directly impact the advantage that incumbents have

Hypothesis 4.12 (incumbency/district magnitude): Variations in district magnitude do not affect the advantage of incumbent candidates.

4.2.3. Ballot order

If one considers ballot order effects to emerge from a subconscious tendency to favour certain options merely due to the order in which one considers them as Krosnick et al (1998) argue, one can identify four factors that would reinforce ballot order effects at the intra-party level: (1) the absence of clear intra-party preferences, (2) fatigue due to the length of the required task, (3) the complexity of the mechanism of expressing votes and (4) the lack of important information. In fact each of these factors, decreases the potential to effectively differentiate between the candidates on a list and imposes a higher cost on voters in doing so. Each of the five electoral system characteristics identified in this thesis can be connected to at

least one of these reinforcing factors, allowing for the formulation of hypotheses on the relationship between these characteristics and the relative strength of ballot order effects.

Number of votes - While a higher number of votes leads to a more equal distribution of preferential votes across a list, this may not – as one might intuitively assume - necessarily lead to a reduction of ballot order effects. In fact, increasing the number of votes imposes a more complex task on a voter (Müller & Jankowski, 2019). While picking a first choice that one wishes to support might be relatively easy, picking a fifth, sixth or seventh choice may be more difficult for the voter, meaning that a voter could be guided more by subconscious factors such as ballot order effects. Furthermore, casting more votes is a lengthier task, leading to an increasing degree of fatigue. For these reasons, I hypothesise that multi-vote electoral systems should lead to a greater impact of ballot order.

Hypothesis 4.13 (ballot order effects / number of votes): The order in which candidates appear on the ballot has a greater impact on the number of preferential votes candidates receive in electoral systems where a voter can cast multiple votes.

Compulsory preferential voting - As previously outlined, the obligation to cast a preferential vote in order for a ballot to be valid should primarily be associated with a larger number of preferential votes being cast without a clear intra-party preference. Such undecided voters can be expected to rely more on cues or subconscious effects, included ballot order. Consequently, the impact of ballot order should be larger if casting a preferential vote is compulsory.

Hypothesis 4.14 (ballot order effects / compulsory preferential voting): The order in which candidates appear on the ballot has a greater impact on the number of preferential votes candidates receive in electoral systems where a voter must cast a preferential votes.

Panachage - Removing the restriction on the voter to cast votes only within a single list increases the field of potential candidates for which a candidate can vote. This increase in choice increases the burden on voters who would need to compare more candidates in order to cast their votes with the same amount of research on each individual candidate. Using heuristics and relying on subconscious effects therefore becomes a more viable option under these systems. In addition, it may well be that a proportion of voters may wish to express a preference for two or three parties without necessarily having particular intra-party preferences within the relevant candidate lists. Since casting preferential votes is however the only option to split votes for such a set of parties one intends to support, the viable path would be to simply rely on subconscious ballot order effects instead of investing research in a more elaborate intra-party choice.

Hypothesis 4.15 (ballot order effects/panachage): The order in which candidates appear on the ballot has a greater impact on the number of preferential votes candidates receive in electoral systems where a voter can spread preferential votes across different parties.

District magnitude - Like the possibility of *panachage*, an increased district magnitude has a widening effect on the potential number of candidates that voters need to compare. In addition to an increase of the number of candidates on the list under most electoral systems, an increased district magnitude also means that more candidates have a chance of getting into parliament opening up the field of potential contenders. With longer lists, the voting task becomes more tedious and collecting the necessary information on candidates leads to a more demanding effort. As a consequence, one should expect to see stronger ballot order effects in larger electoral districts.

Hypothesis 4.16 (ballot order effects/district magnitude): The order in which candidates appear on the ballot has a greater impact on the number of preferential votes candidates receive in larger electoral districts.

Negative voting - Giving voters the opportunity to cast not only votes for a candidate but also against a candidate can be interpreted as a more complex voting task. In line with the developed argument so far, one would therefore need to conclude that negative voting should reinforce ballot order effects. On the other hand, one should also consider the potential that positive and negative votes may cancel each other out. In fact, ballot order effect may function in a similar way for positive and negative votes, resulting a neutral impact of negative voting on the magnitude of ballot order effects. For this reason, it is at this stage hypothesised that negative voting does neither increase nor decrease the impact of ballot order.

Hypothesis 4.17 (ballot order effects/negative votes): The impact of the order in which candidates appear on the ballot on the number of preferential votes candidates receive is not affected by the possibility of casting negative votes.

Degree of openness - There is no indication as to why the degree of openness of an electoral system should affect the role of ballot order effects.

Hypothesis 4.18 (ballot order effects/list openness): The impact of the order in which candidates appear on the ballot on the number of preferential votes candidates receive is not affected by the relative weight of parties and voters over final rankings.

4.3. Data and methodology

4.3.1. Data

To test the different hypotheses on the interaction between candidate characteristics and electoral system characteristics, we rely on the dataset with election data from 15 European cases that has already been presented in chapter 2. Table 4.3 summarises the data that has been collected.

Table 4.1 – Summary of the data by country

Country	Group ²⁶	Openness	Election year	N candidates
Austria	1	Flexible	2019	6345
Belgium	3	Flexible	2019	1412
Bulgaria	1	Flexible	2017	1802
Croatia	1	Flexible	2016	2282
Czech Republic	3	Flexible	2017	7521
Denmark	1	Open	2019	879
Estonia	2	Open	2019	1073
Finland	2	Open	2015	2122
Latvia	5	Flexible	2018	1459
Lithuania	3	Flexible	2016	1386
Luxembourg	4	Open	2018	547
Netherlands	2	Flexible	2017	875
Poland	2	Open	2019	4566
Slovakia	3	Flexible	2020	896
Switzerland	4	Open	2019	4630
Total				37795

As for the data in chapter 3, one can observe significant differences in the number of candidates by country. An analysis of the data suggest that the main determinants for these differences are the size of the assembly and the number of parties standing for election

For each candidate in the dataset a set of variables has been coded. These variables include information on the election, the candidate's performance, personal characteristics and other variables.

4.3.2. Dependent variable

The aim of the analysis is to test the impact of candidate characteristics and the electoral system on candidate performance. To measure candidate performance three main variables could be used.

The first potential variable would be whether a candidate has been elected. Such a variable would however be a combined function of the party's inter-party performance and the candidate's intra-party performance, while the analysis is exclusively concerned with the intra-party dimension. In addition, using such a variable completely neglects what happens in small parties that do not win any

²⁶ The detail on the different groups is explained in section 2.5

seats; this information may however also provide important insights into the systemic effects of the electoral system.

The second possibility would be to use the candidates' intra-party rankings based on the tally of their preferential votes. Unlike the first variable this would allow assessing all party lists. On the other hand, the problem with using such an ordinal variable is that it does not sufficiently consider the magnitude of the difference between two candidates. In fact, this variable cannot tell us whether the gap between two candidates ranked, for instance, in place 3 and 4 is a 1000 or 2 preferential votes. Final rankings that emerge from small margins might actually be rather incidental. Consequently, such an ordinal variable would not provide a sufficiently differentiated picture of intra-party competition within a candidate list.

For this analysis, I therefore opt for the third option, a variable taking into account the number of preferential votes a candidate has received. More specifically, the dependent variable for the analysis will be a candidate's intra-party vote share, i.e. a continuous number that expresses a candidate's proportion of preferential votes in terms of all preferential votes collected on a list. This vote share is determined by applying the following formula:

$$s_{kj} = \frac{v_{kj}}{\sum_{i=1}^n v_{ij}}$$

where s_{kj} is the intra-party vote share of candidate k on list j
 v_{kj} is the number of preferential votes cast for candidate k on list j
 v_{ij} is the number of preferential votes cast for any candidate i on list j

An analysis of the distribution of this variable across all cases reveals that it is positively skewed across all settings (with the exception of electoral districts with a district magnitude of 2). This positive skewedness indicates a small proportion of candidates receives a large proportion of the preferential votes allocated to a list

while large parts of the list share a small proportion of the votes. This finding corresponds to the findings in the preceding chapter where the Gini coefficients have already pointed at an unequal distribution of preferential votes.

However, such a positively skewed dependent variable is problematic in OLS regression models, because it risks leading to a violation of the condition that standard errors must be normally distributed (Agresti&Finley, 2014). For this reason, the logged values candidate intra-party vote shares will be used as the independent variable:

$$ls_{kj} = \log(s_{kj})$$

In fact, a comparison of s_{kj} and ls_{kj} has shown that the distribution of ls_{kj} is much closer to a normal distribution for almost all electoral districts in the 15 cases that have been considered in the present analysis. It should be highlighted that other analyses have also adopted the same specification of the dependent variable (for instance Van Erkel, 2017).

4.3.3. Independent variables (electoral system characteristics)

The variables for the electoral system characteristics are the same as in the analysis of chapter 3. The different electoral system characteristics are discussed in more detail in chapter 2.

The number of votes is coded by distinguishing three different groups: (1) cases where voters have a single vote, (2) cases where voters have multiple votes, but where this number is smaller than district magnitude and (3) cases where the number of votes corresponds to district magnitude

For compulsory preferential voting, negative voting and *panachage*, a dummy variable identifies cases where these options are available.

To account for differences in the degree of openness a distinction between flexible- and open-list systems is made. Ideally, there would be a sub-division of flexible-list systems, but there is currently no uniform criterion on how to rank the different cases that would not be contentious (Renwick & Pilet, 2016: 26-27).

Finally, district magnitude is coded by taking by indicating the number of candidates to be elected in the district.

4.3.4. Independent variables (candidate characteristics)

As outlined in the preceding section, this analysis tests potential interaction effects between the electoral system and three different candidate characteristics.

A dummy variable for female candidate accounts for candidate gender. Hence, potential interaction effects inform us about the variation between male and female candidates.

To account for national incumbency, a variable with three different categories differentiating between legislators, members of the executive and candidates without a national incumbency status has been coded.

Finally, a variable informs about the place of candidates on their respective lists. Since I have observed a non-linear relationship between ballot order and candidate performance in earlier work (Schmit, 2015), quadratic terms will be included in the models.

4.3.5. Control variables

Different control variables are included in the analysis to control for variation that might distort the result.

The first of these is a dummy variable for candidates that are officially named the leaders of their lists. This controls for the enhanced visibility that these candidates have.

Secondly, the models control for other types of incumbency by identifying members of regional legislatures and executives as well as the European parliament. Please note that this variable could only be coded if the relevant information was provided by the authorities or if it could easily be retrieved otherwise.

Finally, a control variable takes into account the number of candidates on the list.

4.3.6. Method

Since the dependent variable is a continuous variable, I will be using OLS regression models to test for existence of an interaction effect between electoral system and candidate characteristics. More specifically, I shall produce different models that predict a candidate's logged vote share in terms of their characteristics. As discussed in chapter 3, the data is clustered in electoral district and countries. For this reason clustered standard errors by country will be used and variables controlling for variation at the district level, among which district magnitude, are included in the models. As I have explained in chapter 3, this should sufficiently account for the clustering of the data. In addition, existing studies on similar questions have relied on a similar approach (Van Erkel, 2017).

4.4. Results

For the presentation of the results, I shall proceed in three steps, looking at the interactions between electoral system characteristics and gender, incumbency as well as ballot position respectively. Additional preliminary test models as well as models for each country in the sample are available in the appendix for this chapter.

Overall, the estimates for all control variables and for the model fit statistics remain remarkably stable across the different analyses. Generally, R^2 is high for all models, suggesting that the used variables perform well in explaining variance.

4.4.1. Electoral systems and female candidates

Three different models test the relationship between candidate gender and the electoral system. Model 1 is based on the entire sample of 15 countries and tests the hypotheses on the number of votes, open lists as well as district magnitude.

Model 2 considers only cases where a single vote can be allocated and tests the impact of compulsory preferential voting. Model 3 considers the four cases where

the number of votes corresponds to the respective district magnitude and tests the hypotheses on *panachage* and negative voting. The estimates of these three models are represented in table 4.2.

These regression models contain each time the dummy variable for female candidates as well as the interaction effect between this dummy variable and the different electoral system characteristics. Assessing the impact of an electoral system characteristic on gender therefore involves analysing whether this interaction term reinforces the effect for female candidates, neutralises it or turns the result into its opposite.

When controlling for all of the variables included in model 1, this model predicts that female candidates obtain a statistically significantly smaller vote share compared to a male candidate. This model tests three different hypotheses.

First, hypothesis 4.1 predicts that any effect related to gender should be reduced due to the equalising effect of a higher number of preferential votes. As the general estimate for female candidates is negative, the estimates for the two multivote systems (systems with a small number of voter and systems where district magnitude and the number of votes coincide) should be positive and roughly of the same magnitude as that general estimate.

For electoral systems with a small number of votes the coefficient is indeed positive (point estimate: .128), it is however not significant at the 95% confidence interval. In other words, we cannot infer from the model this increase of votes has an impact. For the third category in which the number of votes corresponds to district magnitude, this effect of this interaction term is positive and statistically significant, meaning that female candidates obtain higher vote shares for this group. One might raise the question about whether this effect is large enough to lead to an advantage over female candidates. The point estimates (-.100 for the overall effect for female candidate and .166 for the interaction term) might suggest this one should however not forget the confidence intervals. Taking these into

considerations, the conclusion would rather be that the higher number of votes neutralises the negative effect of gender.

In other words, the latter interaction term provides evidence in support of the argument presented in hypothesis 4.1.

Hypothesis 4.6 predicts that the distinction between flexible and open lists does not affect the situation of female candidates. The estimate for the interaction effect between female candidates and open lists confirms this initial expectation; the negative estimate is not significant at the benchmark 95% confidence level. In other words, the question whether candidates solely influence intra-party rankings or whether parties also have an influence does not affect preferential voting based on gender.

At this stage it is important to make a significant distinction when interpreting these results. This analysis can only capture an effect resulting from voting behaviour. This does however not exclude the possibility that there are differences in the representation of men and women between flexible and open lists due to impact that parties have under flexible lists. The results in this analysis only suggest that a potential systematic difference finds its origins in the behaviour of parties rather than that of the electorate.

With regard to the interaction between district magnitude and female representation, hypothesis 4.5 predicts that changes in district magnitude do not translate into changes in the vote share of female candidates. In other words, the expectation is that one should observe no statistically significant effect for this interaction term. The results for this interaction term confirm this hypothesis.

Table 4.2 – OLS regression models (with clustered standard errors) for the interaction between electoral systems and gender

	Model 1	Model 2	Model 3
<u>Main IV and interactions</u>			
Female candidate	-.110* (.049)	-.099 (.062)	.152** (.006)
Female candidate & number of votes			
- small N votes	.128 (.071)		
- N votes = district magnitude	.166* (.069)		
Female candidate & comp. pref. voting		.025 (.125)	
Female candidate & panachage			-.106 (.044)
Female candidate & negative voting			-.206** (.006)
Female candidate & open lists	-.024 (.069)		
Female candidate & district magn.	.001 (.001)		
<u>Elec. system characteristics</u>			
Number of votes			
- Small number of votes	.137* (.063)		
- N votes = dist. magnitude	.357** (.063)		
Compulsory pref. Votes	.646* (.241)	-.796* (.244)	
Panachage	-.150 (.178)		-227* (.043)
Negative votes	-.233** (.023)		-.032 (.017)
Open lists	.391* (.156)	.551* (.183)	
District magnitude	-.007** (.002)	-.006* (.002)	.003 (.009)
<u>Candidate characteristics</u>			
List leader	1.406** (.202)	1.555** (.303)	.812** (.091)
National incumbency			
- National legislator	.778** (.102)	.863** (.105)	.402* (.072)
- National executive	.987** (.229)	1.267** (.261)	.277 (.124)
Regional incumbency			
- Regional legislator	.115 (.113)	.316** (.078)	.087 (.072)
- Regional executive	.191* (.467)	.294* (.089)	.578** (.063)
Member of EP	1.035** (.318)	1.275* (.430)	.285 (.324)
List Place	-.051** (.000)	-.056** (.010)	-.122** (.008)
List Place squared	.000** (.000)	.000** (.000)	.003** (.000)
<u>Other control variables</u>			
N of candidates on list	-.004 (.002)	-.002* (.001)	-.046** (.007)
Intercept	1.785** (.082)	1.757** (.114)	2.970** (.048)
Observations	37416	19726	8001
R ²	.701	.661	.699

* p<.05; **p<.01, (/) clustered standard error

As for the previous interaction, one should also stress an important distinction for the connection between district magnitude and female representation. These results show that increasing district magnitude does not affect the vote shares of female candidates, it may however be possible – as scholars cited in section 4.1 suggest – that female candidates benefit from larger districts. These results merely say that such an effect does not result from a difference in voting behaviour.

While making preferential voting compulsory may benefit certain candidates, hypothesis 4.3 does not predict that such a difference between cases with optional and compulsory preferential voting should be observed on the basis of candidate gender. While model 2 predicts that the average vote share of candidates decreases significantly (point estimate: $-.796$), the results for the interaction term for female candidates under compulsory preferential voting are not statistically significant. In other words, the results do not point at a difference in the prospects of female candidates when preferential voting is made compulsory.

Hence, the results correspond to the expectation of the hypothesis.

With regard to *panachage*, hypothesis 4.4 posits that allowing voters to express preferential votes across different lists has no impact on the electoral prospects of female candidates. The results of model 3 confirm this, as the results for the interaction gender and *panachage* are not statistically significant. A closer look at the results reveals that this non-significant result may find its origins in the different findings for Luxembourg and Switzerland. According to the country-specific models in the appendix, there is a disadvantage for female candidates in Luxembourg while female candidates in Switzerland have a small advantage over their male counterparts. The overall conclusion of this is that *panachage* does not affect a candidate's electoral performance on the grounds of gender.

Finally, hypothesis 4.2 expressed the expectation that negative voting should reinforce any potential gender biases. Model 3 finds a negative and statistically significant result for the interaction between negative voting and being a female

candidate. The question to be answered is whether this finding is pointing at the expected direction or whether the finding indicates the opposite effect. Based on model three, where the coefficient for female candidates is positive, one might infer that the results disprove the expectation of hypothesis 4.2. It would however be premature to arrive at this conclusion, because one would make an inference based on a coefficient, which contains the effect for multiple preferential votes. As we have seen earlier, increasing the number of votes turns the direction of a gender bias toward better results for female candidates. I would therefore suggest that the effect of being a female candidate for the entire sample of 15 countries constitutes a more accurate benchmark. Here the effect is negative, suggesting that there might be a negative bias. Since negative voting worsens the prospects of women, it appears justifiable to consider the results to be in line with the expectation of hypothesis 4.2.

The theoretical expectations on potential interaction effects between gender and electoral system characteristics were rather sceptical about the potential of most characteristics to affect the prospects of women in terms of their preferential vote shares. In fact, only the number of votes and negative voting have been hypothesised to be relevant. The findings in this subsection fully support these expectations as the effects for these the relevant interaction terms point in the expected directions while the effects for the interactions between gender and the four remaining characteristics are not significant at the 95% confidence level.

4.3.2. Electoral systems and national incumbency

The presentation of the results for the interaction effects between the electoral system and incumbency follows the structure of the preceding analysis in terms of the models and the hypotheses that they test.

As a preliminary remark, one should note that the estimates not affected by the inclusion of the respective interaction terms remain remarkably stable across the models and that the values for R^2 are high across all of the models.

All models show that legislators obtain a statistically significantly higher vote share compared to other candidate groups. In model 6, where only cases in which the number of votes corresponds district magnitude corresponds are considered, the advantage is somewhat smaller providing first indications regarding hypothesis 4.7. For members of the executive, the coefficients are similarly higher, due to higher standard errors, the estimates are however not significant for models 4 and 5.

According to hypothesis 4.7 increasing the number of votes should decrease potential incumbency advantages due to the equalising effect on intra-party competition of such an increase. As the coefficients for the effect of incumbency are positive, the coefficients for the interaction effect of incumbency status and the two multiple vote systems should be negative according to the hypothesis. For legislators, the coefficients for both multivote systems are indeed negative; however only the results for the category where the number of votes and district magnitude coincide are statistically significant. The same effects can be observed for members of the executive.

The results of the analysis provide additional evidence that this diminishing incumbency advantage results from an overall increase of the average vote share under these two systems, as the positive and statistically significant coefficients for the impact of these two multivote categories demonstrate. The results therefore provide evidence in support of hypothesis 4.7.

On the impact of open lists hypothesis 4.8 states that the more open lists are, the more the advantage of incumbency should decrease. The results for the interaction effect between open lists and incumbency status are however not significant at the 95% confidence level. It is therefore not possible to reject the null hypothesis and this hypothesis has to be rejected.

Table 4.3 – OLS regression models (with clustered standard errors) for the interaction between electoral systems and incumbency

	Model 4	Model 5	Model 6
<u>Main IV and interactions</u>			
National legislator	.939** (.194)	.707** (.174)	.205** (.031)
Legislator& number of votes			
- Legislator + small N votes	-.406 (.207)		
- Legislator + N votes=DM	-.633** (.113)		
Legislator and comp. pref. voting		.310 (.172)	
Legislator and <i>panachage</i>			.264* (.064)
Legislator and negative voting			.207** (.025)
Legislator and open lists	.186 (.149)		
Legislator and district magnitude	-.003 (.003)		
National executive	1.442 (.727)	1.043 (.556)	.229* (.072)
Executive & number of votes			
- Executive + small N votes	-.663 (.450)		
- Executive + N votes=DM	-1.497** (.457)		
Executive and comp. pref. voting		.457 (.568)	
Executive and panachage			-.354** (.056)
Executive and negative voting			.334** (.041)
Executive and open lists	-.072 (.547)		
Executive and district magnitude	-.000 (.005)		
<u>Elec. system characteristics</u>			
Number of votes			
- <i>Small number of votes</i>	.202** (.041)		
- <i>N votes = dist. magnitude</i>	.480** (.050)		
Compulsory pref. Votes	-.649* (.242)	-.825* (.245)	
Panachage	-.158 (.161)		.165 (.059)
Negative votes	-.249** (.021)		-.063 (.022)
Open lists	.365* (.136)	.562 (.186)	
District magnitude	-.006** (.002)	-.006* (.002)	.003 (.009)
<u>Candidate characteristics</u>			
List leader	1.384** (.178)	1.523** (.284)	.825** (.100)
Female candidate	-.030** (.046)	-.088 (.060)	.050 (.046)
Regional incumbency			
- Regional legislator	.099 (.108)	.304** (.069)	.088 (.071)
- Regional executive	.478* (.178)	.341* (.119)	.579** (.059)
Member of EP	1.025** (.336)	1.267* (.422)	.294 (.332)
List Place	-.052** (.006)	-.057** (.010)	-.121** (.008)

List Place squared	.000** (.000)	.000** (.000)	-.003** (.000)
Other control variables			
N of candidates on list	-.003 (.002)	-.002* (.001)	-.046** (.007)
Intercept	1.741** (.081)	1.765** (.119)	3.029** (.048)
Observations	37416	19726	8001
R ²	.702	.662	.699

* p<.05; **p<.01, (.) clustered standard error

As for the impact of gender, it is important to emphasise how one should interpret these results. In fact, the regression models estimate the impact of the different electoral system characteristics on a candidate's intra-party vote share. The results show that the distinction between flexible and open lists does not influence voting behaviour. Under flexible lists, this vote share is however not solely decisive over a candidate, because party rankings are also partially affecting intra-party results. It would therefore be possible that in the final results there are substantial differences between flexible and open lists with regard to the incumbents' likelihood of re-election. The present analysis can only inform us that such a distinction purely results from the choices of parties and not from an effect on voting behaviour.

According to hypothesis 4.12, variations in district magnitude should not lead to any changes in the relative advantage of incumbents. The results in model 4 correspond to this hypothesis, because (1) the point estimate is virtually 0 and (2) because the results are not statistically significant at the 95% confidence level. Hence, one needs to conclude that district magnitude does not affect the incumbency advantage. These findings appear to be completely logical since increasing district magnitude is typically synonymous with a higher number of incumbents on the ballot²⁷. Changes in district magnitude would thus not distort

²⁷ This does not mean that this relationship is completely linear. In fact, in cases where a strict separation between cabinet membership and membership in the legislature exists, there may be more incumbents on the ballot than there are seats to be allocated. Furthermore, not every incumbent may wish to stand for re-election. Hence, there may be a strong positive correlation, but the number of incumbents and district magnitude do not necessarily completely match.

the ratio between incumbents and non-incumbents when district magnitude varies. Hence, there is no reason why the relative importance of incumbents would change. Hypothesis 4.8 posits that making preferential voting compulsory results in a reinforcement of the incumbency advantage, because the value of incumbency as a cue is reinforced. While model 5 estimates a positive effect for incumbents under compulsory preferential voting, the results do not fulfil the necessary criteria in terms of statistical significance. In other words, the null-hypothesis cannot be rejected and based on these results one cannot infer that there is a significant difference for incumbents under optional and compulsory preferential voting. As for the results for candidate gender, the model shows that the average candidate's vote share is significantly smaller; however the data does not support the hypothesis that incumbents would benefit from this in obtaining higher vote shares. Accordingly, hypothesis 4.8 needs to be rejected.

For the *panachage* system, hypothesis 4.10 argues that the possibility to spread votes across different party lists should benefit incumbents compared to their non-incumbents counter-parts. For legislators the results of model 6 yield in fact a positive and statistically significant result. In other words, incumbent legislators benefit from the possibility of voting across multiple lists.

For members of the executive, on the other hand, the results are negative and statistically significant. In other words, the results suggest that incumbent ministers are worse off under *panachage* systems. On the basis of the data, one would thus need to conclude that hypothesis 4.10 needs to be rejected for members of the executive. In this particular instance, it may however be useful to first consider a particularity in the data before categorically arriving at this conclusion. In fact, it may be possible that particular circumstances at the 2018 Luxembourg elections might skew the data. Due to the particularities of the Swiss political system, there are no incumbent ministers standing for election in Switzerland. Incumbent ministers for the *panachage* system do therefore consist exclusively of

the 18 members of the executive standing for election. A closer look at the data from Luxembourg reveals that particularly three ministers performed relatively poorly at the last election compared to other cabinet members who ended up consistently in the top positions of their lists. While additional data would need to be analysed to arrive at a final verdict on this point, it appears appropriate to treat the data with caution at this stage.

For negative voting, hypothesis 4.9 states that incumbents suffer from a disadvantage due to the higher visibility of incumbents, which might increase their likelihood of receiving negative votes. The results of model 6 do however yield the opposite effects. In fact, both legislators and ministers are predicted to benefit from their incumbency status.

It appears therefore that the initial suppositions underlying negative voting are wrong. While this needs further analysis, the results suggest that incumbents are not more likely to attract negative votes, which would reduce their advantage in the intra-party contest. Hence, while the original hypothesis needs to be rejected, this does not imply that the presence of negative votes has no impact on the vote shares of incumbents.

To sum up, the results on the interaction between incumbency and electoral system characteristics confirm the initial arguments for three out of the six electoral system characteristics. Variations in the number of votes reduce the advantage of incumbents while *panachage* and negative votes reinforce it. District magnitude, open lists and compulsory preferential voting have no impact.

4.4.3. Electoral systems and ballot order effects

A final set of regression models analyses the relationship between the order in which candidates appear on the ballot and the specificities of the electoral system. For this interaction, six more specific hypotheses had been formulated. According to these hypotheses, one should expect that increasing the number of votes, making preferential voting compulsory, introducing *panachage* and increasing district

magnitude should increase the magnitude of these effects. Negative voting and open lists, on the other hand, are expected to have no effect. The approach for this set of empirical tests follows the structure of the previous two sub-sections. The models are represented in table 4.4. Since the models include quadratic terms for the dependent variable, the marginal effects for each interaction have also been plotted in graph 4.1 in order to facilitate the interpretation of the results.

For this particular analysis, there was a potential risk that any significant result for an interaction term might have resulted from an interaction with another variable. In fact, lead candidates are typically in the first positions of the ballot and this might create a distortion of the interaction effects for ballot order. For this reason, the models were also run with interaction terms for list leadership. These interaction terms have however yielded little results and they have not affected the significance nor magnitude of the interaction terms for ballot order. Due to their limited value, they have subsequently been removed from the models.

Regarding the interaction between ballot order and the number of preferential votes that can be cast, hypothesis 4.13 posits that increasing the number of votes results in stronger ballot order effects. The results for this interaction show a more nuanced picture. For electoral systems where a small number of votes can be cast there is no substantive difference compared to electoral systems with a single vote. For electoral systems where district magnitude defines the number of votes the model predicts that increasing the number of votes affects the shape of ballot order effects. In fact, the estimates for positions on the top of the ballot do not vary compared to the other electoral system types; the element that changes is that candidates toward the bottom of the list have higher predicted vote shares compared to those in the middle. In other words, the increase in the number of votes appears to reinforce recency effects.

Table 4.4 – OLS regression models for the interaction between electoral systems and ballot order

	Model 7	Model 8	Model 9
<u>Main IV and interactions</u>			
Ballot position	-.166** (.014)	-.049** (.004)	-.160** (.007)
Ballot position & Nvotes			
- Small N votes	.024 (.014)		
- N votes=DM	.005 (.018)		
Ballot position & comp. pref. voting		-.084** (.019)	
Ballot position & panachage			.037* (.011)
Ballot position & negative voting			.026** (.004)
Ballot position & open lists	.021* (.009)		
Ballot position & district magn.	.001** (.000)		
List Place squared	.002** (.000)	.000** (.000)	.005** (.000)
Ballot position ² & Nvotes			
- Small N votes	-.000* (.000)		
- N votes=DM	.001** (.000)		
Ballot position ² & comp. pref. voting		.001* (.000)	
Ballot position ² & panachage			-.002** (.000)
Ballot position ² & negative voting			-.002** (.000)
Ballot position ² & open lists	-.000** (.000)		
Ballot position ² & district magn.	-.000** (.000)		
<u>Elec. system characteristics</u>			
Number of votes			
- Small number of votes	.196 (.147)		
- N votes = dist. magnitude	.308* (.118)		
Compulsory pref. Votes		.046 (.179)	
Panachage			.088** (.070)
Negative votes			-.036** (.034)
Open lists	.068 (.096)	.449** (.092)	
District magnitude	-.017** (.002)	-.006** (.001)	.002 (.009)
<u>Candidate characteristics</u>			
List leader		1.301** (.185)	.751** (.086)
Female candidate	-.000 (.038)	-.059 (.060)	.050 (.045)
National incumbency			
- National legislator	.601** (.095)	.788** (.120)	.389* (.082)
- National executive	.932** (.250)	1.242** (.284)	.282 (.103)
Regional incumbency			
- Regional legislator	.123 (.096)	.263** (.036)	.080 (.063)

- Regional executive	.611** (.041)	.280** (.061)	.576** (.058)
Member of EP	1.004* (.437)	1.395* (.482)	.288 (.333)
Other control variables			
N of candidates on list	-.004* (.002)	-.003** (.001)	-.045** (.007)
Intercept	2.600** (.094)	1.700** (.087)	3.111** (.084)
Observations	37416	19726	8001
R ²	.754	.679	.700

* p<.05; **p<.01, (.) clustered standard error

This observation raises the question on the potential reasons for such an effect. Since ballot order effects are primarily a subconscious effect, one would need to trace the cognitive process when voters read ballot papers to completely understand the effects that occur. One potential explanation may be however that bottom candidates benefit from “leftover” votes that voters have not yet allocated and therefore cast for the remaining candidates toward the list bottom. Despite the need for further research, these results are conclusive in so far as they show a clear difference in the nature of ballot order effects based on the number of votes.

With regard to the distinction between open and flexible lists, hypothesis 4.18 states that this distinction should have not impact on ballot order effects. The estimates for the interaction terms do however show a statistically significant interaction terms for the normal and the quadratic terms of ballot order. In both instances, the effect of ballot order is reduced according to these estimates. As both coefficients are affected, one needs to consider the overall effects in order to assess the impact of these changes. Taking into consideration the confidence intervals, these slight changes in the coefficients do however no yield any statistically significant difference between open and flexible lists.

With respect to district magnitude, hypothesis 4.16 states that an increase in district magnitude should lead to stronger ballot order effects. The results for the corresponding interaction effects do however suggest that increases in district magnitude reduce the role of ballot order. As district magnitude affects the average vote shares of candidates, there was a risk that the results the nature of the

dependent variable could be problematic for this particular interaction effect. For this reason, an ordered logistic regression with the same model specification was run to check whether the results match. These results had indeed shown that the results match, so that a problem with the OLS model could be excluded. As the logit model does essentially contain the same information as the OLS model it has not been kept in the analysis.

Hence, on the basis of these results, one needs to reject hypothesis 4.16.

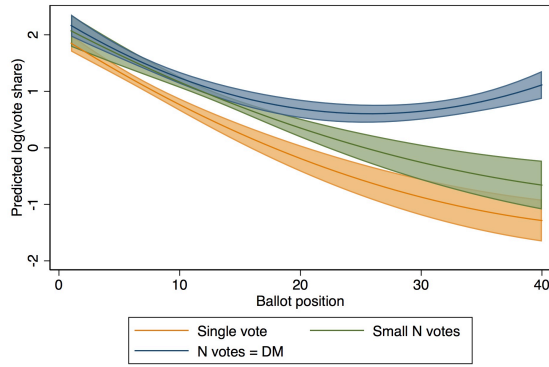
Hypothesis 4.14 states that compulsory preferential voting increases the impact of ballot order on a candidate's vote share. For both the normal and the quadratic terms, the interaction effects are statistically significant and they reinforce the initial effect. The graphical representation of the marginal effects also shows a widening gap between electoral systems with optional and compulsory preferential voting, while also showing diminishing effects for lower ballot positions.

The data thus confirms the reasoning of hypothesis 4.14. In other words, ballot order appears to be an important cue for voters with weak intra-party preferences who are compelled to cast preferential votes in order to cast a valid ballot.

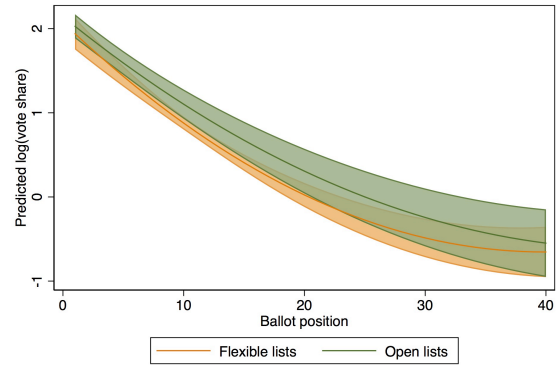
On *panachage*, hypothesis 4.15 argues that the possibility to spread votes across different parties reinforces ballot order effects. The findings do however not confirm this hypothesis as the slope of the linear affect is actually weaker and that the recency effect is smaller.

For the negative voting system, the results are very similar to those of *panachage*, even though hypothesis 4.17 predicted no statistically significant effect.

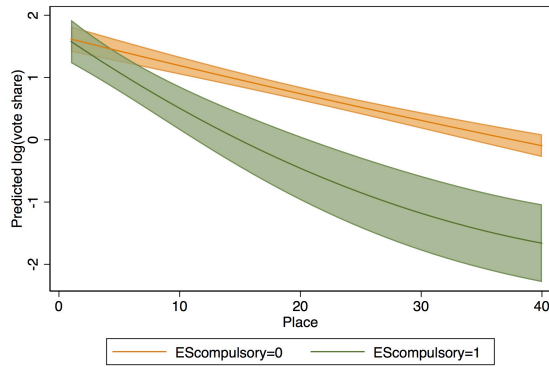
It does therefore seem that both hypotheses would need to be rejected on the basis of the data. In fact, the data suggest that ballot order effects are very similar for these two electoral systems. The data therefore suggests that the initial assumptions on these two systems were inaccurate.



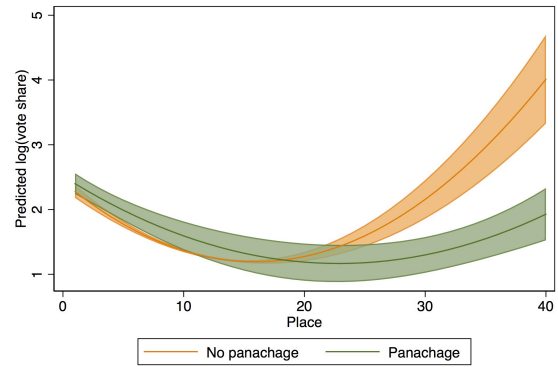
(a) Number of votes & ballot order



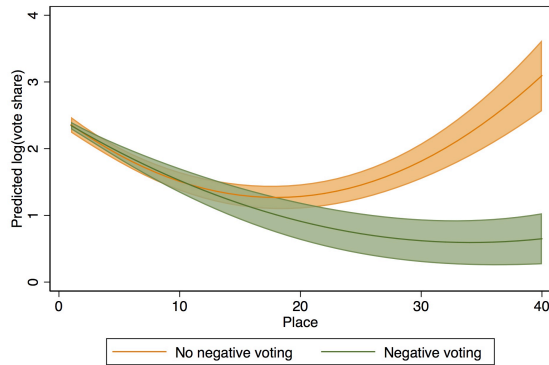
(b) List openness & ballot order



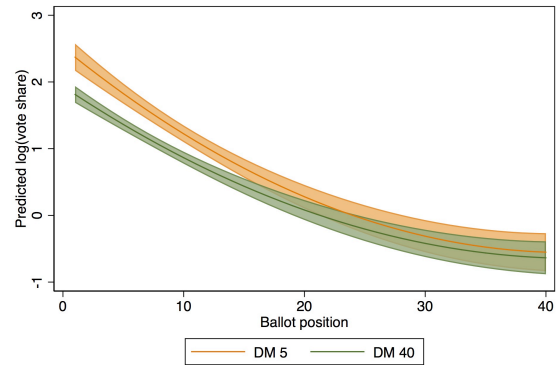
(c) Compulsory pref. voting & ballot order



(d) Panachage & ballot order



(e) Negative voting & Ballot order



(f) District magnitude & ballot order

Graph 4.1 – Marginal effects for the interaction between electoral system characteristics and ballot order

However, for this particular interaction, one may also raise the question whether these findings could also be due to particular circumstances in the Belgian case. At this stage, this is only a speculative assumption, which would need to be corroborated with additional data.

Overall, the results for ballot order have provided more statistically significant results than effects of gender and incumbency. In fact, results are even significant

for compulsory preferential voting for which none of the previous results were significant. The presence of such strong results suggests that electoral systems can strongly affect the relevance of subconscious effects.

4.4. Conclusion

The aim of this chapter was to analyse the implications of the electoral system on the intra-party prospects of candidates. For this purpose, it has analysed the potential interaction of three candidate characteristics – candidate gender, a candidate’s incumbency status as well as a candidate’s position on the list – with the six electoral system characteristics that had been identified earlier in the preceding chapters.

A total of 18 hypotheses – corresponding each to one interaction between a candidate characteristics and an electoral system characteristic have been tested. For several of these interactions, it has seemed implausible that certain electoral system characteristics should affect the impact of candidate characteristics. The results confirm that for each candidate characteristic, one can identify a specific set of electoral system characteristics that affect a candidate’s vote share.

The number of preferential votes that can be cast appears to play the most significant role for all three candidate characteristics that have been analysed. A negative impact of being a female candidate disappears under electoral systems where the number of votes corresponds to district magnitude. Similarly, an advantage connected to incumbency is also weaker for this group of electoral systems. This finding is in line with the results from chapter 3 which have shown that a higher number of votes leads to a more equal distribution of preferential votes across the list. It would appear that this can result in a weakened importance for any characteristic that may allow candidates from distinguishing themselves from their co-partisans.

While, on the one hand, one may interpret these findings as positive because they suggest that multivote systems increase female representation and give non-incumbents a higher probability of being elected, one might, on the other hand, also be concerned to some extent about whether this does mean that intra-party competition under multivote systems is more random.

One could have expected that this would significantly increase the impact of ballot order effects. The results do not provide any evidence for significantly stronger ballot order effects; instead, the advantage to ballot order shifts under multivote system, increasing recency effects that favour candidates on the bottom of the list compared to their co-partisans in the middle of the ballot. This finding points at an interesting avenue for future research on how exactly voters make choices depending on how many options they can choose.

Within the category of electoral systems where the number of votes coincides with district magnitude, panachage and negative votes have also proved to have an impact on the different candidate characteristics.

In the case of the former, these effects are most notably visible for incumbency effects, which are reinforced in the case of legislators. For members of the executive, the opposite effect is observed. The latter might however be due to a specific situation in the data used in this analysis, where the performance of three cabinet members from Luxembourg might have played a role. In order to confirm this, it may be useful to perform a similar test for a longitudinal dataset for Luxembourg.

Panachage systems also appear to affect ballot order effects in reducing the value of the squared terms, meaning that the recency effects are somewhat weaker for the *panachage* system. Negative voting yields the same results for ballot order effects. This coincidence might however also point at a particular situation in the Belgian case. To further test this, one would need to include more data into the analysis.

In addition, negative voting has been shown to counteract the effects of the number of votes for female candidates and incumbents. In other words, the negative bias

against female candidates appears to be reinforced under negative voting, while the incumbency advantage is – contrary to the initial expectations – reinforced.

Due to the particular nature of the *panachage* and negative voting system, one should however engage in additional research on these two systems in order to confirm that these effects are systematic. Chapters 6 and 7 will provide a first opportunity to do this.

A final effect that can be observed is the reinforcing impact of compulsory preferential voting on ballot order effects, indicating that voters are more likely to select candidates toward the top of the ballot if they are forced to cast a preferential vote. On the other hand, compulsory preferential voting does not – as had been initially hypothesised – increase the advantage of incumbent candidates. Regarding the first effect, one might raise the question about whether the observed impact on ballot order might merely result from an increased advantage for lead candidates placed on top of the ballot. I have subsequently tested this possibility by including an interaction term for leadership and compulsory preferential voting in the different models in which only single vote systems were considered. This interaction term was however not significant in any of the models and has therefore been removed again.

The results in this chapter do not reveal any significant effects for the degree of openness of candidate lists or district magnitude. Particularly for the latter electoral system characteristic these findings are somewhat surprising after the strong effects for district magnitude in the preceding chapter.

Overall, the results of this chapter demonstrate that the electoral system does not only affect how preferential votes are distributed across a candidate list, they also have concrete repercussions for individual candidates. While the model has only tested some candidate characteristics, similar results might well be obtained for other candidate characteristics in subsequent research.

This chapter has not considered another candidate characteristic, which ought however to be considered important in light of the role that elected members play in the political system. In fact, they are supposed to make decisions on policy and one might therefore be interested in what impact their policy positions have on their intra-party performance. This question will be at the centre of the next chapter.

Chapter 5

The impact of policy positions on preferential voting

The previous chapter has analysed the interaction between gender, a candidate's incumbency status and ballot positions with different characteristics of preferential list PR systems. As outlined from the beginning, the purpose of this analysis has not been to provide a full set of all relevant factors that might explain intra-party success, but to demonstrate that the electoral system influences the impact that these characteristics have in the intra-party contest. While a full analysis of all potential factors would be practically impossible, one additional variable should nonetheless be considered: a candidate's stand on policy.

One of the central roles of any legislature is the adoption of laws, i.e. to change policy. Where parties and individual legislators stand is therefore a crucial consideration when analysing the process by which legislators are elected.

In the introduction to this thesis, I have outlined several reasons why one should not neglect individual candidates despite the fact that political parties tend to generally be cohesive when acting in legislatures. The question where candidates stand compared to their party and whether this makes a difference should consequently be treated as a central question when discussing the intra-party dimension.

However, the importance that one should give to these considerations is not reflected in the literature. In fact, I am only aware of two studies on Finland (von Schoultz & Papageorgiou, 2019; Isotalo et al, 2020) and one study on Belgium (Van Erkel, 2017) that look at the impact of candidate ideology on intra-party performance under preferential list PR systems. The primary explanation for the scarcity of such studies appears to be empirical. Shugart's explanation that "basic

comparative data on the intraparty dimension” (Shugart, 2005: 50) is not available appears to be particularly relevant when it comes to policy positions.

In fact, unlike characteristics such one’s party, gender or ethnicity, policy positions are more difficult to observe and consequently more difficult to measure. Indeed – as I shall outline in more detail later in the chapter – the question on how to operationalize candidate positions is one of the central puzzles for this analysis.

This question of measuring policy positions also requires adaptations in terms of the methodological approach in this chapter as, it is not possible to obtain data on candidate positions for all 15 cases that have been compared in the two previous chapters. In addition, even where the collection of data is possible, one may raise the question about the comparability of the data.

For this reason, this chapter will focus on the Luxembourgish and Swiss cases, which both use the *panachage* system and where it is possible to rely on data from very similar sources because the dominant candidate-based voting advice application (VAA) is based on the same platform in both instances. It is therefore possible to compare two cases where one should observe similar results if the electoral system affects the way in which policy positions influence a candidate’s intra-party performance.

In a subsequent step, it is possible to compare the original data from this analysis to previous findings for Finland and Belgium in order to determine whether one can observe a consistent pattern that can be attributed to the electoral system.

This analysis on the relationship between preferential list PR systems and policy positions is divided into five sections.

First, I shall present the studies performed for Finland and Belgium in more detail, discussing the approach and findings in each case.

Subsequently, I shall outline the theoretical framework of my own study of the *panachage* system. More specifically, I shall briefly discuss the logic of spatial

models before moving on to an analysis on how sticking to the party line or deviating from it might affect a candidate's electoral fate.

The third section will discuss some methodological considerations, most importantly on how to measure the central independent variable of this analysis. In addition, the used data and different variables will be explained.

The fourth section presents the results of different regression models for Luxembourg and Switzerland, allowing us to infer the role of candidate ideology in the intra-party contest under the *panachage* system.

Finally, the last section put these results into context considering the existing work on Finland and Belgium in order to assess the extent to which one can attribute potential differences in the results to the electoral system. Overall, the results highlight reasons for which one may be sceptical about whether the electoral system has a major impact on the role of candidate ideology.

5.1. Existing Studies

To my knowledge there are at this stage three main contributions that analyse the question of candidate ideology on their intra-party prospects. First, Van Erkel (2017) has dedicated one chapter of his doctoral thesis to this question in the context of the 2014 elections in Flanders. Second, von Schoultz and Papageorgiou (2019) analyse the 2015 parliamentary elections in Finland to determine the extent to which candidate ideology is a decisive factor. Third, Isotalo et al (2020) build on the latter results in extending the scope of the analysis through the addition of the 2011 and 2019 Finnish parliamentary elections in the analysis. In addition, they look on party characteristics as well as more specific policy dimensions.

In this section, I shall briefly review the main characteristics of each of these contributions, which inform the argument of this chapter.

5.1.1. Belgium

Van Erkel's analysis (2017) focuses on the 2014 elections for the regional and national parliaments in the Flemish districts of Belgium.

The theoretical argument of the corresponding thesis chapter introduces two opposing hypotheses on how a candidate's policy positions may affect their preferential vote share. The first hypothesis states that deviating from a party's mainstream positions can be beneficial because candidates can distinguish themselves from other candidates in taking such a position. This would increase a candidate's visibility thus enhancing the candidate's position in the intra-party contest. The second hypothesis posits that deviating from a party's mainstream position harms a candidate. This hypothesis is based on the reasoning that party loyalists do not appreciate such deviation. For these reasons, a third hypothesis in his framework also allows for a non-linear relationship between ideology and preferential vote to account for these two opposing effects.

For the empirical analysis, Van Erkel relies on the election results as well as on the data from a candidate survey conducted in the context of the 2014 regional and national elections. The candidate ideological positions are measured on the basis of 30 policy questions in that survey, which are allocated to six major policy domains. The analysis is based on a designed-based approach to dealing with potential data clustering. In other words, OLS regression models with clustered standard errors are used.

In the end, none of the different regression models introduced in the results section of the chapter yields statistically significant results, leading to the rejection of the previously mentioned hypotheses and the discussion of potential reasons for the absence of such results. In reference to earlier work with Yves Desjaeghere (Desjaeghere & van Erkel, 2017), Van Erkel therefore concludes this chapter in raising the question whether these non-significant results could illustrate that

candidate ideology does not play a significant role because voters are unable to correctly assess it.

5.1.2. Finland

The research group on intraparty competition based at the University of Helsinki has published two studies on the impact of candidate ideology in Finland. I shall summarise the main findings of these two studies.

The first of these (von Schoultz & Papageorgiou, 2019) analyses the relative importance of different candidate characteristics such as experience, locality or celebrity status and that of candidates' policy positions in the 2015 Finnish parliamentary elections.

While their theoretical argument begins in essence with the same hypotheses as van Erkel (2017), their subsequent methodological choices are different in two main respects. First, to measure the candidates' policy positions they rely on data from two candidate-based voting advice applications that are – according to their own account – widely used in Finland. Second, they deal with the risk of clustering through multilevel regression models.

While their results show that the candidates' attributes play a greater role than their ideological positions, they also demonstrate that the latter also have a significant effect. More specifically, their results suggest that candidates with a party-median policy position attract more preferential votes than those deviating from their party position.

The subsequent article (Isotalo et al, 2020) builds on these first findings in extending the considered period and at the role of ideology in more detail. This second study uses data from the 2011, 2015 and 2019 elections allowing for more generalizable results compared to the previous findings from a single election. In addition, they add the position of parties to their analysis. In doing so, they are not only looking at the question of ideological proximity, but also that of direction in

raising the question about whether the effects are the same for a centrist party compared to a party further to the left or right on the political spectrum.

As for the first study, the second study also finds a small but significant advantage for candidates close to the party's median position. While the effect is smaller than that of candidates' personal vote earning attributes, the results show that it is nonetheless large enough considering the average gap between the last elected and the first non-elected candidate on a party list.

When taking into account party characteristics, the results indicate that candidates of more extreme parties have a disadvantage if they have positions that are more extreme than those of their party. One should however note that these differences are more nuanced based on the exact type of party.

The comparison of these existing analyses therefore shows a difference in the results between these two countries. The question of interest for this thesis is whether this difference can be attributed the different electoral systems or whether other factors account for it. This question will be addressed through the analysis in the remainder of this chapter.

5.2. Theoretical framework

The central question of interest in this analysis is whether the specificities of the electoral system affect the relevance of candidates' ideological position on intra-party vote share. This section presents the theoretical reasoning in favour of this argument in three steps. First, the general analytical framework is analysed. Second, the general question on how candidate ideology is assumed to affect a candidate's intra-party success is explained. Finally, the argument considers how electoral systems can be assumed to be relevant is discussed.

5.2.1. General framework

The theoretical framework presented in chapter 2 is directly applicable to the argument of this chapter. One of the central characteristics of this framework is the idea that all political actors can be conceptualised as occupying positions within a geometrical space. In other words, one can perceive any candidate, voter or party as a point within a given space in order to formally analyse different things including vote choices. A notable example is Cox's (1990) analysis of the centripetal and centrifugal incentives that electoral systems provide for candidates to adopt more moderate or more extreme positions in anticipation of a maximisation of votes. Without expressing any opinion on how freely candidates can realistically choose their positions, our theoretical framework starts from the assumption that candidates occupy their positions on election day and that voters have knowledge of these positions.

The central question of interest of this chapter is how the relative positioning of candidates compared to their co-partisans and their party affects their intra-party results. Since candidates from a same party have all chosen that same party, it would not seem unreasonable to expect that the candidates should be clustered within a certain area of the political space around the mainstream position of their parties. Some candidates may be close while others occupy more remote positions. Isotalo et al's (2020) contribution has demonstrated that there are two different approaches in spatial modelling to analyse this interaction: the proximity and directional models.

The proximity model can be traced back to Black's (1958) seminal adaptation of economic theories of spatial competition to the realm of politics. The central idea underlying this model is simply to measure the distance between two actors, regardless of the relative positions of the actors within the political space. In terms of voting behaviour, for instance, the central assumption of these models is that voters select the candidate closest to them.

Rabinowitz and Macdonald (1989) have proposed the directional model as an alternative, which takes the relative position of political actors into consideration. In other words, rather than merely measuring the distance between a candidate and a voter, this model postulates that one should also consider the direction of preferences. In contrast to proximity model, that would in most cases predict centripetal tendencies, the directional models typically predicts that the extremes should benefit (Merrill, 1995).

Other authors (Merrill, 1995) propose adopting models that lie in between these two approaches. I would argue that Isotalo et al's (2020) work should also rather be allocated to this intermediate group since they look at the relative positions of parties but then focus on the proximity of candidates to parties.

While this differentiation based on the relative position of parties is certainly more detailed and allows for a more differentiated picture, the present analysis will begin with the proximity model, as did the first study on Finland (von Schoultz and Papageorgiou, 2019).

The proximity model allows for merely measuring the distance between candidates and party mainstream positions without the need to exactly locate the parties. In a comparative context, it appears preferable to perform analysis first by focussing primarily on proximity.

Hence, this chapter analyses in a first step whether it matters at all for candidates how they position themselves relative to their party and in a subsequent step whether the electoral system affects the relevance of policy positions.

5.2.2. To comply or to rebel?

The earlier discussion of existing studies on the question has highlighted that both Van Erkel (2017) and van Schoultz and Papageorgiou (2019) have used the same two hypotheses with regard to the question of distance between candidates and parties. One hypothesis states that deviating from the party's mainstream position

is beneficial while the other states that candidates benefit from sticking with the party mainstream. Each of these two arguments will be considered in turn.

The first argument posits that distinguishing oneself from the party mainstream gives voters more visibility. In other words, in deviating from the party mainstream, their policy position can become a personal vote-earning attribute in the sense of Carey and Shugart (1995), which helps voters cultivating personal votes. In addition to simply sticking out, one might also suspect that taking a position not completely aligned with one's party also shows a candidate's individuality.

Hypothesis 5.2. (Ideological distance): Voters adopting policy positions different from the median position of their party obtain more preferential votes.

However deviating from the party's main position can also harm the candidate if the party electorate punishes him for not respecting the party position. Van Erkel (2017) argues that the risk of this occurring might be particularly high in a multi-party system such as the Belgian case. In fact, staying close to the median party voter might be the more promising as a strategy.

In addition to this argument of being punished, there is also the argument that party choices precede intra-party choices outlined in the context of the consideration set model²⁸. If voters choose parties based on proximity, candidates on the outliers of a party might be in a disadvantageous situation because voters close to them might have a different party that they support.

Hypothesis 5.1. (Ideological proximity): Voters adopting policy positions close to the median position of their party obtain more preferential votes.

Finally, there might also be a third possibility, namely that the candidates' policy positions have no overall effect. Besides the possibility that the two above effects occur simultaneously and cancel each other out, there is the possibility that policy positions are simply too complex for voters to grasp leading to the irrelevance of this

²⁸ Section 2.2 of chapter 2

variable. In fact, Dejaeghere and Van Erkel (2017) observe that voters experience difficulty in correctly assessing policy positions of parties and one may be sceptical about an increased accuracy when it comes to a large field of candidates. As a response one could however interject that “The nuances of the ideological differences between candidates may not reach all voters, but at least a significant portion of attentive voters are informed about these differences as, under fierce intra- and inter-party competition, candidates are incentivized to demonstrate publicly their distinctiveness” (Isotalo et al, 2020).

While testing these two hypotheses is an integral part of the analysis in order to arrive at a conclusion on the impact of electoral systems, it is important to move beyond this general argument in order to consider how the different characteristics of the electoral system might affect the outcome.

5.2.3. PLPR systems and policy positions

The existing contributions on role of candidate ideology for intra-party competition come from two different cases. The results from the Finnish case (von Schoultz & Papageorgiou, 2019; Isotalo et al., 2020) show a statistically significant advantage for candidates close to the party’s mainstream position. For the Belgian case, none of the results are statistically significant.

These two cases represent two different preferential-list PR systems and the findings from the previous chapters would support the argument that these results may well be the result of the differences in the electoral system.

The main difference between the Finnish and Belgian cases is the number of preferential votes that can be cast in these two countries. The results of chapters 3 and 4 provide strong evidence for the argument that increases in the number of preferential votes have an equalising effect, which appears to reduce the role most candidate characteristics. The non-significant results for the Belgian case could thus be explained by this equalising effect.

In order to test whether this line of reasoning is plausible, this analysis focuses on the *panachage* system. Most results in the previous chapters confirm the general argument with regard to the *panachage* system's tendency to reinforce the effect of candidate characteristics. Accordingly, one should expect that the passage from a non-*panachage* to a *panachage* system would lead to a greater impact of candidate ideology.

Hypothesis 5.3. (political positions/*panachage* I): Candidate ideology plays a greater role under electoral systems under which candidates can spread preferential votes across different lists compared to electoral systems under which votes can only be cast within a single candidate list.

Since the Belgian case suggests that candidate ideology does not play a role under ordinary multivote systems, statistically significant results under *panachage* systems would provide evidence for this hypothesis.

In addition to questions about the magnitude of the effect, there is also the question about whether the *panachage* system favours sticking to the party's mainstream position or whether deviating from is beneficial in the intra-party contest. The particularity of the *panachage* system is that it reduces the role of partisanship by design because it allows voters to spread their preferential votes. Precisely this characteristic appears to favour one direction.

In fact, individual candidates have the possibility of attracting votes from the electorates of other parties. If ideological proximity drives vote choices and if each party occupies some segment of the ideological spectrum, the logical conclusion would be that candidates further remote from the party mainstream position are closer to candidates from other parties. Consequently, these voters should be expected to attract more votes from voters that spread their votes. In that sense, the *panachage* system should to some extent favour deviating from the party's mainstream position.

Hypothesis 5.4. (political positions/*panachage* II): The *panachage* system gives an advantage to candidates taking political positions that deviate from the mainstream political position of their party.

In the subsequent section, the approach to testing these hypotheses will be outlined.

5.3. Data and methods

For the analysis of the relevance of candidate ideology on intra-party results we rely on the data for Luxembourg and Switzerland from same dataset already used in chapters 3 and 4.

The data has been completed with information on the candidates' political positions. This availability of such data as well as the on which data source provides the most trustworthy measures of ideological positions are the two central empirical challenge in this context. I propose the use of candidate-based VAA data as a measure of the candidates' positions.

5.3.1. VAA data as a viable source of candidate positions

The availability of reliable data on candidate positions in countries using PR systems, which are primarily party-centric, is a main challenge, particularly because of a potential risk for bias for some approaches one might choose.

A major problem is that political positions are not as clearly visible as other characteristics of candidates. In fact, more information about policy position is usually available for incumbents because they have had more possibilities to express their views in speeches and via other channels. Hence, relying on data based on speeches or other forms of communications would risk to be skewed.

For this reason, the only viable option for setting with large numbers of candidates among which a majority is relatively little known appears to be to ask the candidates themselves about their positions.

The first option to do so are candidate surveys in which one can ask candidates about their views on several topics. As previously noted, Van Erkel (2017) uses data from such a survey for his analysis. The main concern with such an approach is the potential bias arising from the self-selection of candidates to do the survey. It might in fact be possible that some specific types of candidates are less inclined to take a survey. In addition, one should not forget that the answers given by the candidates are specifically given for such a survey, and one might need to be cautious about the sincerity of the candidates' answers.

The second option would be the use of candidate-based voting advice application (VAA) data. Over the last decade, there has been a rise of the use of candidate-based VAAs, which tend to include data on political opinions from a large sample of candidates for each election. The use of VAA data for measuring political opinions appears to become a recognised approach. While one might argue that the problems of self-selection bias persists, since not all candidates are equally likely to participate (Dumont et al, 2014) and that one can also not ensure the sincerity of respondents, I would argue that the issues are less severe. First of all, candidates now heavily use these applications. In addition, as the main respondent of the answers is the electorate using the applications rather than researchers analysing the answers, one can make the argument that the answers better reflect the position that candidates want to signal to the outside world and that the voters can be aware of. Finally, voting advice applications have previously been used for the same purpose (von Schoultz, 2019; Isotalo et al., 2020).

A further advantage of using VAA data in the present case, is that the main voting advice applications *smartwielen* in Luxembourg and *smartvote* Switzerland are very similar, since the VAA used in Luxembourg is based on *smartvote*. As both voting advice application are practically identical in design, there should not be any major issues in terms of their comparability.

5.3.2. Dependent variable

As a dependent variable, we measure every candidate's electoral success in the intra-party contest. As in chapter 4, I use the logged vote share of a candidate compared to that candidate's list. A full rationale for this choice has been outlined in the preceding chapter. It should be noted that the existing studies on the question of ideology in the intra-party contest have used the same dependent variable (van Erkel, 2017; van Schoultz&Papageorgiou , 2019; Isotalo et., 2020).

5.3.3. Independent variables

To measure a candidate's ideological position compared to the party median position, we have considered all candidates who have answered at least 50% of the questions²⁹ of the questionnaire of smartwielen for the 2018 parliamentary elections in Luxembourg or of smartvote for the 2019 national council elections in Switzerland. In the questionnaire for Luxembourg there were 43 questions while 75 questions had been used in Switzerland.

Table 5.1 - Observations by country

	All parties			Parliamentary parties*		
	All	VAA data	Share	All	VAA data	Share
Luxembourg	547	348	63.62%	420	325	77.38%
Switzerland	4630	3905	84.34%	1777	1653	93.02%
Total	5177	4253	82.15%	2197	1978	90.03%

** For Switzerland, only the main list is considered in this count*

Table 5.1. provides the statistics on the percentage of candidates that have completed at least 50% of the questions of the voting advice application and have been included in this analysis. The data shows from discrepancy between Luxembourg and Switzerland, as a higher share of the candidates uses the application in Switzerland. That gap becomes slightly smaller when only considering parliamentary parties. In addition, it should be highlighted that when

²⁹ While candidates would need to answer all questions in order to appear on the website of the VAAs, some candidates have not completed the full profiles. For the purpose of determining a candidate's distance from the party's median position, a sufficient number of answered questions provides a sufficient picture.

only looking at the 4 main parties in Luxembourg, 90.83% of the candidates have actually participated.

To determine the distance between the candidates and their party's position, standardised Euclidean distances have been determined in several steps. First the values for the answers of each question have been collected. The system allocates the value 0 for the answer "no", 25 for "rather no", 75 for "rather yes" and 100 for "yes". In the Swiss case, certain answers also allow for a neutral position coded as 50.

In a second step, the median position for the candidates from the same party has been determined. Subsequently, the difference between a candidate's answer and the median position has been determined for each party.

Then the squareroot of the sum of all the squared differences has been determined:

$$\sqrt{\sum (candidate\ answer - median\ position)^2}$$

In order to standardise the value this number has been divided by the product of the number of answered questions multiplied by 100, yielding values between 0 and 1. Finally these values have been multiplied by 100.

The result is a number between 0 and 100, where 0 means identical positions between the two and 100 means that they completely disagree on every question.

Table 5.2 provides the summary statistics for the independent variable. In Luxembourg the standard deviation from the party's median position is at 18.5 while it is at 28.6 for Switzerland. Likewise the mean deviation is also higher in Switzerland (Luxembourg: 20.45; Switzerland: 28.50). In both cases the maximum observed deviation is a little under 60.

It appears that one potential explanation for this difference between the two countries might be that parties in Luxembourg are asked to provide an official party position for the VAA, which they appear to share with their candidates. In fact, when inspecting the data, one could observe particularly for the four main parties

that several candidates have provided the same comments regarding several questions as their party. This suggests that they have followed chosen to completely or partially follow the party line. For the 2018 election, this tendency can be observed across different parties; hence, this phenomenon does not appear to distort the data because of one party coordinating extensively.

Table 5.2 - Descriptive statistics for standardised Euclidean distance

	Mean	Median	Minimum	Maximum	Obs.
Luxembourg	20.45	18.48	0.00	57.94	348
Switzerland	28.50	28.58	2.89	59.73	3905
Overall	27.84	28.15	0.00	59.73	4253

The values for the variable are normally distributed for Switzerland while the data is slightly positively skewed for Luxembourg.

One final question to be considered with regard to the independent variable is the potential of correlations between that variable and other variables that explain a candidate's electoral performance. Most importantly, there is the question whether there are substantial differences between incumbents and non-incumbents. Table 5.3 summarises the values for the independent variable by incumbency status.

Table 5.3 - Descriptive statistics for standardised Euclidean distance by incumbency status

	Incumbents			Non-incumbents		
	Mean	Median	Obs.	Mean	Median	Obs.
Luxembourg	16.67	14.52	64	21.30	19.11	284
Switzerland	25.12	25.52	164	28.64	28.68	3741
Overall	22.75	22.99	228	28.13	28.36	4025

The data shows indeed that the average distance that candidates take from their party's main position varies on the basis of incumbency status. On average, incumbents choose positions closer to the party's median position. While the Student t-test shows that the differences in the means is statistically significant, preliminary analyses with interaction terms between the independent variables and incumbency status have not shown that this affect the results. For this reason, this interaction terms are not provided in the results.

5.3.4. Control variables

In addition to this measure of candidate-party congruence, several other control variables have been included.

These include dummy variables for list leaders, the national, regional and local incumbency status and gender. Furthermore, candidate age, the variables for ballot order from the previous chapter, the number of candidates on the list as well as a variable for candidates whose name is printed twice on the ballot have been included.

5.3.5. Method

As in the two previous chapters several linear regression models will be presented to test the hypotheses outlined in the preceding section. As for the data of the previous chapters, there is a potential problem for the inferences due to the clustering of the data³⁰. It would be coherent to adopt the same approach as for the previous chapters, i.e. the use of clustered standard errors as a solution to take the variation between countries into consideration.

When looking at the existing studies, one observes that Van Erkel (2017) has adopted this approach while von Schoultz and Papageorgiou (2019) as well as Isotalo et al (2020) have favoured the use of multilevel models. One potential problem is that choosing either approach would leave doubt about whether the diverging results in the existing literature can be attributed to the different approaches.

For this reason, I propose to present both types of models in order to take this alternative explanation for the different results into account. Hence, for each model specification three different regression types will be presented. In addition to models with clustered standard error and multilevel models, I shall also present

³⁰ A detailed description of the potential issues and the potential solutions is provided in the methodological section of chapter 3.

models with robust standard errors that control for the different variables that may cause clustering as an additional control.

5.4. Results

The first part of table 5.3 shows three models that use the simple standard Euclidean distance as the independent variable. In a second set of models quadratic terms have been added to include the possibility that the relationship between one political stance and one's vote share is not perfectly linear. In each case, I have modelled a model with robust standard errors, one with clustered standard errors as well as a multilevel model.

The results for the first three models that assume a purely linear relationship between candidate ideology and predicted logged vote share yield somewhat mixed results. In fact, model 1a shows a significant positive impact of instancing oneself from the median party position. However, adding the interaction effect for Switzerland points in the opposite direction, which at least neutralises the effect of the main coefficient (if it does not even turn it into a negative coefficient). Model 1b with clustered standard errors does not find any statistically significant results while the multilevel model predicts that candidate loose votes when distancing themselves from the median party positions.

A closer look at the results suggests that these results might find their origins in substantial differences across the two cases. A first indication for this is the interaction effect from model 1a, which may point at opposing effects of a candidate's distance relative to the party's median position. The non-significant effects for the model with clustered standard errors reinforce this suspicion. In fact, it would appear quite possible that the multilevel model's estimates are depicting a rather trustworthy estimate for Switzerland since the observations for this case

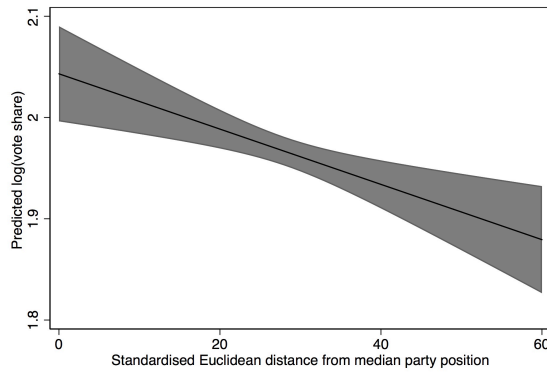
largely outnumber those for Luxembourg. In order to assess the validity of this preliminary assumption, one needs to run the models separately for each case.

Table 5.4 – Regression models for the relationship between policy positions and intra-party vote shares

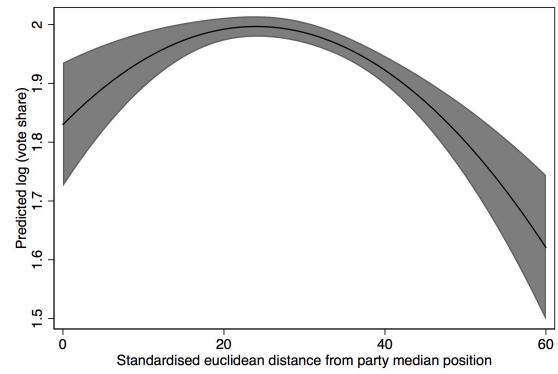
	Model 1			Model 2		
	(a) Rob. SE	(b) cl. SE	(c) ML	(a) Rob. SE	(b) cl. SE	(c) ML
Distance from median	.004* (.002)	-.000 (.004)	-.002* (.001)	.014** (.005)	.025 (.009)	.014** (.003)
Distance from median ²				-.000* (.000)	-.000 (.000)	-.000** (.000)
Distance from median & CH	-.007** (.002)			-.000 (.006)		
Distance from median ² & CH				-.000 (.000)		
Lead candidate	.599** (.106)	.327 (.079)	.638** (.091)	.599** (.108)	.402 (.075)	.651** (.091)
National Incumbency - National legislator	.501** (.033)	.477** (.004)	.551** (.034)	.502** (.033)	.483** (.007)	.551** (.034)
- National executive	.473** (.123)	.320 (.028)	.511** (.142)	.473** (.121)	.361* (.023)	.522** (.141)
Regional incumbency - Regional legislator	-.022 (.027)	.015 (.064)	.023 (.029)	-.024 (.027)	.002 (.042)	.020 (.029)
- Regional executive	.504 (.419)	.550 (.076)	.433 (.257)	.504 (.413)	.536 (.055)	.427 (.256)
Local political office - Member of council	-.070** (.026)	-.126 (.031)	-.054* (.027)	-.076** (.026)	-.125 (.028)	-.059* (.027)
- Deputy-Mayor	.036 (.059)	-.191** (.001)	.015 (.067)	.034 (.059)	-.140* (.009)	.014 (.067)
- Mayor	.127** (.042)	.037 (.031)	.126* (.050)	.121** (.042)	.049* (.002)	.122* (.049)
Female candidate	.083** (.015)	.086 (.036)	.089** (.014)	.089** (.015)	.093 (.035)	.093** (.014)
Age	-.000 (.001)	-.001 (.001)	-.001 (.000)	-.000 (.001)	-.001 (.001)	-.001 (.000)
Ballot position	-.109** (.003)	-.116* (.007)	-.085** (.003)	-.109** (.003)	-.113* (.005)	-.085** (.003)
Ballot position ²	.003** (.000)	.003 (.000)	.002** (.000)	.003** (.000)	.003* (.000)	.002** (.000)
Number of candidates	-.046** (.001)	-.046** (.000)	-.038** (.004)	-.046** (.001)	-.046** (.000)	-.038** (.004)
Name twice on ballot	.156** (.030)	.167 (.025)	.300** (.040)	.157** (.030)	.168 (.022)	.296** (.040)
Intercept	2.841** (.052)	3.297* (.068)	3.142** (.086)	2.765** (.064)	2.969* (.117)	2.956** (.091)
District level: var (constant)			.060 (.038)			.055 (.2319)
Country level: var (constant)			.060 (.039)			.055 (.2319)
Observations	4253	4253	4253	4253	4253	4253
R ²	.741	.732		.742	.738	
Log likelihood			-2612.3			-2598.7

* p<.05; ** p<.01, (.) SE, fixed effects variables in models 1a and 2a not depicted

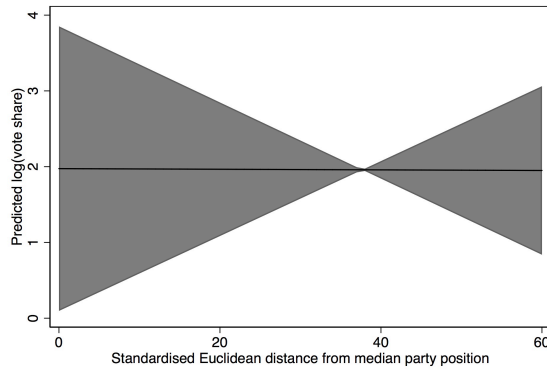
A second factor that needs to be accounted for is the potential non-linearity of the relationship between a candidate's relative position and the obtained logged vote share.



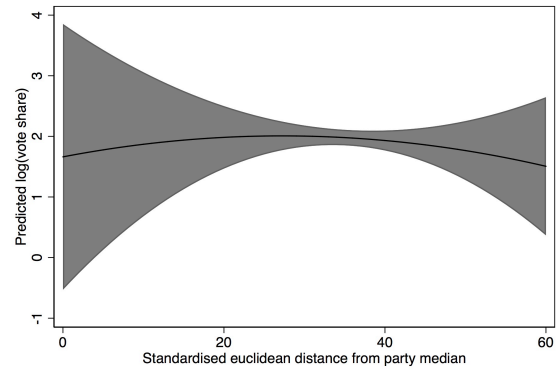
(a) Model 1a



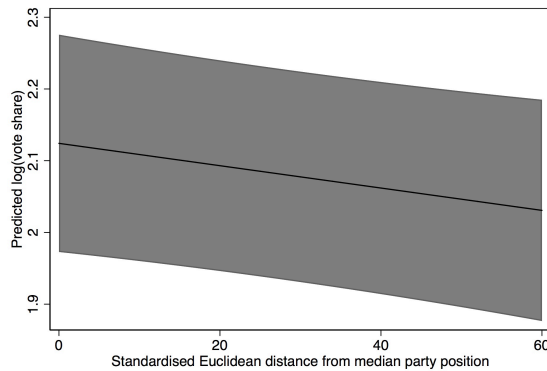
(b) Model 2a



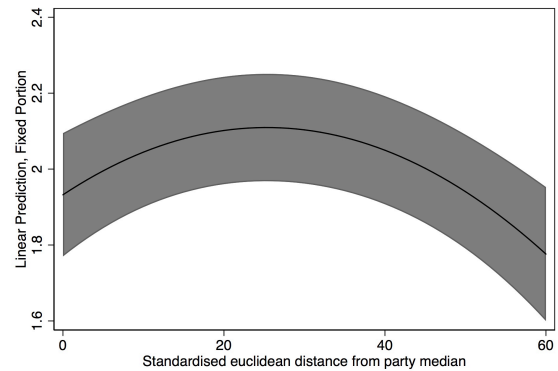
(c) Model 1b



(d) Model 2b



(e) Model 1c



(f) Model 2c

Graph 5.1 – Marginal effects for the models

For the analysis that takes into account quadratic terms, the results appear to be somewhat more consistent, at least for models 2a and 2c. The results for these models show a positive coefficient for the normal coefficient and a negative coefficient for the quadratic terms, resulting in a concave downwards curve. This

means that the model predicts that a candidate can benefit up to a certain point from showing one's distance from the party's median position; beyond this point, a candidate suffers from emphasising too much deviation from the party line. The results for the model with clustered standard errors remain non-significant at a 95% confidence interval.

The results for this second set of regression models provide a stronger case compared to the first models. At the same time, they also highlight the necessity to perform the analysis separately by country in order to ascertain whether there is a difference between both cases.

Table 5.5 – Regression models for the relationship between policy positions and intra-party vote shares in Luxembourg

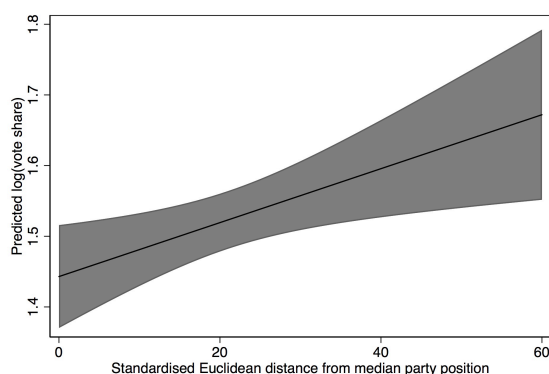
	Model 3			Model 4		
	a	b	c	a	b	c
	<i>ro. SE</i>	<i>cl. SE</i>	<i>ML</i>	<i>ro. SE</i>	<i>cl. SE</i>	<i>ML</i>
Distance from median	.004*	.004	.004*	.010*	.010	.010*
	(.001)	(.002)	(.001)	(.005)	(.010)	(.005)
Distance from median ²				-.000	-.000	-.000
				(.000)	(.000)	(.000)
Lead candidate	.658**	.658*	.658**	.652**	.652*	.652**
	(.106)	(.162)	(.097)	(.106)	(.159)	(.097)
National Incumbency						
- National legislator	.490**	.490**	.490**	.484**	.484**	.484**
	(.064)	(.034)	(.067)	(.064)	(.032)	(.067)
- National executive	.511**	.511*	.511**	.501**	.501*	.501**
	(.126)	(.091)	(.127)	(.124)	(.096)	(.126)
Local political office						
- Member of council	.057	.057	.057	.045	.045	.045
	(.052)	(.039)	(.052)	(.052)	(.051)	(.053)
- Deputy-Mayor	.087	.087	.086	.083	.083	.083
	(.064)	(.027)	(.070)	(.064)	(.028)	(.070)
- Mayor	.228**	.228*	.228**	.228**	.228**	.228**
	(.076)	(.040)	(.083)	(.079)	(.037)	(.082)
Female candidate	-.149**	-.149*	-.149**	-.143**	-.143	-.143**
	(.042)	(.045)	(.042)	(.042)	(.046)	(.042)
Age	-.002	-.002	-.002	-.002	-.002	-.002
	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)
Ballot position	-.107**	-.107*	-.107**	-.110**	-.110*	-.110**
	(.019)	(.020)	(.017)	(.019)	(.021)	(.017)
Ballot position ²	.003**	.003**	.003**	.003**	.003*	.003**
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)
Number of candidates	-.048**	-.048**	-.048**	-.047**	-.047**	-.047**
	(.005)	(.004)	(.004)	(.005)	(.005)	(.004)
Intercept	2.921**	2.921**	2.921**	2.864**	2.864**	2.864**
	(.138)	(.168)	(.121)	(.143)	(.158)	(.127)
District level: var (constant)			.000			.000
			(.000)			(.000)
Observations	348	348		348	348	348
R ²	.761	.761		.762	.762	
Log likelihood			-157.22			-156.17

* p<.05; ** p<.01; (.) SE

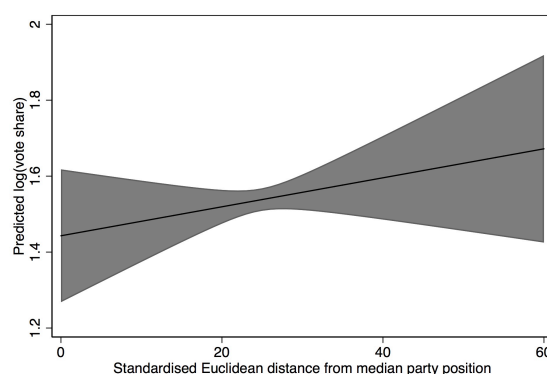
Table 5.5 summarises the models for Luxembourg. The first three models represent a normal linear relationship and yield the same positive point estimate. This estimate suggests that candidates occupying positions further away from the party median position benefit electorally. For the multilevel model and the model with robust standard errors, the results are significant at the 95% confidence level. For the model with clustered standard errors, the results are not statistically significant.

As for the analysis based on the entire sample, models 4a, 4b and 4c add quadratic terms to assess the linearity of the relationship. For these quadratic terms, the results are however not statistically significant, leading to the conclusion that the normal linear relationship best models the relationship between candidate ideology and intra-party vote shares in Luxembourg.

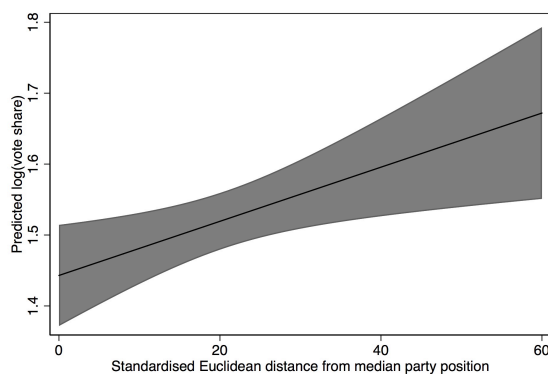
In other words, the models argue that deviating from the median party position is beneficial in the case of Luxembourg.



(a) Model 3a



(b) Model 3b



(c) Model 3c

Graph 5.2 – Marginal effects for the models (Luxembourg)

Table 5.6 presents the same models for Switzerland.

Table 5.6 – Regression models for the relationship between policy positions and intra-party vote shares in Switzerland

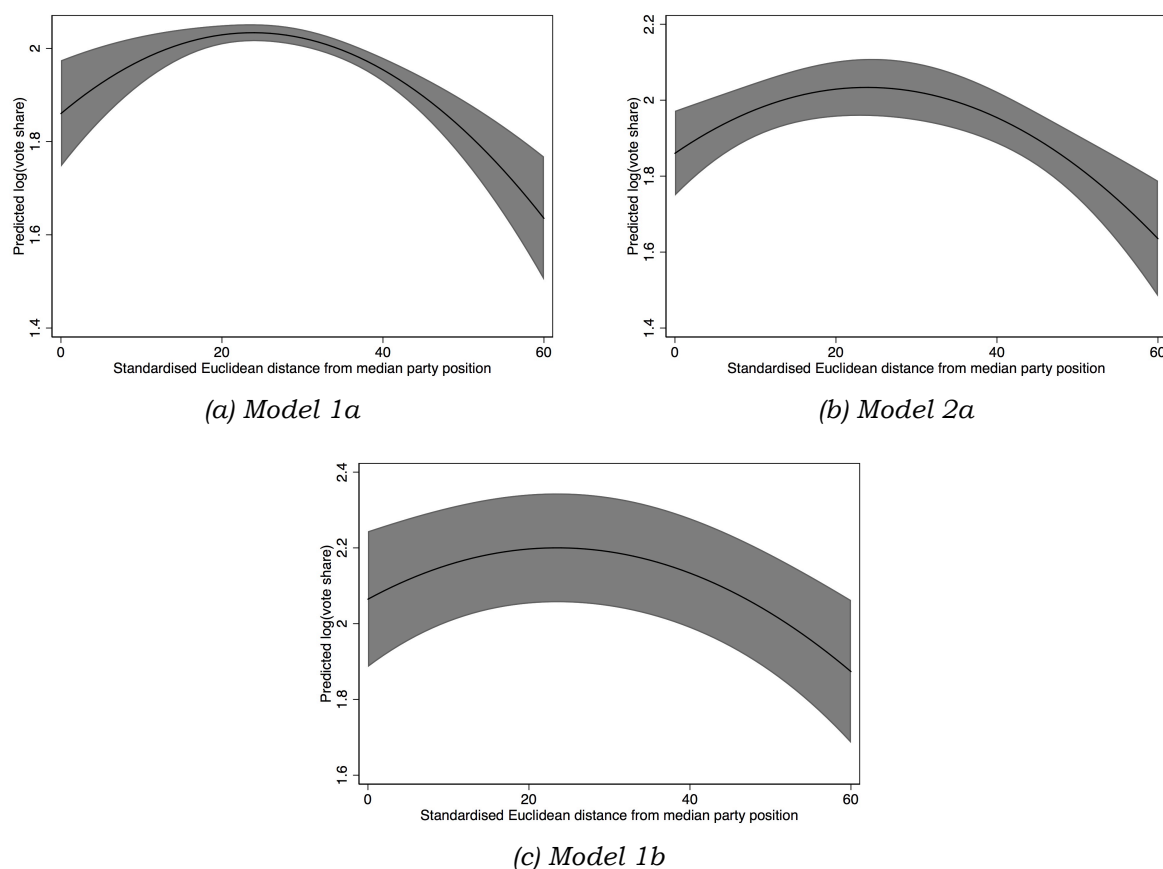
	Model 5			Model 6		
	a	b	c	a	b	c
	ro. SE	cl. SE	ML	ro. SE	cl. SE	ML
Distance from median	-.003** (.001)	-.003** (.001)	-.003** (.001)	.015** (.004)	.015** (.004)	.012** (.004)
Distance from median ²				-.000** (.000)	-.000** (.000)	-.000** (.000)
National legislator	.490** (.037)	.490** (.079)	.555** (.038)	.493** (.037)	.493** (.077)	.557** (.038)
Regional incumbency						
- Regional legislator	-.024 (.027)	-.024 (.039)	.016 (.029)	-.025 (.027)	-.025 (.039)	.016 (.029)
- Regional executive	.502 (.410)	.502 (.380)	.426** (.258)	.500 (.405)	.500 (.432)	.422 (.257)
Local political office						
- Member of council	-.096** (.029)	-.096** (.027)	-.073* (.031)	-.098** (.029)	-.098** (.027)	-.073* (.031)
- Deputy-Mayor	.004 (.140)	.004 (.131)	.058 (.149)	.004 (.142)	.004 (.129)	.058 (.149)
- Mayor	.080 (.049)	.080** (.027)	.090 (.060)	.071 (.049)	.071* (.026)	.084 (.060)
Female candidate	.105** (.016)	.105** (.021)	.109** (.015)	.110** (.016)	.110** (.021)	.113** (.015)
Age	-.000 (.001)	-.000 (.001)	-.000 (.000)	-.000 (.001)	-.000 (.001)	-.000 (.000)
Ballot position	-.111** (.004)	-.111** (.010)	-.085** (.004)	-.110** (.004)	-.110** (.010)	-.085** (.000)
Ballot position ²	.003** (.000)	.003** (.001)	.002** (.000)	.003** (.000)	.003** (.001)	.002** (.000)
Number of candidates	-.046** (.001)	-.046** (.006)	-.037** (.004)	-.046** (.001)	-.046** (.006)	-.038** (.004)
Name twice on ballot	.154** (.030)	.154* (.059)	.304** (.041)	.156** (.030)	.156* (.060)	.300** (.040)
Intercept	3.346** (.038)	3.346** (.112)	3.246** (.084)	3.113** (.065)	3.113** (.148)	3.061** (.097)
District level: var (cons.)			.094 (.034)			.092 (.033)
Observations	3905	3905	3905	3905	3905	3905
R ²	.736	.738		.738	.738	
Log likelihood			-2410.9			-2403.8

* p<.05; ** p<.01; (.) SE

The coefficients in models 5a, 5b and 5c for the independent variable are all negative. Hence, the results predict higher vote share for candidates closer to the party's mainstream.

In order to check whether this relationship is perfectly linear, models 6a, 6b and 6c include quadratic terms. As for the overall model, the estimates results in a concave downwards curve. These results suggest that slight deviations from the party's mainstream position are beneficial for a candidate. Beyond an optimal point,

however, candidates are electorally punished for deviating from the optimal party position.



Graph 5.3 – Marginal effects for the models (Switzerland)

The findings presented in the different models highlight first of all contrasting effects between Luxembourg and Switzerland with regard to the impact of policy positions. These findings do not permit inferring that the *panachage* system has a uniform effect on the relationship between candidate ideology and their intra-party vote shares. From this perspective, one should be sceptical about the potential of electoral systems to affect this relationship.

When comparing the findings of these models to the existing literature, the results cast some doubt on the theoretical model presented in this chapter. In fact, the comparison of different types of regression models did not fully exclude the possibility that the variations observed between the analyses for Belgium and Finland may be due to methodological choices.

Furthermore, these results open up the possibility that the question on the impact of candidate ideology depends strongly on the specificities of the different cases. While the results for Switzerland correspond to the findings for Finland, those for Luxembourg show the opposite relationship.

5.5. Conclusion

Recent publications (Van Erkel, 2017; von Schoultz and Papageorgiou, 2019; Isotalo et al, 2020) have raised the question about how a candidate's political positions affect his intra-party electoral prospects. While Van Erkel did not find any statistically significant effect in the case of Belgium, the two other contributions have found that deviating from a party's mainstream position has a negative impact in the Finnish context. This chapter has analysed the same question in the context of Luxembourg and Switzerland. The purpose of this test was not only to test the generalizability of the findings of these studies, but also to test whether the design of the electoral system affects how candidate positions affect a candidate's intra-party performance.

Since Luxembourg and Switzerland use the same electoral system, the effects in both countries should have been rather similar if the electoral system were indeed one of the main determinants. The separate analysis for each of these two countries has however revealed opposing effects: Swiss candidates suffer from deviating from the party's mainstream position while Luxembourgish candidates are rewarded. In the Swiss case, the relationship does not appear to be fully linear. In fact, it appears that up to a certain point deviation from the party might be rewarded; beyond this point candidates are punished for distinguishing themselves too much from their party. Regardless from the precise effects, the different findings for two cases using the same electoral system do not support the thesis that the latter affects the impact of policy positions on a candidate's intra-party performance.

Based on the results for Belgium and Finland, it has appeared plausible that there is a continuum based on the characteristics of the electoral system. Under the Finnish system with a single compulsory preferential vote, deviating from the party position harms a candidate's intra-party vote share. An explanation for the non-significant results in Belgium would have been that the possibility of casting multiple votes neutralised this effect. This would be in line with earlier findings on the impact of multiple votes, which also reduce the impact of gender and incumbency on electoral performance.

In line with this reasoning, the argument for the present analysis was that the possibility of voting across parties in the *panachage* system would favour candidates on the edges of their respective parties. The results for Luxembourg would be in line with this reasoning; those for Switzerland, on the other hand, are similar to the findings for Finland and do not fit into this framework. Based on these findings, I do not have any evidence regarding a consistent pattern resulting from the electoral system.

The absence of consistent findings for the relationship between electoral systems and policy position on intra-party outcomes does however not mean that the results of this chapter have no value. In fact, the absence of findings consistent with our expectations can also help us advance the discipline. In addition, it is not the case that this analysis has yielded no meaningful results. In fact, the data on Switzerland appears to back up the data from Finland, while the data from Luxembourg contradicts it. The interesting question to raise now is how one can account for such differences. One potential explanation might be that the impact of candidate ideology is country-specific. Alternatively Luxembourg might simply be an exceptional case. Answering these questions requires to build on the findings of this chapter and to move on from it.

This chapter has also given us the chance to look more closely at the difference between different approaches to take into consideration the clustering of data. The

example of Switzerland shows clearly that the choice of the method is not a major concern when the results are very clear. In the case of Luxembourg, on the other hand, the results were not as clear. In fact, it appears that in such a case clustered standard errors provide more prudent estimates compared to multilevel models.

Finally, this analysis has highlighted the interest of looking more closely at the *panachage* system. The next chapter provides a first opportunity to do so through an analysis of randomly drawn ballot samples from Luxembourg.

Chapter 6

Dissecting the individual voter – Lessons from ballot sample analysis

The three preceding chapters have analysed aggregate election data for candidates from 15 different European countries or sub-samples thereof to address the three central research question of this thesis. The findings of these chapters highlight significant variations across different electoral systems, identify specific characteristics of these systems that account for that variation and show that electoral systems also affect the relevance of certain candidate characteristics in the intra-party contest.

While these results provide all of these insights with regard to the research questions, they also leave some questions open. Most importantly, these results cannot by themselves inform us about the link between individual voter behaviour and aggregate outcomes.

The most common approach to understanding the motivations of the electorate is survey research in which the electorate is directly asked about its vote choice and the reasons underlying it. The problem with a lot of these surveys is, however, that they focus primarily on inter-party preferences rather than intra-party preferences. Whereas an insufficient acknowledgment of the relevance of intra-party considerations could be one explanation for their neglect, there appear to be also other reasons that can explain it. In fact, the mere feasibility of an accurate measurement of intra-party preferences in survey question appears to be another serious challenge. Consider, for instance, the case of Luxembourg where the *panachage* system is used. The post-election survey for Luxembourg contains a question about the main factor that influences a voter's preferential vote (Poirier et al, 2014), but this question does not necessarily capture all of the complexity involved in preferential vote choices. It also remains unclear how these questions

could realistically be improved to better measure the determinants of intra-party choices in a survey context without removing other important questions that are supposed to be raised in a limited timeframe acceptable to respondents. For this reason, I propose to resort to a promising alternative in the present chapter.

More precisely, I propose the analysis of representative ballot samples as an alternative to better understand preference votes, at least in the context of an electoral system allowing for the allocation of multiple votes. In the case of Luxembourg, such ballot samples have been drawn since 1974 with the purpose of improving the understanding on the *panachage* system (Fehlen et al, 2000). These analyses (Fehlen et al, 2000; Fehlen et al, 2004; Poirier et al, 2010; Poirier et al, 2014) have however been primarily concerned with the associations between different parties and associations of major candidates.

In contrast, the analysis of the present chapter will constitute a first attempt at looking for coherent voting patterns on these ballots that allow relating individual voting behaviour to aggregate outcomes.

Besides the question of the availability of the necessary data, analysing ballot samples in the case of the *panachage* system has also the advantage that one can directly compare two different types of voters: (1) voters who allocate their votes within a single list and (2) voters who spread their votes. In studying individual voting patterns for this particular system, it is therefore possible to infer how the most notably characteristic of the *panachage* system affects intra-party outcomes.

This exploratory chapter is divided into four sections.

The first section summarises the findings on the Luxembourgish case from the preceding chapters. From these observations in the aggregate data, I will formulate several expectations on what one should observe in the ballot samples. In contrast to the previous chapters in which theoretical arguments and the existing literature have been relatively extensively used, this section will restrict itself to formulating

simple expectations based on earlier findings in the thesis. In that sense, it is more driven by empirical data.

The second section will introduce the data and approach that will be used to analyse whether these initial expectations match the information on the ballots. Due to the particular structure and nature of the data, this exploratory analysis of the ballot sample will be mainly descriptive. Since the primary goal of the analysis is to corroborate observations from the previous chapters, this approach may already prove extremely useful to improve our understanding of intra-party choices. This section will also provide further background information on the data.

In the third section, I will present the results of the analysis of the ballot sample data. In particular, the impact of leadership, incumbency, gender, age and local factors will be considered more closely in this analysis.

The chapter will close with a discussion of what this complementary analysis has revealed about how the *panachage* system works and what one can potentially infer from this on how other preferential-list PR systems work. In addition, I will briefly discuss the potential of these ballot samples for future research.

6.1. Individual voters and election outcomes

Electoral outcomes are the result of the aggregation of all votes cast by individual voters. Hence, any effects observed at the aggregate level can be expected to emerge from coherent voting patterns at the level of individuals. In cases where voters can only cast a single preferential vote, such patterns can more easily be determined because one can quantify the number of individuals that have voted for a certain candidate.

Under the *panachage* system, which in Europe is only used in Luxembourg and Switzerland, the determination of such patterns is more challenging because (1) voters can cast multiple preferential votes, (2) they can vote across parties and (3)

they can give up to two preferential votes to the same candidate. Unfortunately, the *panachage* system has thus far not been analysed extensively in the comparative literature on electoral systems. Books on electoral system (for instance, Farrell, 2011; Gallagher and Mitchell, 2005; Norris, 2004) illustrate this neglect exemplarily since they typically only dedicate a couple of sentences to these systems without entering into an analysis of these systems.

I propose to approach the *panachage* system by considering the results that the preceding chapters have provided. Table 6.1 represents model 3a from the previous chapter and shows a set of different variables that could explain intra-party success. Rather than developing a full theoretical explanation for the relevance of these variables, I shall briefly provide a brief explanation of what one should observe in a representative ballot sample based on the estimates from this regression model.

Table 6.1 - Variables explaining preferential voting in Luxembourg

	Coefficient	robust SE
Leader	.658 **	(.106)
Distance from party median	.004 *	(.001)
National legislator	.490 **	(.064)
National executive	.511 **	(.126)
Female candidate	-.149 **	(.042)
Candidate age	-.002	(.002)
Local councillor	.057	(.052)
Deputy mayor	.087	(.064)
Mayor	.228 **	(.076)
Ballot position	-.107 **	(.019)
Ballot position ²	.003 **	(.001)
Number of candidates	-.048 **	(.005)
Intercept	2.921 **	(.138)
Observations	348	
R ²	.761	

* $p < .05$; ** $p < .01$; (.) SE; estimates for the fixed effect of districts are not depicted

The results of this regression model show that in the Luxembourgish context list leaders and national incumbents (legislators as well as ministers) benefit from a substantial advantage over other candidates. As I have outlined in chapter 4, there are several reasons – including stronger visibility, party support, experience that might be appreciated and other structural factors – that have been advanced to

account for the advantage of these candidates. Such an advantage of list leaders and incumbents points at a higher probability of voters to pick a leader and/or incumbent over other candidates³¹.

As the aggregate effects results from the behaviour of individual voters, one should expect that voters have generally a higher propensity of voting for leaders and incumbents. In other words, the average share of leaders and incumbents on the average voter's ballot should exceed the share that these groups of candidates represent within the entire candidate field. In addition, one can expect that the share of voters who have chosen at least one incumbent is significantly higher than that of voters who have not chosen a single incumbent. Similarly, the share of ballots where only incumbents or list leaders are chosen should exceed that the share of ballots on which not a single incumbent or list leader has been selected.

In addition to these overall observations, the results on the interaction between incumbency effect and *panachage* from chapter 4 also point at a difference that one should observe between voters who cast their votes within a single list and those who spread their votes. In fact, those results predict a larger incumbency advantage for the *panachage* system compared to electoral systems that restrict voters to voting within a single candidate list. Since the main difference between both scenarios is the existence of cross-party voters, one can expect that this voter group have a higher propensity to vote for incumbent candidates. While the interaction with leadership has not been tested in chapter 4, one might observe a similar effect. With respect to female candidates, the model estimates that women are performing statistically significantly worse than their male counterparts in the intra-party contest. One can expect that this be reflected in the ballot sample in three ways. First, voters are on average casting fewer votes to women. Second, the vote share for female candidates is significantly smaller than the share of potential women a

³¹ Section 4.1.2 presents the general argument with regard to incumbency advantages while section 4.2.2 discussed the interaction between incumbency effects and electoral system characteristics

voter could vote for. Third, the proportion of voters exclusively voting for male candidates is larger than that voting exclusively for female candidates.

While the results for the interaction between gender and *panachage* in chapter 4 were not statistically significant³², one should not exclude the possibility that there is a difference in the voting behaviour between single-party and cross-party voters. Particularly, if there is a negative bias against female candidates in Luxembourg, this might be more visible in the case of the latter because they are making their vote choices within a larger set of candidates and could thus more easily avoid casting a vote for a female candidate.

While the model in table 6.1 does not predict any statistically significant effect for age, this does not necessarily mean that it is an irrelevant factor for individual voters. In fact, one could conceive that voters use age as a criterion when making vote choices, but that these effects are simply cancelled out at the aggregate level. If age does indeed play a role at the individual level, this should be reflected in coherent voting patterns based on age, including a particular tendency to vote for young or old candidates.

The regression model for Luxembourg also reveals that mayors benefit in the intra-party contest. This result highlights that local factors matter for intra-party vote choices. For this analysis, I propose to focus on another way in which local factors play a role: localness. As outlined in chapter 2, this factor has been discussed in the intra-party literature as a key determinant of preferential vote choices (Arzheimer&Evans, 2012; Jankowski, 2016; Shugart et al, 2005; Tavits, 2010). As the origin of the ballot is the only information regarding the voters' characteristics, the analysis of ballot samples appears to be a promising approach to studying these local factors. In fact, while the relevance of local factors has been mentioned in earlier chapters, the data did not allow testing for it. However, due the clear

³² As explained in chapter 4, a major difference in the role of gender that could account for the non-significance of the results could be observed between the Swiss and Luxembourgish cases.

relevance and the potential usefulness of the data, it would be rather foolish not to consider this factor in the present analysis.

One factor that this analysis can unfortunately not include is that of candidate ideology. As outlined in the preceding chapter, ideology affects a candidate's intra-party outcome. More specifically, the results for Luxembourg suggest that adopting a policy position different from the party mainstream is beneficial. While trying different ways of testing for ideological coherence in the candidate's vote choices in different ways, it was unfortunately not possible to develop an promising approach to assess the findings on ideology.

6.2. Ballot samples

This chapter will analyse the randomly drawn ballot sample from the 2018 parliamentary election in Luxembourg. As this is a rather unusual data source, it may be useful to briefly provide some historical background as well as information on the drawing procedure before discussing the core information about that sample and the proposed methods to analyse it.

6.2.1. Historical background

The introduction to the 1999 election study in Luxembourg (Fehlen et al, 2000) provided an overview of the history of election studies in Luxembourg. Here, I shall summarise the key events in relation with ballot sample analyses. The analysis of parliamentary elections in Luxembourg dates back to 1974 when the Belgian *Centre de recherche et d'information socio-politiques* (CRISP) was first mandated with an election study. Since this first election study, there has been a tradition in Luxembourg to draw samples of actual ballot papers in order to better understand the voting patterns under the *panachage* system. In fact, these ballot sample analyses predate first post-election survey in Luxembourg, which was conducted in 1989 (Fehlen et al, 2000: 6). When the public research centre Gabriel Lippmann,

which was later integrated into the University of Luxembourg, took over the parliamentary mandate to prepare election studies, the tradition of drawing ballot samples was maintained and sampling strategies have been refined.

The different ballot samples have to the best of my knowledge never been used for publications in peer-reviewed publications, but only for the purpose of the official reports requested by Luxembourg's parliament.

The analyses in these reports aim at explaining basic characteristics of voting behaviour and they are primarily concerned with the inter-party dimension.

6.2.2. Drawing procedure

Since the 1974, the drawing procedure for the ballot samples has been revised at least two times. The current drawing procedure has been designed by Patrick Dumont and has been implemented since 2009.

Over the last elections, the aim has been to draw a little over 6000 ballots on which preferential votes have been cast; in other words, the sample excludes ballots for which only list votes have been cast. The determination of the number of ballots occurs in two steps.

1. Determination of the number of ballots to be drawn per municipality – For each municipality its share of preferential ballots is determined on the basis of the data from the election results. Subsequently, the number of ballots to be drawn in each municipality is determined on the basis of these shares. In other words, the mechanism ensures that the number of ballots to be drawn is proportional to the election result. If for instance, 10% of all preferential ballots originated from a certain municipality, one would draw 600 ballots from that municipality.

2. Determination of the number of ballot to be drawn per ballot station – Except for one municipality, all municipalities had multiple polling stations at the 2018 elections. Depending on the municipality, there are different approaches to allocating a polling station to a voter. Some municipalities organise their polling stations geographically, others alphabetically while again other combine these two

factors. In addition, the recent increase of postal voting has lead to an increase of polling stations exclusively dedicated to counting postal ballots. In order to account for potential distortions resulting from the approach to organising the polling stations, the protocol of the drawing procedure stipulates that ballots from each polling station need to be drawn. For this reason, the number of ballots to be drawn per station is determined in dividing the number of ballots to be drawn in a particular municipality by the number of polling stations. For instance, if a municipality where 600 ballots need to be drawn has 20 polling stations, one would need to draw 30 ballots per polling station.

For each of the two steps, there is a high probability that the result of these calculations yields a non-integer number. While one could conceive of ways of determining adjusting for this in order to arrive at a perfect count, the drawing protocol has opted for a more risk-averse approach. In fact, for each of the two steps, non-integer numbers are systematically rounded up, i.e. when the calculations indicate that one should drawn 6.3 ballots per station, 7 will actually be drawn. The principal reason for this choice is to minimise potential errors, which would require to partially redrawing ballots for one or more stations. Controlling for a potential overrepresentation of one municipality in the dataset would be indeed easier than correcting the dataset via the repetition of a part of the procedure.

6.2.3. Data

For the 2018 ballot sample that constitutes the core data for the analysis of this chapter a total of 6436 ballots had been drawn across the different municipalities and electoral district. The number of ballots for each district is as follows:

- Centre district: 1783 ballots
- East district: 1043 ballots
- North district: 1392 ballots
- South district 2218 ballots

The dataset coded on the basis of this ballot sample, treats each ballot as one observation. The basis dataset contains the following information: the district and municipality of origin of the ballot, the number of votes cast for each candidate (0, 1 or 2) as well as the parties for which at least one vote has been cast on the ballot.

On the basis of this data it has been possible to code additional variables informing about the number of lists across votes have been spread, a dummy variable distinguishing between intra-party voters and cross-party voters as well as the number of candidates that have been selected on the ballot.

For the analysis, this dataset has been combined with the candidate data from the dataset for Luxembourg that has already been used in chapters 3 to 5. Through a process that involved substantial manual coding, variables regarding vote choices by gender, leadership, incumbency, age and localness have been coded.

Finally, the analysis will compare the data from this dataset to general metrics from the election results or the overall candidate data.

6.2.4. Method

The subsequent section will present the data of this exploratory analysis of ballot samples. For this first analysis, I shall focus primarily on analysing the main descriptive statistics for the different variables, test for significant differences between intra- and cross-party voters and relate these results to the findings of the earlier chapter.

While other approaches for this analysis – including approaches from social network analysis – had been considered, two main reasons motivate the methodological choice of sticking to the main parameters at this stage. First, the data is relatively novel and it appears important to first fully explore the data before expanding on the methodologies applied for its analysis. Second, - and more significantly - the chosen approach is more suitable to fulfil the purpose of this chapter. In fact, the primary purpose of this chapter is to relate the findings of the previous chapter to individual voting behaviour. The chosen approach allows doing

exactly this while the considered alternatives would have made it more difficult to do so because they would focus primarily on the association between candidates at the expense of understanding the choices of individual voters.

6.3. Results

This section presents the different results of the ballot sample analysis. In a first step, some general results will be provided for the purpose of obtaining a first overview of the data. In a subsequent step, results in relation to voting on the basis of list leadership, incumbency, gender, age and localness will be presented. These results relate to the discussion in section 6.1.

6.3.1. Core data on the ballots

In order to fully assess voting behaviour in relation to the different characteristics discussed earlier in the chapter, it is necessary to first understand the overall parameters of the ballot sample. In addition, these general results also provide a basis for comparison with previous ballot samples. In fact, all of the parameters described in this sub-section approximately correspond to the findings for the ballot samples of the four preceding elections (Fehlen et al., 2000; Fehlen et al, 2005; Poirier et al., 2010; Poirier et al., 2014). In particular, three points should be highlighted.

First, there is the question about how many preferential votes are typically cast. On average, voters cast 84.23% of their available votes. The data shows that a large majority of voters (63.55%) use all of the preferential votes at their disposal. In larger districts, where the number of votes is higher, the share of voters using all of their votes is somewhat smaller.

Secondly, the possibility of spreading one's votes leads to the question about how voters use that possibility. Table 6.2 summarises the corresponding data. According

to the ballot sample data 24.2% of the voters casting preferential votes³³ are only allocating votes within a single party. The data also highlights that the vast majority of voters across all districts restrict themselves to voting on a maximum of four different lists. This led the researchers of the 1999 election study to the conclusion that votes are used strategically from an inter-party perspective to show support for certain alliances (Fehlen et al., 2000). Only a small proportion of candidates spread votes across larger number of parties, constrained either by their total number of votes or the number of lists in the electoral district.

Table 6.2 - Number of lists on which voters have cast votes

	Centre	East	North	South	Overall
N ballots	1783	1043	1392	2218	6436
N lists	9	8	8	10	10
DM	21	7	9	23	60
1	26.64	28.76	19.40	23.13	24.21
2	24.90	32.89	33.84	22.00	27.13
3	23.95	26.27	29.31	23.26	25.25
4	15.26	9.97	13.94	16.55	14.56
5	6.62	1.34	2.73	9.33	5.86
6	2.08	.67	.43	3.29	1.91
7	.45	.10	.22	1.26	.62
8	.00		.14	.54	.22
9	.11			.18	.09
10				.45	.16
Total	100.00	100.00	100.00	100.00	100.00

The third point concerns the number of candidates that are selected. As mentioned earlier, Luxembourg's electoral system does not only allow spreading votes across different parties, but also to allocate up to two votes to the same candidate. This would lead theoretically to two possibilities: (1) voters are consciously using this possibility to carefully show a differentiation of their votes or (2) their use this possibility of *cumulation* in order to limit the number of candidates for which they need to vote and still use all of them with the purpose of reducing the necessary effort.

³³ Please note that all the numbers are exclusively based on the ballots for which preferential votes have been cast. Depending on the district, the total share of ballot on which preferential votes have been cast varies between 37 and 48%.

Table 6.3 - Number of candidates per district

District	N votes	Mean	Median	Minimum	Maximum
Centre	21	10.64	11.00	1	21
East	7	4.00	4.43	1	7
North	9	5.00	5.34	1	9
South	23	11.18	12.00	1	23

Table 6.3 shows the summary statistics for each electoral district for the number of candidates on each ballot. The results show that the mean as well as the median values in each district correspond approximately to half the district magnitude, suggesting that voters allocate two votes rather systematically. This suggests that *cumulation* is primarily used as a tool for efficiency rather as one for differentiation. This observation is in line with the general model of the rational voter outlined in chapter 2; in fact, this strategy allows casting all votes, thus fully using one's weight as a voter while minimising the effort related to it.

6.3.2. Voting for list leaders

For the 2018 elections, the different parties nominated a total of 46 lead candidates for their lists, representing 8.41% of all candidates for that particular election. A distribution of these candidates by district and party is provided in table 6.4.

Table 6.4 – Number of list leaders by district and party (candidate data)

Party	Centre	East	North	South
CSV	1	1	1	1
LSAP	1	1	1	1
DP	2	2	2	2
Gréng	2	2	2	2
ADR	1	2	2	2
Lenk	4	0	0	4
KPL	1	0	0	1
Piraten	1	1	1	1
Demokratie	0	-	-	0
Konservativ	-	-	-	1
Total	13	9	9	15
Share	6.88%	16.07%	12.50%	6.52%

The strong effect of list leadership observed for Luxembourg suggests that voting for lead candidates should be a common practice across almost the entire electorate.

According to the data from the ballot sample, voters have on average cast votes for 2.17 leaders (median 2). While the average number is slightly higher in the larger electoral districts, these differences are not particularly strong. Furthermore the

data suggests that voting for lead candidates is an almost universal phenomenon. In fact, at least one vote for a list leader has been cast on 90.97% of the ballots in the sample. 3.19% of all voters have exclusively cast votes for lead candidates.

The large attraction of lead candidates is also apparent if one takes into consideration the average share of chosen candidates that list leaders represent on the ballot. In fact, they constitute on average 30.11% all of candidates selected by a voter, which is a remarkable share for a group of candidates that represents only 8.41% of all candidates on the ballot. In the larger districts (Centre and South) this share is at approximately 25% while it stands at over 40% in the Eastern district.

The observed quasi-universal tendency to cast preferential votes for lead candidates is even more remarkable, because not all candidate lists have a list leader. To take this into consideration, one should also take this circumstance into consideration. If one considers only ballots on which voters have cast votes on lists that contain a leader, i.e. where it is possible to support a list leader on the basis of a voter's inter-party choices, one can observe that 91.19% of all voters support at least one leader, while over a quarter of the electorate (27.49%) support all of the potential leaders that they could support on the basis of their selected lists. On average, voters support almost 60% of all list leaders that they could support given their party choices.

Table 6.5 – Voting for leaders potential leaders based on party choices (ballot sample)

N lists	Average N leader	Average share leaders	Potential share of leaders			
			Mean	Median	All	None
1	1.02	20.55%	76.83%	100.00%	71.47%	17.92%
2	1.82	29.63%	60.58%	66.67%	25.70%	8.61%
3	2.52	34.67%	54.14%	50.00%	10.71%	5.29%
4	3.07	36.01%	48.80%	50.00%	3.52%	3.09%
5	3.81	35.62%	47.21%	44.44%	1.33%	3.18%
6	3.95	34.13%	40.00%	39.79%	1.63%	4.88%
7	4.62	38.53%	44.16%	41.89%	.00%	5.00%
8	4.14	29.81%	40.66%	32.20%	.00%	14.29%
9	3.17	21.38%	23.07%	23.90%	.00%	.00%
10	4.30	25.79%	23.33%	28.67%	.00%	20.00%
Overall	2.17	30.11%	59.69%	60.00%	27.49%	8.81%

Table 6.5 illustrates the voting behaviour for list leaders based on the number of selected lists. The data shows that lead candidates play a role in the vote choices of voters regardless of the number of selected lists. In fact, the average number of selected leaders increases as the number of lists increases, however this increases slows down as the number of lists goes up.

Since the number of potential leaders one can vote for increases with the number of lists one supports, it is not surprising that one can observe a statistically significant difference between intra- and cross-party voters. On average leaders represent 20.55% of an intra-party voter's candidate selection (95% CI: 19.28-21.82), while this share is at 33.17 for cross-party voters (95% CI: 32.57-33.76). Due to the higher number of potential leaders one can select if one votes for a higher number of lists, this difference cannot be interpreted as evidence for the higher significance of leadership status for cross-party voters.

Overall the findings demonstrate that the advantage of lead candidates comes from across the entire electorate. Hence, the observed advantage for list leaders at the aggregate level finds its origins in quasi-universal support for those leaders within the electorate.

6.3.3. Voting for incumbents

Similarly to list leaders, the models also identify a clear advantage for incumbent candidates. Incumbents – including incumbent legislators and ministers – represent between 12.61% of the candidates in the South district and 16.66% in the North district of all candidates in the 2018 parliamentary elections. A detailed count of incumbents per party is provided in table 6.6.

According to the data from the ballot sample, an average voter cast a vote for 3.94 incumbents. While the average number of selected incumbents varies with district

magnitude³⁴, the share that these incumbents represent compared to the entirety of a voter's choices does not vary significantly across the four districts. In fact, across all districts this share is at 48.23% (with averages between 45.8% and 49.2% in the four districts). In other words, almost half of all chosen candidates of an average voter are incumbents while incumbents represent only 15% of the entire candidate field.

Table 6.6 – Distribution of incumbents by party and district

	Centre	East	North	South	Total
CSV	8	3	4	8	23
LSAP	5	2	2	10	19
DP	8	2	4	5	19
Gréng	2	2	2	3	9
ADR	1	0	0	2	3
Lenk	1	0	0	1	2
KPL	0	0	0	0	0
Piraten	0	0	0	0	0
Demokratie	0			0	0
Konservativ				0	0
Total	25	9	12	29	
Share	13.23%	16.07%	16.66%	12.61%	

As table 6.7 illustrates, the share of incumbents as a proportion of a candidates vote choices varies slightly on the basis of the number of lists on which votes are cast. It is however not surprising that this share increases with the number of lists up to a certain point, as the number of potential incumbents on can vote for increases. It is therefore not surprising that there is a statistically significant difference between intra- and cross-party voters when comparing the respective average number of incumbents that have been chosen. While this higher average number of incumbents is not surprising, it relates to the findings of chapter 4, where the panachage system has been shown to reinforce incumbency advantages.

³⁴ The average voter in the Centre district votes for 4.71 incumbents, one in the South for 5.15 incumbents, one in the North for 2.47 incumbents and one in the East for 2.01 incumbents.

Table 6.7 – Voting for incumbents (Only ballots on which at least one vote for a parliamentary party)

N lists	Average N incumbents	Average share incumbents	Share of potential incumbents			
			Mean	Median	All	None
1	3.17	43.55%	63.34%	66.67%	24.69%	6.65%
2	3.39	47.21%	45.68%	46.15%	5.72%	4.85%
3	4.20	51.81%	37.04%	36.60%	.99%	3.27%
4	4.81	51.96%	31.04%	30.43%	.32%	1.39%
5	5.67	50.81%	28.09%	28.57%	.27%	1.06%
6	5.22	43.45%	23.77%	24.14%	.81%	4.07%
7	5.60	45.61%	23.87%	25.00%	.00%	2.50%
8	5.00	32.93%	20.08%	18.97%	.00%	7.14%
9	4.83	32.41%	18.45%	17.59%	.00%	.00%
10	3.80	27.17%	16.21%	13.79%	.00%	10.00%
Overall	3.94	48.23%	43.62%	39.13%	7.58%	4.08%

Overall the results for incumbency therefore point at a similar direction than those for list leadership: all voters appear to have a greater probability of voting for incumbents.

6.3.4. Voting for women

All regression analyses of the 2018 parliamentary election considered up to this point, predict that female candidates have a significantly smaller vote share compared to their male co-partisans. In order to trace the origins of this aggregate effect, it is first of all necessary to consider the number of female candidates at this election. The 2018 election was the first election for which parties had to respect an overall gender quota of 40% in order to fully benefit from public party finances (Dumont et al, 2019). Except for the Pirate Party all candidates have respected this threshold nationally. However table 6.8 also points at some regional differences.

Table 6.8 - Number of women by district and party list

	Centre		East		North		South		Overall	
	F	%	F	%	F	%	F	%	F	%
CSV	9	42.86%	3	42.86%	3	33.33%	9	39.13%	24	40.00%
LSAP	11	52.38%	3	42.86%	2	22.22%	9	39.13%	25	41.67%
DP	11	52.38%	3	42.86%	3	33.33%	10	43.48%	27	45.00%
Déi Gréng	10	47.62%	3	42.86%	5	55.56%	12	52.17%	30	50.00%
ADR	9	42.86%	3	42.86%	4	44.44%	9	39.13%	25	41.67%
Déi Lenk	10	47.62%	5	71.43%	5	55.56%	10	43.48%	30	50.00%
KPL	8	38.10%	5	71.43%	3	33.33%	10	43.48%	26	43.33%
Piratenü	6	28.57%	5	71.43%	2	22.22%	10	43.48%	23	38.33%
Konservativ							10	43.48%	10	43.48%
Overall	74	44.05%	30	53.57%	27	37.50%	89	43.00%	220	43.74%

In fact, in the two largest districts – Centre and South – the share of female candidates is fairly similar with 44.05% and 43.00%. In the smaller districts there is a major discrepancy since women in the East district are in a majority while only 37.50 of the candidates in the North were female. The analysis of votes for women needs to take this into consideration and should therefore assess the question of gender by district.

An average voter in the Centre district has votes for 4.51 female candidates, one in the East for 1.94 women, a voter in the North for 1.36 women and a voter in the South for 3.73 women. When comparing the average share of women as a proportion of the total number of candidates selected by a voter, one observes that this share is significantly smaller than the total share of women on the ballot. The only exception to this is the Centre district where women represent 39.7% of selected candidates on an average voter, which is less than a 5 percentage point difference. In the three other districts this gap is larger than 10 percentage points.

Table 6.9 - Number for female candidates per district

District	Number of women				Share of women			
	Mean	Median	Min.	Max.	Mean	Median	Min	Max.
Centre	4.51	4	0	20	39.7%	41.2%	0%	100%
East	1.94	2	0	7	42.8%	42.9%	0%	100%
North	1.36	1	0	7	24.7%	20.0%	0%	100%
South	3.73	3	0	23	30.9%	33.3%	0%	100%

These first results suggest that there is general tendency of not supporting female candidates. To assess the viability of this initial assumption, it is however necessary to analyse more specific patterns in voting behaviour.

In order to check whether this is accurate, one should however also consider the shares of voters either voting exclusively for women or exclusively for men, which can provide an additional indication about whether there are sub-groups in the electorate that drive the effects.

Across all districts, the share of voters' casting votes exclusively for women is relatively small, suggesting that only a small proportion of the electorate use their

vote to boost female representation. The largest proportion of exclusively female ballots can be found in the East district with 3.36%, followed by the Centre district with 1.40% and the South with 1.26%. In the North only .65% of the electorate cast an exclusively female ballot. The number in the East can be explained by the fact that two of the most successful individual candidates in that district were women who were list leaders for two of the main parties.

The share of exclusively female ballots represents only a fraction of the share of exclusively male ballots. In the East (9.78%), Centre (8.02%) and South (11.86%), the shares of these ballots are relatively close to one another. In the North, on the other hand, approximately a quarter (23.71%) of the electorate has not supported a single woman, despite the fact that the candidate receiving most preferential votes was a woman and list leader for the largest party in the district. This data suggests that there is a larger bias against women in the Northern part of the country that needs to be further analysed.

Another piece of information that the ballot sample can reveal is the share of ballots where the majority of the selected candidates are female. 25% of the electorate have selected a majority of female candidates. In the East district, about half (49.28%) of the electorate support a majority of female candidates. In the Centre district this share is at almost a third of the electorate (31.30%), while it is significantly smaller in the two other districts (North: 14.01%; South: 16.86%).

Finally, there is the question about whether the possibility of cross-party voting adversely affects the prospects of women. The results of a student t-test comparing the average share of female candidates selected by intra- and cross-party voters reveals a statistically significant difference between those two groups. According to these results, the share of female candidates is between 2.5 and 5 percentage points lower on cross-party ballots (mean for intra-party voters with 95% confidence intervals: 35.89-38.34%; mean for cross-party voters 32.34-33.46%; $p < .001$). In

other words, these results suggest that cross-party voters are less likely to support female candidates.

The question on why female candidates have a disadvantage in Luxembourg requires a nuanced answer. While there are signs that there is a general tendency to pick fewer women, there are significant regional differences. In addition, it appears that it is also driven by the absence of a significant section of the electorate aiming at supporting female candidates and the absence of female support from a significantly larger part of the electorate. Finally, the comparison between intra- and cross-party voters shows that the possibility of voting across parties appears to harm female candidates.

6.3.5. The question of age

None of the regression models in this thesis have identified candidate as a relevant candidate characteristics explaining preferential vote share. The question to be raised regarding age is whether this irrelevance is due to individual voters not caring about age or whether individual voters consider age as a factor, which does however not play any role when aggregating the cast votes.

Before analysing the ballot sample with regard to this point, it is however important to briefly consider the age structure of the different candidate lists in the different districts in order to make sure that they are sufficiently homogenous. Table 6.10 shows the summary statistics for each candidate lists for the 2018 parliamentary elections in Luxembourg. In addition, it also shows the number of young and old candidates. A young candidate is – in accordance with the age limit of most youth organisations of Luxembourgish parties – defined as a candidate up to the age of 35 years. The category of older candidates encompasses all candidates beyond the legal retirement age of 65 years.

The data shows that the age structure of most lists is relatively homogenous. The average age of all lists except those for the Pirate Party is between 40 and 50 years. In general, parties have more young than old candidates on their lists.

Table 6.10 – Age structure of the candidates by district and party

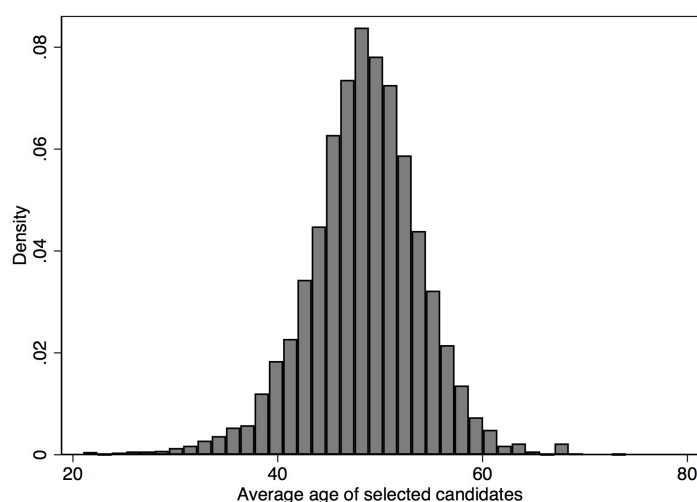
	Mean	Median	Min.	Max.	Young	Old	Obs.
<u>Centre</u>	47.33	48	19	74	37	13	168
CSV	46.14	49	25	67	4	1	21
LSAP	44.19	47	24	62	7	0	21
DP	47.05	45	22	65	2	2	21
Déi Gréng	47.00	52	19	66	5	1	21
ADR	50.52	53	21	74	3	1	21
Déi Lenk	51.14	52	34	74	4	2	21
KPL	50.62	52	23	74	4	4	21
Pirates	41.95	37	23	71	8	2	21
<u>East</u>	44.32	43.5	22	69	20	2	56
CSV	47.29	48	34	57	1	0	7
LSAP	46.29	43	31	64	2	0	7
DP	40.57	34	26	61	4	0	7
Déi Gréng	44.57	41	26	60	2	0	7
ADR	45.43	46	23	69	3	1	7
Déi Lenk	46.71	52	29	64	2	0	7
KPL	48.29	44	28	69	1	1	7
Pirates	35.43	28	22	64	5	0	7
<u>North</u>	43.97	45.5	20	72	24	3	72
CSV	48.00	52	31	63	3	0	9
LSAP	44.22	52	21	55	2	0	9
DP	47.11	47	32	63	2	0	9
Déi Gréng	45.00	51	23	63	3	0	9
ADR	46.89	45	30	65	1	1	9
Déi Lenk	42.56	38	24	65	3	1	9
KPL	41.67	37	21	72	4	1	9
Pirates	36.33	30	20	64	6	0	9
<u>South</u>	45.94	48	20	79	61	16	207
CSV	48.91	51	27	65	4	1	23
LSAP	47.43	49	27	68	6	2	23
DP	44.13	44	21	66	7	1	23
Déi Gréng	46.04	51	20	71	7	1	23
ADR	50.70	52	24	74	4	4	23
Déi Lenk	40.96	38	20	67	9	2	23
KPL	45.17	46	20	71	10	2	23
Pirates	39.04	36	20	71	11	1	23
Konservativ	51.09	53	22	79	3	2	23

When comparing the average age of candidates in the districts to the average age of the selected candidates, one can observe that these means are relatively close to each other. For the East, North and South districts, the average age of the selected candidates is statistically significantly higher than the average age of the candidates. However, the differences are relatively small.

Table 6.11 – Average age of vote choices by district

District	N votes	Mean	Median	Minimum	Maximum
Centre	21	47.35	47.36	24.00	74.00
East	7	45.67	46.00	23.00	69.00
North	9	49.40	50.20	21.00	64.00
South	23	49.98	50.00	21.00	69.00
Overall		48.43	48.58	21.00	74.00

The data in table 6.11 also reveals that there are voters whose vote choices are on average very young or significantly older than the choices of an average voter. In fact, an analysis of the distribution of the average age of candidates shows that there are small proportions of the electorate that appears to vote primarily for young or old candidates. One should therefore look more closely at voting for young and old candidates.



Graph 6.1 – Distribution of average age of vote choices

One can observe that the average voter chooses 19.4% of young candidates while they constitute 26% of the entire set of candidates. In addition, it is worth noting that the average share of voters choosing young candidates is larger in the smaller districts. Except for the East district (1.63%) less than one per cent of the electorate casts exclusively vote for young voters, while roughly a quarter of the electorate does not select any young candidates. In the North district, even 31.4% of all voters do not support a single young candidate.

Table 6.12 - Average share of selected young candidates per district

District	N votes	Mean	Median	Minimum	Maximum
Centre	21	16.2%	14.3%	0%	100%
East	7	27.8%	25.0%	0%	100%
North	9	21.0%	20.0%	0%	100%
South	23	17.0%	16.7%	0%	100%
Overall		.194	.167	0%	100%

Candidates having attained the retirement age constitute only 6.22% of the entire candidate field, however the average voter selects 8% of older candidates. In the South of the country this share is at 14.3%, which might be due to the fact that three of the most successful incumbent candidates in that district were above the age of 65. At the same time the share of voters exclusively supporting old candidates is smaller across the entire country and the share of voters not supporting a single senior is larger than that of voters not supporting a single young candidate, except for in the South district.

Table 6.13 - Average share of selected old candidates per district

District	N votes	Mean	Median	Minimum	Maximum
Centre	21	7.5%	7.1%	0%	100%
East	7	2.9%	.0%	0%	100%
North	9	2.5%	.0%	0%	100%
South	23	14.3%	12.5%	0%	100%
Overall		8.0%	.0%	0%	100%

The final distinction one can make is that between intra- and cross-party voters. The comparison of means test for the two different types of ballots shows that the average age of selected candidates on intra-party ballots is at 47.67 years (CI: 47.36-47.99) while that same average age is at 48.67 years (CI: 48.51-48.82). In other words, there is a statistically significant gap between these two groups, highlighting that cross-party voters on average vote for slightly older candidates.

The same test reveals similar results if one compares the share of young and old voters chosen by the respective groups. In fact, the test reveals that intra-party voters support on average 0.3-3.5 percentage points more cross-party voters than cross-party voters. The latter group is on the other hand more likely to support older voters at a higher rate. More specifically the difference in the share of older voters is estimated at 1.5 to 3.9 percentage points.

While a definite explanation of this difference requires more analysis with other types of data, one might conceive one potential explanation for this gap. Intra-party voter can be assumed to have a higher degree of party loyalty. In contrast to voters who simply cast a list vote, they also want to express an intra-party choice and it

would appear plausible that one motive may be to support the next generation of their preferred party. Cross-party voters, on the other hand, do not have strong partisan preferences, and might therefore be driven more by factors that drive visibility. As visibility may be a result of experience and a longer presence on the political stage, candidates attracting cross-party votes may simply be older.

To sum up, the results on candidate age show some minor differences based on voting by age structure. However, the proportion of voters who are driven by considerations of age appears to be relatively small and does therefore not have a major impact. While age does not play a major role, the difference between intra- and cross party voters may point at a significant difference in the behaviour of these two voter types, which may however not be fully related to age. Further research is necessary to better understand this point.

6.3.6. Voting for locals

The final analysis concerns the relevance of local factors. As the local origins of ballots are known, it is possible to assess whether voters are more likely to select local candidates. Before analysing the results from the ballot sample, it should be noted that there are large discrepancies with regard to the presence of local candidates. For several small municipalities there are no local candidates while there are more local candidates from the largest municipalities than voters have votes. Most importantly, 88 candidates from the Centre district come from the capital of Luxembourg City.

According to the ballot sample, the average voter selects 19.9% of local candidates. In Luxembourg City, which represents a little over 40% of the electorate in the Centre district, the average voter selects 66.78% candidates from the city while candidates from Luxembourg city only constitute 46.6% of the electorate.

A comparison of intra- and cross party voters does not yield any significant difference in the share of local candidates between these two voter types. In fact, the test predicts basically the same average share of local candidates on both ballot

types (19.93 for intra-party ballots and 19.91 for cross-party ballots). On the basis of these results one can thus not conclude that the possibility of spreading preferential votes affects the relative importance of localness on a candidates electoral performance. This also implies that the diminishing role of partisanship does not appear to result in a stronger role of local factors.

Table 6.14 - Average share of local candidates per district

District	N votes	Mean	Median	Minimum	Maximum
Centre	21	31.4%	16.7%	0%	100%
- <i>Lux. City</i>		66.8%	66.7%	0%	100%
- <i>other</i>		9.4%	6.7%	0%	100%
East	7	16.1%	.0%	0%	100%
North	9	12.5%	.0%	0%	100%
South	23	17.1%	10.0%	0%	100%
Overall		.199	.100	0%	100%

When comparing the different district, one can observe that on the large district, which contain fewer but larger municipalities the share of local candidates is larger than in the smaller districts that also count more municipalities. For municipalities where there is at least a choice of 5 local candidates, only 13.16% of voters do not pick a single local candidate.

On average voters cast a vote for 17.33% of all of the local candidates from lists that they have selected. This share does however include a large number of ballots from municipalities where the number of local candidates exceeds the number of available votes. If one considers only municipalities with fewer than 15 local candidates, that share is at over 20%.

Table 6.15 – Voting for local candidates (Only ballots from localities where at least one local candidate and where voter cast vote for party with local on it)

	Mean	Median	All potential incumbents	No potential incumbents
1	11.84%	.82%	.56%	38.45%
2	16.85%	9.09%	2.30%	36.38%
3	19.27%	10.23%	3.03%	32.75%
4	22.02%	13.34%	3.79%	27.24%
5	21.21%	14.29%	5.06%	20.51%
6	21.21%	12.5%	6.84%	27.35%
7	18.04%	9.09%	5.13%	10.26%
8	14.89%	11.25%	.00%	35.71%
9	14.28%	11.64%	.00%	16.67%
10	10.87%	6.34%	.00%	40.00%
Overall	17.33%	10.00%	2.54%	33.30%

While these results on the role of localness suggest that local ties play a certain role, the results are not fully conclusive. In fact, it would appear that the analyses of ballot samples on this question might need to be complemented with an analysis of election results at the local level.

6.4. Conclusion

Following the analysis on the basis on aggregate election result data in the three preceding chapters, this chapter has aimed at testing whether data at the level of individual voters corroborates previous findings. As outlined in the first chapters of the thesis, the primary goal of this approach is to strengthen the case with regard to the analysis of the three research questions in adopting a strategy of different complementary methodological approaches.

For this purpose, this chapter has introduced the use of randomly drawn ballot samples as a potential approach, which seems to be particularly useful in situations where voters can express more than one preference. More specifically, the chapter has analysed such a ballot sample for the 2018 parliamentary elections in Luxembourg.

Due to the main purpose of efficiently comparing the ballot sample to the previous results, an analysis on the basis of the main descriptive statistics of this ballot sample has appeared to be the most promising approach. The analysis in this chapter has focused particularly on how list leadership, incumbency, gender, age and local factors drive voting behaviour. In addition, the application of this approach to the *panachage* system provides an opportunity to test more specifically the impact of the electoral system in comparing systematically potential differences between intra- and cross-party voters.

The findings of this analysis provide additional insights into the results observed throughout the different chapters. First, the analysis reveals that the advantage of

list leaders and incumbents is the result of a quasi-universal tendency across the entire electorate to favour these candidates. Second, the disadvantage of female candidates can also be attributed to such an effect, however a more nuanced analysis for the role of gender seems appropriate due to regional differences and apparent differences within certain voter groups. The information from these samples invite us to further analyse this question and to complement the analysis with additional information. Third, with regard to candidate age the analysis shows that it has some impact on the individual level, which is however not strong enough to make a difference on the aggregate level. Fourth, the analysis also points at a certain degree of relevance of a candidate's local ties.

In addition to these general effects, the findings in this chapter have also demonstrated more specifically how *panachage* can impact election results due to the different dynamics between intra- and cross-party voters. Particularly with respect to gender the difference in the voting behaviour of these two groups has been particularly apparent. For the analysis on the effects of age, the comparison between these two groups has also revealed a statistically significant difference, further research is however necessary to better understand the precise reasons for these findings.

The latter point highlights an argument that has been outlined at the end of chapter 2. In fact, I had stressed in the description of the methodological section of that chapter that the analysis of ballot samples should not be perceived as an ideal substitute for other approaches. In fact, this chapter highlights that these ballot samples can provide useful insights into voting patterns that help us better understand how certain electoral results emerge.

On the other hand, it is not always possible to completely understand how these effects emerge because the amount of information on the ballots is limited to the votes that have been cast. While it is possible to supplement this information with

data on the different candidates, this anonymous data source does not allow fully assessing the motives of voters.

I would therefore maintain that randomly drawn ballot samples are a rich source that potentially has many applications that go beyond the one in this exploratory chapter. As stated earlier, one potential route may be approach from social network analysis that allows to better understanding why certain candidates are often selected together by candidates.

Another promising approach may the combination of ballot samples with other data sources. An example that I have provided earlier in the chapter may be the combination of ballot sample analysis and local election data, which could help better understanding the role of local ties.

Finally, ballot samples might also be used in conjunction with experimental research in various forms. One could, for instance envisage studies that use ballot samples to identify certain associations between candidates and subsequently use investigate the origins of these associations in an experimental setting.

Experimental approaches will also be at the centre of the next chapter that will assess the potential of *in situ* voting experiments as an approach to analyse the three research questions of this thesis.

Chapter 7

Testing the alternative – Measuring intra-party outcomes with *in situ* experiments

The preceding chapters have analysed data from different cases in order to assess whether there is a causal relationship between the electoral system and intra-party outcomes as well as the factors leading to this relationship. While the results provides consistent and robust results, sceptics may still be inclined to question whether the actual causal relationship has been detected since there could potentially be other factors explaining the obtained variation.

The persistence of such doubts about the potential of observational data to provide sufficient evidence for causal relationships has led some scholars to turn to other approaches. One consequence of this is the growing relevance of experiments in political science. While experiments vary largely in the shape and form they take, one can – broadly speaking – define them as controlled settings in which one can observe two situations which are different with respect to specific treatments that are given in that controlled environment (Morton & Williams, 2010: 42). The enhanced level of control permits to exclude arguments about endogeneity with more confidence and – therefore – to attribute potential differences between the two settings to the difference created between two situations. For this reason, experimental political scientists defend their approach as the ideal way of testing causal relationships (Druckman et al, 2011; Morton & Williams, 2010).

As the broad terms of the definition suggest, experimental social science is characterised by a huge variety in terms of applications and design. Applications of experiments can be found in every sub-discipline of political science ranging from election studies to political economy; in terms of design, they are used in a variety of places: laboratories, the Internet or in the field. Experimental studies in relation with elections have been conducted in all of these settings (Blais et al, 2016).

This chapter will turn to the experimental tradition and more specifically to that of *in situ* voting experiments. For such experiments, one asks voters to cast a second ballot with a different electoral system in order to subsequently compare the results of that alternative ballot with the results from the actual election. In other words, it is possible to compare the outcome for two electoral systems within the context of an election, for an actual electorate using the same candidates. The results of these experiments can therefore help us infer a causal relationship between the electoral system and the intra-party outcome.

More specifically, this chapter introduces and analyses data from two original *in situ* voting experiments that I ran during the 2018 parliamentary elections in Luxembourg. The results of this analysis will constitute the final piece of evidence in response to the three research questions of this thesis.

As discussed in section 2.6, one might raise the question about why the thesis does not solely rely on experimental data considering the positive qualities that have just been outlined. In short, the response is that despite their apparent advantages experiments are not free from criticisms and shortcomings.

First, while experiments may be better for testing causal relationships, critics would express their scepticism about the generalizability or external validity of such experiments (Morton & Williams, 2010). In other words, the main objection would be the doubt that the observed differences would also apply in a different setting.

A second potential objection would be the actual responsiveness of the subjects in an experimental setting to the treatment, i.e. a different electoral system. While a key assumption underlying the assumption of rational voters is that they would quickly to a change in voting rules, this adaptation may take a little more time than the pure models assume (Nagtzaam, 2019: 18). While the entire theoretical reasoning is based on the idea of rational choice theory that would argue that such responses to institutional changes should be quick, scientific enquiry implies taking into account the possibility that one's assumptions are wrong.

Finally, there are practical considerations since one could only test a limited set of potential systems in an *in situ* experiment at the same time while there are multiple characteristics of electoral systems that might potentially create a difference.

It has therefore been clear from the outset that the best approach is to treat experimental evidence as an additional and complementary data source, which is more efficient when combined with other approaches.

This final empirical chapter consists of five sections. The first section will briefly present the method of *in situ* experiments. The second section will outline the design of the two experiments. The third and fourth sections present the results from each experiment respectively. Finally, the fifth section will discuss the overall lessons to be learnt from this analysis and relate it to the other empirical tests.

7.1. *In situ* voting experiments

In situ experiments are simulations that test the effects of alternative electoral systems in the context of actual elections. This approach has emerged in the early 2000s, primarily in the context of French presidential elections since 2002 (Igersheim et al. 2016). Despite potential minor differences, the general protocol of such experiments always follows a similar pattern. These experiments are conducted simultaneously with actual elections. Researchers invite voters to fill out a second ballot in a setting similar to that of the actual election. The ballots given to voters contain the same candidates, but require them to cast their votes according to a different voting rule. Subsequently, researchers compare the results of the official and the alternative ballots in order to infer the effects of the alternative system from this comparison.

As *in situ* experiments find their origins in the context of presidential elections, most tested alternatives are systems designed for the selection of individual candidates including approval voting (Alós-Ferrer & Granic, 2010; Balinski et al, 2003; Baujard

& Igersheim, 2011), other types of evaluative voting (Igersheim et al 2016), “majority judgement” (Balinski & Laraki, 2011) or the Single Transferable vote (Farvaque et al 2011).

Defenders of this approach argue that performing such experiments in the context of an actual election adds more realism to the experimental setting compared to a completely artificial test in a laboratory. In fact, *in situ* experiments are performed at the same time as the election and one has the same candidates on the ballot (Igersheim et al, 2016: 259). As a consequence, these experiments allow testing alternatives with the electorate’s actual preferences in place, which makes the setting more realistic compared to the laboratory. Laslier (2011) adds to these advantages that the setting is also susceptible to yield more accurate results than, for instance, an exit poll, since there is open participation, anonymity and confidentiality since the alternative ballots do not contain any information on the participants.

One should however note that all of these factors that make *in situ* experiments more realistic are at the same time sources of two disadvantages of the approach.

First of all, under the typical protocol of *in situ* experiments, participating in this second ballot is optional, creating a self-selection bias for this type of experiment, which allows questioning the representativeness of these experiments. Classical surveys are typically use random sampling to mitigate such a bias while in a laboratory experiment one would randomly allocate the treatment. While it appears that slightly more left-leaning voters typically tend to participate in these experiments, the aggregate data also shows that the effect is generally relatively limited. Furthermore, several approaches to correct potential biases have been used (Balinski et al, 2003). In theory, it would also be possible to minimise the problem these problems through the insertion of a random assignment to a set of two alternative ballots, but this may be a source of other technical issues.

The complete anonymity and absence of additional information on the person casting the ballot limits the available information to the researcher, which may be useful for the analysis. While one could technically include optional fields to provide more information on the ballots, this could also lead to problems with regard to data protection, the integrity of the election and the preparedness of voters to take part in this type of studies. One possibility would be to survey participants about certain socio-demographic variables; this would however entail additional administrative steps, which are difficult to implement depending on the setting.

As for any other research method, the choice of *in situ* experiments is the result of weighing different trade-offs. No method satisfies all of one's criteria while having no disadvantages. Research methods always fulfil a specific purpose (King et al, 1994) and the central aim of the present analysis is to understand whether a different electoral system yields different outcomes. Overall, the advantages of *in situ* experiments outweigh the disadvantages for this specific purpose.

In addition to the scientific considerations, one should also consider the use of *in situ* experiments as a means of interacting and promoting political science research. Laslier (2011: 102) has noted that participants in such experiments generally tend to be curious about the performed research and to show no hostility toward it. In this sense, performing *in situ* experiments also allows reaching the general public in order to potentially spark more interest in the work of political scientists. While the main purpose of conducting scientific research certainly is to further knowledge in specific areas, stimulating such an interest arguably constitutes a beneficial externality.

7.2 Experimental design

Two experiments were designed and conducted simultaneously during the parliamentary elections in Luxembourg on 14 October 2018 in two different municipalities: Junglinster in the East electoral district and Steinsel in the Centre electoral district.

The choice of these two municipalities was the product of a process that involved multiple steps. The first step involved a comparison of electoral results in the different municipalities over time as well as an analysis of the road connections between the different municipalities in order to allow the principle investigator to reach each site relatively quickly if necessary. This process yielded a shortlist of different municipalities. In the subsequent step, the presidents of the main polling stations of these municipalities were contacted in order to assess their willingness to cooperate in the study as well as the existence of suitable space close to the polling stations. This second step led to the choice of the main site of Steinsel with three polling stations, the main site in Junglinster with four polling stations and Gonderange in the Junglinster municipalities with three polling stations. This count excludes the polling stations that counted postal ballots, which were located on the main site.

For both experiments the general protocol was identical, while the alternative voting system was different.

7.2.1. Common characteristics

Within the premises of the three venues where the polling stations were located, three polling stations were reinacted for the experiment. In each polling station, we installed spaces for voters that would allow them to cast their votes with a sufficient degree of privacy similar to the situation they found in their actual polling station. These reinacted polling stations were located near the exits of the premises with

signs indicating that a study on the Luxembourgish electoral system was being conducted.

Upon leaving the polling station, voters were asked whether they would like to participate in a study on the Luxembourgian electoral system. The ballots were explained to them orally; furthermore posters explaining the alternative mechanism were available and the instructions were printed on the alternative ballots. The experiment deviates from the typical protocol for such experiments, because no information about the experiment was communicated to the voters in advance. This had been a request from the authorities in order to avoid potential reasons for contesting the election results.

Furthermore, the authorities requested that only voters who had already cast their vote could participate in the experiment in order to avoid any potential influence of the alternative ballot on the election result. The teams had been instructed accordingly, and directed any voter to their polling station first.

The alternative ballot given to the participants contained exactly the same parties and candidate names in the same order as on the election ballot. The layout of the alternative paper was designed in a way to resemble the actual ballots as much as possible.

After casting their votes on the alternative ballot, the voters would put their ballot anonymously in a box before leaving the premises.

For the alternative ballots, two different systems involving negative votes were chosen. One of these ballots corresponds to the Latvian electoral system while the other is a hybrid version between the Latvian and *panachage* systems.

7.2.2. Specificities of the Junglinster experiment

Junglinster is located in the East electoral district of Luxembourg, which elects seven members of parliament. In 2018, eight parties competed in the district with seven candidates each, meaning that there were 56 candidates in total.

For the Junglinster experiment, the Luxembourgish electoral system was for most part kept intact with the difference that voters were given seven negative votes in addition to their usual seven positive votes. The shortcut of casting a list vote was removed since the goal of the experiment was to measure the votes for individual candidates. As for the Luxembourgish electoral system, the votes can be distributed across different lists.

In order to facilitate the distinction between the positive and the negative votes, two boxes were provided behind the name of each candidate. The first box could be used to cast a positive vote and the second to cast a negative vote.

The addition of this box for negative votes removed the possibility of leaving boxes for cumulating votes. Hence, the option of cumulation was also removed on these ballots.

7.2.3. Specificities of the Steinsel experiment

Steinsel is located in the Centre electoral district, which elects 21 members to the Chamber of Deputies. In 2018, 9 parties competed with lists of 21 candidates each, which means that there was a total number of candidates of 189 candidates in that particular district.

In Steinsel, the participants in the experiment were asked to cast votes according to the Latvian electoral system, where a voter needs to choose a party. Subsequently it is possible express approval, disapproval or no opinion at all on each candidate on the ballot.

Compared to the Luxembourgish system, this alternative removed most importantly the possibility of panachage. In addition, it changed the options available to the voters who can typically allocate none, one or two votes to a candidate. In the experimental setting, the options for each candidate on the chosen list are -1, 0 and 1.

7.2.4. The question of self-selection bias

When designing the experiment, I was aware that one major issue in the design is that voters voluntarily choose to participate in the experiment, leading potentially to issues of representativeness of the data for the general electorate. Consequently, there were reflections on potential solutions at the stage of designing the study.

The most promising solution would have been to proceed to the random assignment of the participants to two different electoral systems, which would have allowed comparing these two groups. While this solution would have removed a potential issue, there were also major concerns of feasibility. First of all, it would have been necessary to proceed a random allocation process which could potentially have been more time consuming and costly in terms of necessary resources. Second, it was unclear whether a reorganisation of the available space would have been necessary and whether it would have been possible to implement it. Instructions were, for instance, communicated orally, on the ballot as well as on posters on site. In order to maintain all of this, it might have been necessary to divide the available space into two stations. This again might have led to additional problems since it would have become too apparent to participants what the precise treatments are. Finally, there is a simple question of numbers since dividing the participants into two groups could have led to relatively low numbers for each ballot, not allowing for a meaningful analysis of the data.

For these reasons, it seemed more favourable to stick to the well-established protocol of using one system for all participants and to compare it to the electoral results despite potential problems and to look for ways for correcting potential biases in a subsequent stage.

7.2.5. Expectations

This experiment allows comparing more closely two versions of multivote systems: the negative vote system and Latvia and the *panachage* system. This is done through a direct comparison between the *panachage* and negative voting system as well as a comparison between the *panachage* system and a hybrid version between both electoral systems.

Based on the analysis of chapter 4, it is possible to formulate a set of expectations regarding these two systems. Most importantly, this analysis has shown that these two systems are fairly similar in how they work. This is illustrated in table 7.1 which used the same OLS regression model with dummy variables for the electoral districts. As in chapter 4, the model estimates a candidate's logged vote share in terms of a set of candidate characteristics. For all of the variables in this table – except for the role of gender – all candidate characteristics have fairly similar effects on a candidate's vote share.

This makes the comparison particularly relevant because this would suggest that one should not see any major changes across the two different systems. The observation of several differences would therefore be an even stronger piece of evidence for an impact of the electoral system.

The main difference between both electoral systems is the possibility to allocate negative votes, expressing one's rejection of a candidate. In order to better understand the potential impact that this may have, one can refer to the Latvian electoral system. Table 7.1 represents two identical regression models aimed at predicting a candidate's logged vote share. The first considers the share of positive votes and the second the share of negative votes.

The model for a candidate's positive vote share predicts that being a list leader, member of the legislature, the executive or European parliament increase one's vote share. There are statistically significant ballot order effects while the number of co-partisans reduces one's predicted vote share.

Table 7.1 - Regression models for Latvia and Luxembourg (dummy variables for districts are not represented)

	Latvia		Luxembourg	
	<i>Positive</i>	<i>Negative</i>	<i>Overall</i>	
List leader	.641** (.059)	-.023 (.061)	.871** (.068)	.720** (.115)
National legislator	.370** (.055)	.089* (.035)	.294** (.084)	.546** (.062)
National executive	.798** (.118)	.046 (.160)	.412** (.138)	.374** (.128)
Member of EP	.822** (.187)	.137 (.143)	.453** (.174)	
Female candidate	-.012 (.018)	-.015 (.012)	-.068 (.039)	-.176** (.038)
Age	-.000 (.001)	.002** (.000)	-.000 (.001)	.001 (.002)
Ballot position	-.089** (.004)	-.017** (.003)	-.131** (.007)	-.120** (.017)
Ballot position ²	.002** (.000)	.000** (.000)	.003** (.000)	.004** (.001)
Number of candidates	-.050** (.002)	-.053** (.002)	-.040** (.004)	-.061** (.021)
Intercept	3.050** (.053)	2.769** (.046)	2.964** (.101)	3.211** (.493)
Observations	1459	1451	1412	503
R2	.811	.800	.572	.738

* p<.05; ** p<.01; (.) robust standard error

For the model of negative votes, the estimates are decisive variables are roughly the same with smaller coefficients. For list leaders as well as ministers the effects are not significant, suggesting that they partisan voters tend not to reject these candidates. The only variable that is not significant for positive votes but significant for negative votes is age. The model predicts that the older a candidate get, the more likely it is that they obtain negative votes.

One could interpret this in a way that this system provides voters with a way of telling candidates that their time has come and that they should make way for a new generation.

The relatively large overlap may mean that real changes may be rare and that one will need to assess the impact of negative votes on a case-by-case basis. For this reason, the discussion of the results will be more qualitative than the analysis of previous chapters.

In addition to analysing individual cases, the analysis will also be particular attention to the question whether leaders and ministers are more immune to

negative votes and whether there is indeed a correlation between age and the share of negative votes a candidate obtains.

7.3. Results – Junglinster experiment

The presentation of the results of the Junglinster experiment is done in four steps. First, the main parameters on participation are presented. Second, the inter-party results are briefly discussed to assess how representative the data is. Third, the results for the different candidate lists are discussed. Finally, the main lessons from this experiment will be summarised.

7.3.1. Participation in the experiment

In Junglinster 422 experiment ballots were submitted of which 386 were valid. This corresponds to a participation share of 36.19% of the electorate that voted in the election. In Gonderange 229 experiment ballots were submitted of which 198 were valid. This corresponds to 33.43% of the electorate. Overall 35.17% of the electorate took part in the electorate.

These numbers are lower than those reported for similar experiments in France or Germany, however it should be noted that the numbers are typically reported in terms of the share of voters who went to the polling station.

As Luxembourg has compulsory voting, the turnout is higher. Hence, in terms of the entire people eligible to vote, the voter share in the Luxembourg case and the previously cited experiments are not that different.

7.3.2. Inter-party results

Before analysing whether the electoral system has an impact on intra-party rankings, it may be useful to consider first of all the inter-party choice for two main reasons. First, this allows checking whether self-selection has resulted in a major bias. Furthermore, for this hybrid version the inter-party effects might also be heavily impacted by the results.

To assess the first point, only the positive votes will be compared to the 2018 results for the polling stations concerned by the experiment. The results exclude the results of the two polling stations that only counted postal votes. The comparison of the results is shown in table 7.2.

The results confirm that observation of similar experiments that left-wing voters are more likely to participate in similar studies (Laslier, 2011). In fact, the Green party, the Left party as well as the Social Democrats are clearly overrepresented, while the Christian Democrats and the Sovereignist ADR are underrepresented. The liberal DP is also slightly underrepresented, the variation is however relatively small. The data is thus not fully representative, it should nonetheless provide useful information regarding the intra-party effects.

Table 7.2 – Comparison of election result and positive votes for Junglinster experiment

Party	2018 election		voting experiment		Δ
	N votes	Vote share	N votes	Vote share	
ADR	956	7,84%	170	4,96%	-2,88%
CSV	3849	31,58%	877	25,60%	-5,98%
Déi Gréng	2236	18,35%	823	24,02%	5,67%
Déi Lénk	279	2,29%	123	3,59%	1,30%
DP	3098	25,42%	822	23,99%	-1,43%
KPL	82	0,67%	25	0,73%	0,06%
LSAP	1119	9,18%	443	12,93%	3,75%
Piraterpartei	568	4,66%	143	4,17%	-0,49%

7.3.3 Intra-party differences

In this analysis I will only be considering the six largest of the eight parties that were on the ballot. In fact, the Communist party as well as the Left received only relatively small vote shares in the municipality of Junglinster and in the experiment. These results might therefore be rather random. I shall first discuss each list individually, summarising the central findings in a subsequent step.

The Green Party – On the Green Party’s list, only few major changes in terms of position changes occur. However, a more detailed analysis provides some useful insights.

In terms of positive votes, the results are not significantly altered in the experimental setting compared to the election. The two list leader Carole Dieschbourg and Henri Kox are slightly overrepresented in terms compared to the election. The same applies to the oldest candidate from the list, who lives in the municipality next to Junglinster. The more significant changes can be observed when comparing the candidates’ performance in terms of negative votes.

While environment minister Carole Dieschbourg obtains most negative votes her comfortable lead in terms of positive votes secures her first place on the list in the experimental study. The two only candidates who lose in terms of rankings are Christian Kmiotek and Fernande Klares-Goergen who receive large proportions of negative votes compared to their share of positive votes. Kmiotek is a local candidate while Klares-Goergen is from a neighbouring municipality. In addition, both are the oldest candidates on the ballot.

The two youngest candidates on the ballot – Chantal Gary and Meris Sehovic – receive the fewest negative votes.

Table 7.3 – Results for the Green Party in Junglinster Experiment

	Election		Voting experiment				Tot.	Δ
	N	%	+	%	-	%		
C. Dieschbourg	669	29,92%	289	35,1%	65	24,90%	224	0
H. Kox	390	17,44%	167	20,3%	42	16,09%	125	0
C. Gary	253	11,31%	79	9,6%	12	4,60%	67	1
C. Kmiotek	292	13,06%	82	10,0%	34	13,03%	48	-1
M. Sehovic	224	10,02%	56	6,8%	16	6,13%	40	0
S. Schleck	204	9,12%	67	8,1%	35	13,41%	32	0
F. Klares-Goergen	204	9,12%	83	10,1%	57	21,84%	26	-1

This first list would thus suggest that while prominent candidates are also receiving substantial shares of negative votes, their positive votes clearly outnumber them. The results of Kmiotek and Klares-Goergen raise the question whether local ties

and age may be disadvantageous for candidates under electoral systems with negative votes.

Christian Social People's Party – For the list of the Christian-democratic CSV, there appear to be similar effects to those observed for the Green party. The list leader is overrepresented in terms of positive votes compared to the election results.

While receiving most negative votes, lead candidate Françoise Hetto-Gaasch can defend her top position due to a stable share of positive votes. As for the previous list, the raw data suggests that there might be an age effect, since the two candidates with the smallest share of negative votes are the youngest candidates while the oldest candidate Yves Wengler obtains a disproportionally higher share of negative votes compared to his positive vote share.

Finally, one can observe a significant drop by three places in the candidate ranking for Member of Parliament Octavie Modert. While this appears to be partly due to her slight underrepresentation in terms of positive votes compared to the election result, she has also obtained a substantial share of negative votes. One explanation her might be Modert's long presence in national politics. In fact, she was a government member for ten years and her personal performance at the 2013 and 2018 was at each time worse than at the previous election. It does therefore not seem implausible that the high share of negative votes is a manifestation of a fatigue of voters with this incumbent candidate.

Table 7.4 – Results for the CSV in Junglinster Experiment

	Election		Voting experiment				Tot.	Δ
	N	%	+	%	-	%		
F. HETTO-GAASCH	995	25,85%	277	31,6%	79	21,94%	198	0
L. GLODEN	559	14,52%	110	12,5%	39	10,83%	71	0
C. DUBLIN	425	11,04%	109	12,4%	49	13,61%	60	2
M. HENGEL	419	10,89%	87	9,9%	31	8,61%	56	3
S. WEYDERT	494	12,83%	87	9,9%	32	8,89%	55	-1
O. MODERT	524	13,61%	99	11,3%	53	14,72%	46	-3
Y. WENGLER	433	11,25%	108	12,3%	77	21,39%	31	-1

To sum up, the CSV points at the same potential age effect as the previous list. In addition, it appears that long-serving incumbents might be viewed less favourably under electoral systems with negative votes.

Luxembourg Socialist Workers' Party – For the social democratic LSAP, there are several changes of final rankings between the election result and the voting experiment. One does however need to adopt a more nuanced view in order to interpret these results.

In fact, there appears to be one strange occurrence in the results because the candidate Lucien Bechthold is largely overrepresented for positive and negative votes. Bechthold is one of the two only socialist mayors in the district, his municipality is however somewhat remote from Junglinster. It is not apparent why he is so overrepresented in the experimental ballots and why he appears to be so polarising.

For the list leader Nicolas Schmit, on the other hand, the situation appears more straightforward. Schmit has been a government minister since 2004 and there had been a few episodes during his tenure that have been polarising. In addition, he is the oldest candidate on the list. Fatigue with Schmit as well as his age might be potential reasons for his weaker performance under negative votes.

Table 7.5 – Results for the LSAP in Junglinster Experiment

	Election		Voting experiment				Tot.	Δ
	N	%	+	%	-	%		
J.-F. WIRTZ	170	15,19%	77	17,4%	21	10,94%	56	2
L. BECHTHOLD	122	10,90%	111	25,1%	62	32,29%	49	4
T. BURTON	181	16,18%	58	13,1%	19	9,90%	39	-1
N. SCHMIT	242	21,63%	73	16,5%	39	20,31%	34	-3
B. SCHEUER	160	14,30%	48	10,8%	18	9,38%	30	-1
C. FRISCH	125	11,17%	51	11,5%	22	11,46%	29	-1
A. RÖSSLER	119	10,63%	25	5,6%	11	5,73%	14	0

The winner of the situation is Jean-François Wirtz, the mayor of one of the neighbouring municipalities of Junglinster who takes over the lead position.

As for the two previous lists, the three youngest candidates receive the smallest number of negative votes.

Democratic Party – On the list of the liberal DP, one can observe a relative stability in terms of position changes. The two co-leaders on the lists switch places, which appears to be due to the overrepresentation of Lex Delles in the experiment. In fact, the only major change is the drop of Monica Semedo to the last place of the list due to a substantial number of preferential votes. This particular case appears to be connected to this candidate's background. There has been a long tradition of parties to recruit candidates from the media company RTL, which holds a monopoly for Luxembourgish TV programmes. Monica Semedo has worked for RTL as a talk show host following her career as a singer during her childhood.

Table 7.6 – Results for the DP in Junglinster Experiment

	Election		Voting experiment				Tot.	Δ
	N	%	+	%	-	%		
L. DELLES	584	18,85%	242	29,4%	67	25,38%	175	1
G. BAUM	785	25,34%	198	24,1%	50	18,94%	148	-1
C. HARTMANN	405	13,07%	110	13,4%	23	8,71%	87	0
E. JEITZ	357	11,52%	68	8,3%	19	7,20%	49	0
C. SCHOMMER	309	9,97%	60	7,3%	17	6,44%	43	1
J. SITZ	304	9,81%	48	5,8%	13	4,92%	35	1
M. SEMEDO	354	11,43%	96	11,7%	75	28,41%	21	-2

Except for the situation of Monica Semedo, positive and negative votes are strongly correlated for all other candidates.

This particular example highlights that candidates chosen for a certain celebrity status appear to be rather polarising, which leads to a much weaker position under negative voting systems.

Alternative Democratic Reform Party – The sovereignist ADR is the party closest what one would conceive as a right-wing populist party. As such, the party appears to be more polarising than others and disliked by all the electorates of the other parties. In fact, supporters from other parties in the experiment have consistently cast negative votes for ADR candidates resulting in the complete reversal of the intra-party rankings in the experimental setting. This highlights the strong correlation between the likelihood of obtaining positive and negative votes.

Table 7.7 – Results for the ADR in Junglinster experiment

	Election		Voting experiment				Tot.	Δ
	N	%	+	%	-	%		
C. SOLNY	112	11,72%	11	6,5%	69	8,37%	-58	6
E. KIRCHEN	119	12,45%	18	10,6%	88	10,68%	-70	2
N. BREYER	117	12,24%	18	10,6%	96	11,65%	-78	2
T. BRISBOIS	120	12,55%	16	9,4%	96	11,65%	-80	-1
J. SCHOOS	183	19,14%	25	14,7%	121	14,68%	-96	-3
T. AGNES	119	12,45%	34	20,0%	137	16,63%	-103	-2
R. MEHLEN	186	19,46%	48	28,2%	217	26,33%	-169	-6

Pirate Party – For the Pirate Party, one can observe the same phenomenon as for the ADR: the intra-party rankings completely reverse. It appears that this party is perceived as similarly polarising.

Table 7.8 – Results for the Pirate Party in Junglinster Experiment

	Election		Voting experiment				Tot.	Δ
	N	%	+	%	-	%		
C. MARTINS	64	11,27%	11	7,7%	27	6,43%	-16	5
T. BELLEVILLE	66	11,62%	13	9,1%	31	7,38%	-18	3
G. CONTRERAS	64	11,27%	21	14,7%	41	9,76%	-20	3
N. BOERGER	67	11,80%	11	7,7%	40	9,52%	-29	0
C. HOUDREMONT	71	12,50%	8	5,6%	40	9,52%	-32	-2
J. CLEMENT	85	14,96%	11	7,7%	55	13,10%	-44	-4
D. FRERES	151	26,58%	68	47,6%	186	44,29%	-118	-6

7.3.4. Lessons from the Junglinster experiment

The result of the Junglinster experiment using a hybrid version of the panachage and negative voting systems support the observations made for the Latvian electoral systems. In fact, for most candidates the shares of positive and negative votes are positively correlated (.83).

Furthermore, the results of the analysis suggest that negative vote lead to age being more important factor. The analysis suggests in fact that older candidates receive a higher share of negative votes.

Another finding from this analysis is that more visible candidates both attract positive and negative votes, however in most cases the positive votes outweigh the negative votes. One exception appears to occur for politicians who have played prominent roles over some time. While it is difficult to infer the precise reasons from

these results, one may suspect over time a certain fatigue with candidates develops, which harms such candidates when voters are given negative votes.

The results for some local candidates also suggest that negative votes might impact the role of local factors.

Finally, the example of Monica Semedo highlights that celebrity candidates are not universally appreciated, a situation that harms them once it becomes possible to cast negative votes.

7.4. Results Steinsel experiment

As for the Junglinster experiment, the data of the second experiment will be presented in four steps outlining respectively (1) the data on participation, (2) data on inter-party choices, (3) the intra-party results and (4) the main conclusions to be drawn from these results.

7.4.1. Participation

For the Steinsel experiment, 326 voters participated in the study of which 295 cast a ballot in conformity with the imposed rules. Based on estimation³⁵, this corresponds to 29.08% of the electorate who participates in the study and of 27.60% compared to the number of valid ballots in the study. The share of participants is slightly smaller than for the Junglinster experiment, it remains however a considerable share for such a study.

7.4.2. Inter-party results

The distribution of party preferences in the election and in the experiment is shown in table 7.9. As for the other experiment, the inter-party preferences do not fully respect the vote shares of the election. In fact, the Green Party, the social democrats as the liberals are overrepresented while the Pirate Party, the Christian

³⁵ One of the polling stations had both postal voters and “normal voters”. While we had the numbers of each groups of voters, it was not possible to know whether both voter types has similar turnout and whether they votes in the same way. For all of the results of the election represented in this section, we assume that there were no differences between these two groups of voters.

Democrats, the ADR and the Left are underrepresented. While this points at a certain bias, it is harder to precisely assess this bias because it is not possible to split one's inter-party preference. For the purpose of this experiment, this slight skew toward three parties is also of no major concern, because the analysis focuses on intra-party preferences.

Table 7.9 - Party choices in the Steinsel experiment

	Election			Steinsel experiment		
	<i>Votes*</i>	<i>%</i>	<i>Place</i>	<i>Votes</i>	<i>%</i>	<i>Place</i>
Piraten	1062	5,11%	6	4	1,36%	7
Déi Gréng	3035	14,61%	4	59	20,00%	3
LSAP	3829	18,43%	3	69	23,39%	2
CSV	5988	28,83%	1	59	20,00%	3
KPL	41	0,20%	9	1	0,34%	8
DP	4198	20,21%	2	87	29,49%	1
ADR	1533	7,38%	5	7	2,37%	6
Déi Lénk	978	4,71%	7	8	2,71%	5
Demokratie	107	0,52%	8	1	0,34%	8

For a meaningful analysis of the intra-party variation in the experimental data, it is above all important that there is a critical mass of voters for one party in order to get an overall sense of the preferences of a party's electorate.

7.4.3. Intra-party results

Four of the 9 parties on the ballot have fewer than 10 supporters in the experiment. The four largest Luxembourgish parties has each at least 50 supporters in the sample, which appears sufficient to get a sense of their intra-party preferences. I shall therefore focus on a discussion of these 4 lists.

The Greens – 59 voters in the experiment sample have supported the Green Party. The data for this party shows primarily that the voters of the Green Party are very reluctant to allocate any negative votes at all. In fact, no candidate has received more than 6 negative votes. In the election the gaps between the candidates have been very small between the different candidates, with the exception of the two lead candidates.

Table 7.10 - Results for Greens in Steinsel experiment

	Steinsel experiment				Election		Δ
	+	-	Total	Place	Votes*	Place	
S. TANSON	41	5	36	1	307	2	1
F. BAUSCH	41	6	35	2	360	1	-1
L. PAULUS	22	0	22	3	155	4	1
C. BACK	21	1	20	4	144	5	-1
J. THILL	18	1	17	5	133	9	4
D. BERNARD	19	4	15	6	159	3	-3
F. BENOY	16	2	14	7	135	7	0
P. ZENS	15	2	13	8	134	8	0
P. POLFER	14	1	13	8	132	10	2
T. FRANK	14	2	12	10	122	12	2
C. REMMY	14	2	12	10	106	18	8
C. MARGUE	16	5	11	12	136	6	-6
G. DAMJANOVIC	13	3	10	13	131	11	-2
R. TEX	12	2	10	13	120	14	1
C. NEY	12	2	10	13	112	17	4
N. FORGIARINI	12	3	9	16	120	14	-2
C. BRÖMMEL	12	4	8	17	113	16	-1
Y. WAGNER	12	5	7	18	121	13	-5
C. SCHMIT	10	3	7	18	99	20	2
J.-P. ROEDER	10	4	6	20	92	21	1
R. MILLER	9	4	5	21	104	19	-2

If there is any result noting at all, it is the performance of Charles Margue, the former director of a polling company who had some name recognition due to regular appearances in the media. In fact, Margue has suffered the most substantial loss of all candidates in terms of rankings. This could point at more sceptical view of candidates who appear to have been primarily chosen because of their media visibility.

Luxembourg Socialist Workers' Party – In contrast to the Greens electorate, the supporters of the social democrats appear less reluctant to cast negative votes. In these rankings 3 candidates have dropped 4 or more positions. The first of these is Cecile Hemmen, an incumbent MP who had previously worked as a journalist for RTL. The second is Sandie Lahure, who is also a former RTL journalist. The third candidate, Liz May, is a former triathlete who has competed at Olympic Games. These three cases appear to point at a rejection of celebrity candidates if voters can cast a specific vote to indicate their disapproval.

Table 7.11 – Results for LSAP in Steinsel experiment

	Steinsel experiment				Election		Δ
	+	-	Total	Place	Votes*	Place	
E. SCHNEIDER	51	8	43	1	400	1	0
F. FAYOT	38	2	36	2	268	3	1
M. FELTGEN	41	7	34	3	244	4	1
M. ANGEL	38	8	30	4	292	2	-2
F. CLOSENER	32	10	22	5	241	5	0
A. WEINS	25	9	16	6	222	6	0
N. D'Angelo	25	11	14	7	153	11	4
M.KIRSCH-HIRT	20	9	11	8	193	8	0
J. GOEBBELS	21	10	11	8	165	9	1
D. VIAGGI	18	8	10	10	126	17	7
C. HEMMEN	23	14	9	11	200	7	-4
T. KRIEPS	19	10	9	11	155	10	-1
P. WEYMERSKIRCH	19	10	9	11	132	15	4
T. SILVA	19	11	8	14	123	18	4
C. DELCOURT	16	12	4	15	120	21	6
B. BAUS	16	13	3	16	142	13	-3
G. JONES	14	11	3	16	127	16	0
L. MAY	17	15	2	18	137	14	-4
G. BOISANTE	18	16	2	18	122	20	2
R. MOES	12	11	1	20	123	19	-1
S. LAHURE	18	20	-2	21	144	12	-9

Christian-Social People's Party – In the case of the CSV two incumbent candidates have considerably dropped in rankings. Diane Adehm has lost 11 places while Laurent Mosar has dropped 15 places. The latter has been a member of the Chamber of Deputies since 1994. Over the 2013-18 legislature he had some visibility through his Twitter profile, where he has at times tweeted messages that some have perceived as populist.

Table 7.12 - Results for CSV in Steinsel experiment

	Steinsel experiment				Election		Δ
	+	-	Total	Place	Votes*	Place	
C. WISELER	44	4	40	1	484	1	0
S. WILMES	29	6	23	2	358	2	0
N. SILVA	22	2	20	3	280	12	9
V. REDING	27	8	19	4	307	4	0
P. GALLES	22	3	19	4	300	6	2
M. LIES	23	4	19	4	290	10	6
C. KONSBRUCK	20	3	17	7	264	15	8
F. SAUBER	19	5	14	8	297	7	-1
A. DONNERSBACH	18	4	14	8	296	8	0
N. PUNDEL	17	3	14	8	284	11	3
E. MARGUE	19	6	13	11	295	9	-2
M. BAUER	18	5	13	11	279	13	2
C. STEINMETZ	16	3	13	11	232	17	6
D. ADEHM	20	9	11	14	308	3	-11
V. REDING	15	5	10	15	229	20	5
F. TERNES	13	6	7	16	238	16	0
M. MERGEN	18	12	6	17	270	14	-3
S. MASSARD-SITZ	11	5	6	17	209	21	4

M. BRAQUET ép. ZOVILE	12	9	3	19	231	18	-1
L.MOSAR	16	14	2	20	306	5	-15
N. LUX-SCHARES	9	10	-1	21	231	18	-3

Democratic Party – On the DP list, the most remarkable contrast can be observed between the two list leaders. The Prime minister Xavier Bettel has received positive votes from a large majority of his party’s voters and only two have allocated him a negative vote. Party president Corinne Cahen, on the other hand, could only obtain positive votes from about half of the party’s supporters while 19 have awarded her a negative vote. Finally, one should note that the candidate who has obtained most negative votes is Sylvia Camarda, a professional dancer.

Table 7.13 - Results for DP in Steinsel experiment

	Steinsel experiment				Election		Δ
	+	-	Total	Place	Votes*	Place	
X. BETTEL	73	2	71	1	517	1	0
L. POLFER	51	8	43	2	274	3	1
J. ELVINGER	39	10	29	3	221	5	2
G. ARENDT	38	12	26	4	245	4	0
C. CAHEN	43	19	24	5	303	2	-3
S. BEISSEL	32	14	18	6	215	6	0
J. DEGROTT	26	11	15	7	213	7	0
F. COLABIANCHI	28	13	15	7	202	8	1
C. LAMBERTY	30	17	13	9	183	9	0
N. WURTH	26	14	12	10	151	16	6
J. WIRTZ	22	14	8	11	155	14	3
P. GOLDSCHMIDT	21	14	7	12	162	12	0
M. DIESCHBOURG	10	13	6	13	158	13	0
M. FISCHER	18	17	1	14	177	10	-4
S. OBERTIN	16	15	1	14	139	19	5
T. DE JAGER	17	18	-1	16	148	17	1
F. DEUTSCH	15	16	-1	16	143	18	2
H. BOCK	17	19	-2	18	152	15	-3
M. MALHERBE	14	17	-3	19	170	11	-8
S. CAMARDA	11	25	-14	20	139	19	-1
M. HOUWEN	6	22	-16	21	131	21	0

7.4.5. Summary

The Steinsel experiment shows that restricting voters to one party and giving them the possibility to express clear rejection of candidates can have potentially large effects for some candidates, while a large proportion appears not to be as severely affected.

One reason for this appears to be a certain reluctance to proclaim disapproval for a candidate one does not support. In the case of the Green party, the six times the number of negative votes has been cast as positive votes. Even in the case of the DP, where most negative votes have been cast, almost twice as many positive votes have been cast.

The data for Latvia has suggested that the same factors explain positive and negative vote. The analysis of the Steinsel experiment however reveals that positive and negative votes are slightly negatively correlated (-.22). It appears that generally negative votes reinforce the impact of the positive votes.

There are however some clear instances in which negative votes have an extremely negative impact on candidates. Some incumbents appear to be punished while voters also use these negative votes to communicate their disapproval of celebrity candidates on the list.

7.5. Conclusion

This chapter has presented the results of two experiments as the final empirical test of this thesis on the intra-party effects of preferential-list PR systems. After having provided a set of different data and approaches to analyse the research questions of this thesis with observational data, this chapter has entered the terrain of an approach that some scholars appear to consider as the ideal tool to analyse causal relationships.

For this particular analysis, the approach of *in situ* voting experiments has been chosen. While this approach has the disadvantage of allowing for a smaller degree of experimental control, it has the advantage that one can implement such experiments in a very realistic setting. In addition, in contrast to a laboratory setting, *in situ* experiments provide a framework that may be appealing to a large share of voters.

The implementation of the two experiments described in this chapter fully supports this point. In fact, participants appeared extremely interested in the project and showed interest in the research performed on Luxembourg's political system. In this sense, the experiment has not only an academic value, but also the merit of promoting the interaction of researchers with the general public.

In the experiment, Luxembourg's *panachage* and Latvia's negative vote systems have been compared, which has provided additional data on these rare configurations of electoral systems. While many of the electoral systems considered in the comparative chapters of the thesis can be found in many countries, these two systems are rare, which can be an obstacle to more thorough analyses of these systems.

Particularly, the comparative analysis of chapter 4 has pointed at fairly similar effects that these systems can have for certain candidates. Due to these apparent similarities it has been particularly interesting to engage in such a comparison in order to see what a more detailed view reveals. In addition, the observation of a serious difference ought to be considered even more significant if our initial findings suggest that no major difference should be expected.

For the purpose of the analysis, two alternatives to the current *panachage* system have been tested.

The first has combined the characteristics of the *panachage* and Latvian systems by allowing voters to cast positive as well as negative votes across different parties. This analysis has shown that the intra-party outcomes for some candidates have been significantly impacted. Most importantly, such a system appears to weaken certain incumbents and older candidates. From a normative point of view, this might be welcomed as a way of ensuring continuous renewal.

On the other hand, one might also raise concerns about the realism of such a system, because in the worst case, one could end up with extreme polarisation where each faction tries to neutralise the other with negative votes. In the results of

the experiment, the results for the ADR and Pirate Party highlight the potential problems for the representation of certain minority views.

One should keep in mind that the design of the Junglinster experiment has never been meant as a test of a serious proposal for electoral reform, but as a means of testing how certain changes in electoral system configurations might affect intra-party outcomes. It however appears that the data from this experiment can also serve other purposes. For instance, it is conceivable that this data may be used to better understand the preferences of Luxembourgish voters and to complement in this way the insights that one can gain through representative ballot samples.

The second experiment has used the Latvian system almost in its entirety. In some respects the results of this experiment point at similar effects than the first experiment, particular regarding a general scepticism vis-à-vis celebrity candidates. In addition, controversial incumbents appear to be subject to greater accountability under the negative voting systems.

In contrast to the first experiment, the Steinsel experiment has yielded a slightly smaller number of negative votes for lead candidates. This is however not surprising because under this electoral system only party supporter can cast a ballot.

Overall, I would argue that the choice of testing both a hybrid version and a complete alternative was justified. In fact, it was not conceivable how voters who strongly like the possibility to expressing their point of view across different parties would reject to the limitation to only express a view on one party. In fact, the slightly smaller participation rate as well as some oral feedback received in Steinsel support this point.

The final question to be addressed is whether the experiments have provided sufficient evidence for the existence of a causal relationship between the electoral system and intra-party outcomes. Arguably, the relatively small number of changes could be used as an argument to reject the claim about this causal relationship. Such a categorical assertion would however undermine that some interesting effects

could be observed and that it has been highlighted that I was already testing two systems that have several characteristics in common. Certainly, more experimental research on this question is necessary to improve our understanding of preferential-list PR systems, but together with all of the evidence of the preceding chapters, the findings from this chapter represent a valid argument.

Chapter 8

Conclusion – Do not neglect the intra-party dimension

This thesis has analysed the causal relationship between preferential list PR systems and intra-party outcomes at the moment of the election. More specifically, three central questions have been addressed. First, the thesis has raised the general question about the existence of this alleged causal relationship. Second, the question about the electoral system characteristics that cause this causal link has been analysed. Third, the thesis was also interested in the practical implications for candidates in asking whether the electoral system affects the role that different candidate characteristics play in intra-party competition.

In responding to these three questions, this thesis has addressed (1) the literature on preferential-list PR systems as well as (2) that on the intra-party dimension of electoral systems. As outlined at the beginning of this thesis, these two areas constitute persisting gaps in the literature on electoral systems (Shugart, 2005; Lijphart, 1985) to which this thesis has aimed at adding its modest contribution. In addressing the literature on the effects of electoral systems, the thesis is also relevant to the question of electoral reform. In fact, one can observe a continuous trend toward giving voters more weight over intra-party decisions via electoral systems (Renwick and Pilet, 2016; Renwick, 2018). Due to this trend, one can assume that preferential list PR system could become even more prevalent in coming years, underlining the necessity to study their effects.

As outlined in the first chapter, this thesis can be perceived as a logical continuation of two preceding theses (Van Erkel, 2017; Nagtzaam, 2019). In fact, Van Erkel acknowledges that his thesis could not address the impact of institutional settings – including electoral systems – due to the focus on a single country. He therefore argues that future research should adapt a comparative

approach to address these institutional factors (Van Erkel, 2017: 194-196). While the second chapter of Nagtzaam's thesis (2019) compared the Belgian and Dutch cases, this comparison of two countries could not inform us about all the possible variations that one can observe across Europe. In focusing on the previously cited research questions this thesis has aimed at addressing the open questions that these two theses have left.

The analysis of the three research questions has begun with the presentation of a theoretical model, which took the voter as the starting point. More specifically, voters have been modelled in accordance with the basic assumptions of rational choice institutionalism, one of the dominant approaches in the study of the effects of electoral systems. On the basis of this conceptualisation of voters, the model has subsequently set out how six different components of electoral systems – the number of preferential votes, the question about whether preferential votes are compulsory, the possibility of *panachage*, the possibility to cast *negative* votes, the distinction between flexible and open lists and district magnitude – can be expected to affect voting behaviour in way that has implications for intra-party outcomes. This model has subsequently been tested with different types of data in five empirical chapters. These five chapters had been designed with the purpose of presenting different approaches to the analysis of three research questions in order to obtain robust findings through a set of complementary methods.

In this final chapter, I shall (1) summarise the main findings of these chapters and discuss how they relate to the main research questions as well as existing research, (2) discuss the limitations of this thesis and (3) consider – on the basis of the two previous points – potential routes for future research.

8.1. Main results

The different analyses in the five empirical chapters have provided a vast quantity of results. For most parts, the findings from these analyses provide consistent results with respect to the main research questions of this thesis. In this section, I shall provide a concise summary of the main results with regard to each of the six electoral system characteristics that had been identified in chapter 1.

The equalising effect of increasing the number of votes – The arguably most consistent result in this thesis is that increasing the number of preferential votes that voters can cast has an equalising effect on the intra-party competition. In chapter 3, the indices for vote concentration show a more equal distribution of preferential votes when the number of votes is high. Accordingly, increasing the number of votes decreases the relevance of gender, incumbency and ballot order on the predicted vote shares of candidates.

While the findings on the number of preferential votes are very clear, this does not mean that they also provide a clear answer on how many votes one should allocate to voters. In fact, this question leads to a significant trade-off between two different arguments. On the one hand, one can interpret increasing the number of votes as a positive choice because the field of candidates becomes more competitive. On the other hand, it appears that essentially all candidate characteristics become less relevant, making intra-party competition more random. In other words, a more equal situation would come at the cost of a lesser role of the qualities of candidates.

Open lists and district magnitude do not affect voting behaviour – Globally the results highlight little significant results for the open/flexible list distinction and for district magnitude. As all of the analyses focus on preferential votes, these results suggest these two electoral system characteristics do not affect intra-party outcomes by influencing voting behaviour.

Particularly for these two variables, one should however not imply from these findings that these two variables are irrelevant for the intra-party dimension. In fact, particularly these two variables can affect intra-party outcomes in other ways. The distinction between open and flexible lists formally defines the respective degree of influence over the intra-party dimension of parties and voters. The analysis of this thesis did however only cover the influence of electoral systems on voters. This point emphasises the importance of the literature on the candidate selection, particularly in the case of flexible list systems. Stressing this relevance should however not be equated with an assertion on the irrelevance of analysing preferential voting. This argument merely underlines a point that has been made right at the beginning of this thesis, namely that elections involve multiple actors and that different factors have the potential of influencing electoral outcomes.

Similarly, the findings for district magnitude can only inform us that this electoral system characteristic has only a limited impact on the vote shares of candidates. Consequently, they cannot inform us about whether district magnitude may have an impact in other ways. The example of the relationship between female candidates and district magnitude illustrates this point exemplarily. As outlined in chapter 4, Matland (1998) finds a positive effect of higher district magnitude on female representation. The results of chapter 4 do not constitute a refutation of Matland's findings, but rather a clarification with regard to the effects that occurs. In fact, the results simply inform us that the increase in the share of female legislators does not result from higher vote shares for female candidates. One can thus infer that higher district magnitude benefits women through a mechanical effect resulting from a higher average number of candidates by party that enter parliament. In other words, there are no higher shares of women in parliament because they obtain more preferential votes, but because being ranked, for instance, in fifth or sixth position increases one's probability of election as the number of available seats increases.

The limited role of compulsory preferential voting – The distinction between optional and compulsory preferential voting was hypothesised to have major implications on how preferential votes are cast, which in turn would affect intra-party outcomes. The results do however point at a much more limited role of this distinction. In fact, only the results for ballot order effects are statistically significant. In other words, the results suggest that compulsory preferential voting has no effect except for reinforcing ballot order effects. The latter results corroborate Marcinkiewicz and Stegmaier's (2015) conclusion derived from a comparison of Poland and the Czech Republic. In addition, the results are in line with Nagtzaam's findings in an experimental setting, which indicate that the removal of the compulsion to cast preferential votes has no major impact on intra-party rankings (Nagtzaam, 2019: 36). Results that indicate that making preferential voting compulsory only reinforces a factor that – objectively speaking – is not indicative of a candidate's qualities, may lead to reconsidering the merits of such a compulsion. In fact, from a normative point of view, one may be sceptical about whether one should regard an electoral system characteristic that only seems to strengthen subconscious effects as a positive characteristic.

Cross-party voting concentrates intra-party competition – With respect to the *panachage* system, the results show that the possibility to vote across different parties reduces the equalising effect of increasing the number of votes. In fact, the three indices from chapter 3 show higher levels of preferential vote concentration while the incumbency advantage is reinforced. The analysis of ballot samples highlights several substantial differences between intra-party and cross-party voters. More specifically, the results show that cross-party voters cast on average more votes for incumbents while voting for women at lower rates. In so doing, the results from the ballot sample, demonstrate that the difference observed for the Luxembourgish electoral system do indeed find their origins in the behaviour of cross-party voters.

First results on negative voting – The results for the Latvian negative voting system show that the possibility of allocating negative votes has an impact, however the results appear in some instances to be rather mixed. The indices in chapter 3 do not yield a clear result while the findings for the interactions of gender and incumbency point into different directions. Finally, the results from the experimental chapter, which have compared negative voting systems to the *panachage* system, demonstrate that the introduction of negative voting has an effect on voting behaviour. The overall outcome of this impact of behaviour does however only affect a small number of candidates substantially.

Response to the research questions – The findings summarised in this section result from an analysis in response to three precise research questions. As the analysis arrives at its close, it is therefore only appropriate to briefly consider what the answers to these three questions are.

The above summary can be considered a direct response to research questions 2 and 3. In fact, the findings of the different chapters demonstrate that certain electoral system characteristics affect intra-party outcomes while the role of other electoral system characteristics appears to be more limited. According to these results, the number of preferential votes, the possibility of *panachage* and negative votes appear to have a more significant role on intra-party outcomes such as defined by voters. Furthermore, these results clearly demonstrate that different candidate characteristics play a different role under different electoral systems.

On the basis of these findings, one is also inclined to answer research question 1 affirmatively, i.e. to assert that there is indeed a causal relationship between preferential list PR systems and intra-party outcomes at the election stage. Since the question of causality has figured prominently in the methodological discussions throughout the thesis, one should consider the elements in support of such a causal relationship in more detail.

The findings in the five chapters clearly point at a strong association between electoral systems and intra-party outcomes. Since the rules of the election necessarily precede the electoral outcome, it is also plausible that the electoral system is the cause and the intra-party outcome the effect in this relationship.

To this one might object that the observed relationship could be incidental or that there are other factors that are responsible for the correlation between electoral systems and intra-party outcomes. While scientific enquiry can never definitely exclude such possibilities, there are however three arguments that provide sufficient reason to accept a causal relationship at this stage. First, the theoretical argument for this causal relationship is sufficiently plausible, making it hard to believe in a mere coincidence. Second, the five empirical chapters of this thesis using different approaches have provided strong evidence for such a relationship. The consistency of these findings does not support claims that all this could be purely incidental. In addition, the wide variety of considered cases with a variety of different institutional settings provides additional robustness to the causal argument. Third, previous research present throughout this thesis has yielded results that have provided similar findings on different parts of the empirical analysis. In addition to the previously cited contributions, I would like to emphasise the very recent findings of Harfst et al. (2021) who have tested different ways to express preferences for candidates in an experimental setting in Austria. They find that the way in which voters can evaluate candidates change outcomes in significant ways, thus supporting the overall argument of this thesis.

Hence, on the basis of these findings, the argument about this causal relationship can at this stage be accepted. Further research will subsequently be able to either corroborate or disprove this argument.

8.2. Limitations

While the analysis of this thesis has provided robust results in response to the three main research questions, one should not infer from this that this study is without its limitations, which necessarily exist in any research. From the outset, I have emphasised that the scope of the analysis is limited to a particular stage in the electoral cycle. In addition, there are limitations with regard to the necessary data that one can assemble.

A crucial point to be raised is that of the generalizability of the findings in this thesis. As outlined in the first chapter, many contributions on the intra-party dimension tend to focus on a single country or one a small set of countries, raising the question about how generalizable the results of these contributions are. The present analysis has included fifteen different European cases. While one may raise the question about whether one could have considered more than a single election for each case or whether it would have been possible to include more cases, this question is clearly of a lesser concern in this thesis compared to these contributions that analyse a significantly smaller number of cases. Nonetheless, I would agree that there are three potential approaches to further strengthen the argument.

First, one could extend the analysis to cases outside of Europe, particularly Latin America, which is the second major region where several preferential list PR systems can be found. Replicating the analyses of this thesis in this different context could prove to be extremely useful to better assess the generalizability of the findings or determine that there is regional variation.

Second, one could extend the time period one considers for the analyses in order to exclude that the results are driven by specific circumstances in a particular time period. The main difficulty of this is that data becomes sparser the further one extends the period of interest to the past. In addition, at least for chapter 2 an analysis across a twenty-five year period has been performed by Dodeigne and Pilet

(2019). Even though their analysis focused on a different question, their work constitutes a longitudinal analysis.

While I would not identify any major need to extend the analysis for most of the thesis, it is unfortunate that it had not been possible to include more cases in chapter 5 due to the lack of available data.

Third, the experimental data can be supplemented through additional experimental studies that test for other electoral system characteristics. As outlined in the previous section, Harst et al. (2021) have recently performed an analysis in that sense. While one can of course conceive of a multitude of different experimental studies, which would help us better understanding preferential list PR systems, I am not sure about the precise value that adding more experiments to this thesis would have had. In fact, with the adopted complementary approach, the two experiments have by themselves already added value to the analysis. I would therefore suggest that additional experiments should be reserved for future studies.

In addition to the question of generalizability – which I do not consider to be a major concern for the reasons just outlined – one should also raise the question about how good this analysis actually explains the intra-party effects of preferential list PR systems due to the necessary limitations of the scope of the analysis. The potential stages and ways in which electoral systems may affect intra-party outcomes are numerous and it was therefore necessary to delimit the scope of what this thesis considers. As the above discussion regarding the distinction between open and flexible lists as well as district magnitude emphasises, this thesis has analysed how preferential list PR systems affect intra-party outcomes such as determined by voters. In other words, the analysis has considered parties and candidates as passive actors. In reality, parties and candidates are however active in the time period preceding the election and they can have a serious impact through their actions and decisions on intra-party outcomes. In addition, other mechanisms that occur for reasons not related to the electorate may also affect the

intra-party dimension. These are important considerations that could not be included in this analysis, but also deserve appropriate attention.

Finally, it is necessary to discuss the more fundamental question of how much this thesis could test the theoretical model presented in this thesis. The model presented in chapter 2 has built primarily on rational choice theory, which is one of the main approaches to analysing how electoral systems affects the political system. The findings in this thesis have shown to confirm several of the predictions made on the basis of this model, thus confirming Van der Straeten's assertion (2010) that rational choice theory has a good track record. However the analysis in this thesis can only test whether the predictions of the model are accurate. According to instrumentalist view such as defended by Friedman (1951), strong predictive power is a primary criterion that the model of this thesis has clearly satisfied.

One may however raise the wish to know whether this strong predictive power results actually from an accurate assessment on how voters make their choices, i.e. how true rational choice theory comes to reality. The tests proposed in this thesis can however not verify these assumptions because they are merely looking at the outcomes of elections or experimental data that simulates elections. Testing the accuracy of the assumptions underlying the model itself would require the adoption of new approaches and research agendas.

While this discussion clearly points at certain limitations, it appears that these are less manifestations of serious problems with the approaches chosen in this thesis than invitations to use the findings in this thesis as a starting point to move on to new research projects.

8.3. Future research

While the main purpose of this thesis was to address three research questions, it has also opened the door for new questions and points at new puzzles that need to be raised. Particularly the discussion in the previous section points at a few avenues that should be considered. At the end of this thesis, I shall briefly discuss a few of these avenues that I consider to be particularly promising.

First of all, the analysis of ballot samples as an approach to better understanding voting behaviour should be further investigated. Chapter 6 in this thesis is an exploratory chapter that introduces the idea of studying ballot samples as a complementary approach to understand how the decisions of individual voters turn into aggregate outcomes. In order to further increase the value of this original data it will not only be necessary to further develop the methodological approaches. In addition, it may be useful to find way of combining ballot sample analyses with other approaches. One could, for instance, conceive of ways in which one could use surveys, experimental data or voting advice applications to improve our understanding on the voters behind the ballots.

Another promising approach to move on from this thesis is an expansion of experimental approaches both in the field and in laboratory settings. As for ballot samples, it appears particularly promising to combine experimental research with other sources of data in order to increase the values of all available data sources.

In light of the comments on the inability of more classical approaches to studying electoral systems to thoroughly test the assumptions underlying theoretical models rather than merely testing their predictive power, experiments also appear to be an appropriate solution. More specifically, I propose that experimental research on the effects of electoral systems should embrace the insights of cognitive psychology.

Despite significant findings on the role of cues and subconscious factors such as ballot order political scientist do not appear to pay sufficient attention to the role of

the cognitive abilities of voters or the cognitive process when votes are cast. Some of the scholars cited in this thesis (Seib, 2016; Muraoka, 2019; Müller & Jankowski, 2019) have begun to consider such questions in their research, however this field is only developing.

A promising development in that sense is the creation of the Electoral Psychology Observatory at the London School of Economics and Political Science. The research unit's director and deputy director emphasise that introducing insights from psychology more consistently into election studies may be beneficial in improving models (Bruter and Harrison, 2020: 10).

In order to further develop the insights of this thesis, it would be particularly important to better understand the cognitive processes and limitations that affect voters. A first promising step would be to learn more on how voters actually process ballot papers. As highlighted in chapter 4, Miller and Krosnick (1998) argue for instance that ballot order effects result from the order in which candidate names on a ballot paper are read. The use of technologies such as eye tracking devices would help allow actually testing whether voters analyse ballots in the assumed way, which would help developing our theories on how vote choices are made.

Another important step would be to further study how voters process information on candidates. Particularly, the role of the available information on ballots should be considered in this context as a useful piece of information. This research could build on the analysis that Seib (2016) has performed in the context of US elections and follow Nagtzaam's (2019: 138) recommendation to further focus on this question.

A final potential avenue would be to use experimental setting to precisely determine which electoral system characteristics affect the ease with which voters can perform an electoral task and which variations of the task increase the cognitive challenge of voting. Particularly in light of the previous discussion on potential trade-offs when

designing electoral systems, this information would be crucial in order to better advise policy makers on the implications of certain choices in electoral systems.

The examples of promising future avenues are only some of the many potential ways in which we can arrive at (1) better assessing the accuracy of theoretical models and (2) understanding the practical implications of certain choices of electoral system characteristics. It would be possible to provide other examples of research projects that would help the development of more accurate theoretical models and better advice for policymakers.

Both Van Erkel (2017: 205) and Nagtzaam (2019: 140) used the final paragraph of their respective theses to emphasise that preferential votes could be beneficial for all actors in a political system. As preferential list PR systems are used in a large number of countries – particularly in Europe and Latin America – one can only hope that their assessment of this potential is correct. This thesis has demonstrated that the precise configurations of these systems may not be irrelevant for the realisation of these hopes.

While this section has provided different avenues to be pursued, this thesis has overall also provided its modest contribution in discussion how different electoral system characteristics can affect intra-party results. In addressing these questions on preferential list PR systems, we can be optimistic that we will eventually be able to say that Shugart's assertion that "we simply know too little at this stage about their empirical effects" (Shugart, 2005: 45) is no longer be a valid statement.

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Appendices

Chapter 3

Appendix 3.1. Preliminary models for analysis in chapter 3

Table A.1 – Models for the ENC on the basis of the full dataset

	A1	A2	A3	Model 1a
Number of votes				
- Small number of votes	.884** (.125)	.882** (.126)	.975** (.085)	.957** (.095)
- Number of votes = district magn.	.491** (.075)	.509** (.115)	-.153 (.100)	-.091 (.122)
Open lists	-.174 (.094)	-.157 (.103)	-.537** (.106)	-.543** (.119)
District magnitude	-.007** (.002)	-.007** (.002)	-.010** (.001)	-.010** (.002)
Number of votes&dist.magn				
- small number of votes			-.005* (.002)	-.006* (.002)
- number of votes = district magn.			.045** (.006)	.044** (.005)
District magnitude & open lists			.018** (.005)	.019** (.005)
Compulsory preferential voting	.277* (.111)	.281* (.123)	.411** (.081)	.430** (.088)
Panachage	.003 (.103)	-.038** (.145)	.279** (.081)	.218 (.103)
Negative votes	.199** (.033)	.218** (.031)	-.056 (.034)	-.057 (.033)
Number of candidates	.014* (.005)	.012 (.006)	.011** (.003)	.014* (.006)
Number of incumbents		-.019 (.020)		-.012 (.016)
Number of women		.009 (.011)		-.001 (.006)
Leader(s) on the list		-.033 (.117)		-.060** (.094)
Intercept	1.316** (.078)	1.310** (.081)	1.393** (.068)	1.397** (.083)
Observations	2374	2374	2374	2374
R ²	.383	.390	.563	.565

* p<0.5; ** p<0.1, (.) clustered standard errors

Table A.2 – Models for the EPC on the basis of the full dataset

	B1	B2	B3	Model 1b
Number of votes				
- <i>Small number of votes</i>	1.145** (.156)	1.042** (.150)	.836* (.410)	.784* (.349)
- <i>Number of votes = district magn.</i>	.868** (.084)	1.135** (.272)	.766** (.157)	1.026** (.307)
Open lists	.327* (.161)	.288 (.181)	-.205 (.324)	-.215 (.327)
District magnitude	.001 (.004)	.002 (.004)	-.002 (.003)	-.002 (.004)
Number of votes&dist.magn				
- <i>small number of votes</i>			.031 (.034)	.027 (.028)
- <i>number of votes = district magn.</i>			.008 (.012)	.007 (.012)
District magnitude & open lists			.027 (.020)	.025 (.017)
Compulsory preferential voting	-.300 (.292)	-.198 (.284)	-.035 (.310)	.043 (.289)
Panachage	.015 (.158)	-.262 (.318)	.223 (.138)	-.029 (.308)
Negative votes	-.097 (.068)	-.134 (.081)	-.044** (.101)	-.082 (.100)
Number of candidates	-.053** (.013)	-.047** (.014)	-.067** (.019)	-.061** (.019)
Number of incumbents		.008 (.018)		.020 (.018)
Number of women		-.008 (.016)		-.008 (.013)
Leader(s) on the list		-.344 (.249)		-.317** (.221)
Intercept	.446** (.146)	.483** (.181)	.661** (.226)	.676** (.256)
Scale - Intercept	1.895** (.160)	1.913** (.156)	1.952** (.172)	1.962** (.170)
Observations	2374	2374	2374	2374
Log likelihood	985.42	1016.56	1029.73	1056.54

* p<0.5; ** p<0.1, (.) clustered standard errors

Table A.3 – Models for the Gini coefficient on the basis of the full dataset

	C1	C2	C3	Model 1c
Number of votes				
- Small number of votes	-.815** (.091)	-.716** (.080)	-.606** (.163)	-.555** (.135)
- Number of votes = district magn.	-.879** (.046)	-1.075** (.157)	-.703** (.108)	-.914** (.192)
Open lists	-.238 (.139)	-.219 (.142)	.126 (.234)	.124 (.216)
District magnitude	.001 (.003)	.001 (.003)	.003 (.003)	.003 (.003)
Number of votes&dist.magn				
- small number of votes			-.020 (.017)	-.016 (.012)
- number of votes = district magn.			-.013 (.009)	-.011 (.009)
District magnitude & open lists			-.016 (.014)	-.015 (.010)
Compulsory preferential voting	.239 (.231)	.158 (.213)	.030 (.239)	-.028 (.214)
Panachage	.169 (.135)	.389 (.204)	-.013 (.094)	.202 (.183)
Negative votes	.168** (.054)	.193** (.065)	-.169* (.082)	.193** (.071)
Number of candidates	.031** (.009)	.025* (.011)	.041** (.013)	.035** (.012)
Number of incumbents		.020 (.012)		.009 (.013)
Number of women		.005 (.012)		.005 (.010)
Leader(s) on the list		.257 (.144)		.245* (.123)
Intercept	-.351** (.101)	-.380** (.117)	-.514** (.156)	-.525** (.169)
Scale - Intercept	2.529** (.169)	2.559** (.164)	2.585** (.182)	2.606** (.178)
Observations	2374	2374	2374	2374
Log likelihood	1507.91	1547.10	1559.57	1591.30

* p<0.5; ** p<0.1, (.) clustered standard errors

Table A.4 – Models for the ENC on the basis of cases where the number of votes =1

	D1	D2	D3	Model 2a
Compulsory preferential voting	.339** (.092)	.246* (.122)	.366* (.114)	.367* (.130)
District magnitude	-.008** (.001)	-.008** (.001)	-.007 (.003)	-.007 (.003)
Comp. pref. voting & District magn.			-.001 (.004)	-.001 (.004)
Open list	-.231* (.084)	-.231 (.101)	-.244* (.092)	-.241 (.109)
Number of candidates	.009** (.002)	.008 (.005)	.009* (.003)	.007 (.005)
Number of incumbents		-.004 (.023)		-.004 (.023)
Number of women		.005 (.008)		.005 (.007)
Leader(s) on list		-.020 (.115)		-.018 (.115)
Intercept	1.395** (.072)	1.398** (.086)	1.394** (.069)	1.398** (.008)
Observations	1284	1284	1284	1284
R ²	.134	.136	.135	.136

* p<0.5; ** p<0.1, (.) standard errors

Table A.5 – Models for the EPC on the basis of cases where the number of votes =1

	Model 2b			
Compulsory preferential voting	-.105 (.351)	-.048 (.347)	.319 (.375)	.304 (.414)
District magnitude	-.000 (.004)	.000** (.004)	.023 (.015)	.019 (.020)
Comp. pref. voting & District magn.			-.025 (.015)	-.021 (.021)
Open list	.191 (.151)	.157 (.186)	.016 (.149)	.009 (.187)
Number of candidates	-.067** (.024)	-.063* (.026)	-.073** (.016)	-.069** (.017)
Number of incumbents		.021 (.026)		.023 (.025)
Number of women		-.002 (.024)		-.002 (.024)
Leader(s) on list		-.225 (.263)		-.191 (.248)
Intercept	.636* (.267)	.643* (.301)	.515* (.201)	.544* (.273)
Scale - Intercept	1.844** (.246)	1.846** (.246)	1.838** (.219)	1.840** (.224)
Observations	1284	1284	1284	1284
Log likelihood	423.80	434.26	434.17	442.60

* p<0.5; ** p<0.1, (./) standard errors

Table A.6 – Models for the Gini coefficient on the basis of cases where the number of votes =1

	Model 2c			
Compulsory preferential voting	.063 (.266)	.028 (.249)	-.250 (.263)	-.220 (.246)
District magnitude	.002 (.003)	.002 (.003)	-.014* (.006)	-.010 (.006)
Comp. pref. voting & District magn.			.017** (.006)	.014* (.006)
Open list	-.112 (.117)	-.112 (.140)	.020 (.072)	-.006 (.096)
Number of candidates	.043** (.016)	.036* (.016)	.047** (.012)	.040** (.012)
Number of incumbents		.019 (.019)		.017 (.018)
Number of women		.000 (.017)		.001 (.018)
Leader(s) on list		.201 (.154)		.178 (.148)
Intercept	-.515** (.180)	-.505** (.192)	-.441** (.107)	-.448** (.146)
Scale - Intercept	2.413** (.232)	2.428** (.222)	2.422** (.214)	2.436** (.208)
Observations	1284	1284	1284	1284
Log likelihood	.682.13	699.21	696.91	710.08

* p<0.5; ** p<0.1, (./) standard errors

Table A.7 – Models for the ENC on the basis of cases where the number of votes =DM

	Model 3a			
Panachage	-.022 (.026)	-.148** (.038)	-.171** (.015)	-.339** (.017)
Negative voting	-.204* (.053)	-.199 (.064)	.243** (.005)	.245** (.008)
District magnitude	.007 (.003)	.006 (.003)	.001 (.007)	.000 (.007)
Panachage & District magnitude			.011* (.002)	.013** (.001)
Negative voting & District magn.			-.020** (.001)	-.020** (.001)
Number of candidates	.061** (.008)	.062* (.011)	.060** (.009)	-.061* (.010)
Number of incumbents		-.005 (.022)		-.001 (.021)
Number of women		.002 (.005)		.001 (.003)
Leader(s) on lists		-.138 (.056)		-.172** (.024)
Intercept	1.041** (.097)	1.169** (.046)	1.135** (.014)	1.303** (.018)
Observations	726	726	726	726
R ²	.712	.714	.730	.732

* $p < 0.5$; ** $p < 0.1$, (.) standard errors

Table A.8 – Models for the EPC on the basis of cases where the number of votes =DM

	Model 3b			
Panachage	.375** (.088)	-.326** (.104)	-.299** (.044)	-1.101** (.083)
Negative voting	-.174** (.065)	-.177** (.037)	-.817** (.014)	-.817** (.022)
District magnitude	.023** (.005)	.023** (.007)	-.018 (.011)	-.021 (.011)
Panachage & District magnitude			.050** (.004)	.054** (.003)
Negative voting & District magn.			.046** (.002)	.047** (.002)
Number of candidates	-.062** (.014)	-.061** (.011)	-.066** (.016)	-.068** (.014)
Number of incumbents		.017 (.045)		.024 (.040)
Number of women		.003** (.008)		.005 (.006)
Leader(s) on lists		-.773** (.132)		-.820** (.087)
Intercept	1.134** (.122)	1.865** (.070)	1.757** (.042)	2.581** (.086)
Scale - Intercept	1.934** (.055)	1.979** (.056)	1.959** (.082)	2.010** (.090)
Observations	726	726	726	726
Log likelihood	401.76	416.75	410.42	427.46

* $p < 0.5$; ** $p < 0.1$, (.) standard errors

Table A.9 – Models for the Gini coefficient on the basis of cases where the number of votes =DM

	Model 3c			
Panachage	-.102*	.314**	.250**	.704**
	(.052)	(.065)	(.028)	(.067)
Negative voting	.260**	.269**	.737**	.731**
	(.029)	(.015)	(.010)	(.014)
District magnitude	-.016**	-.015**	-.007	-.009
	(.005)	(.006)	(.005)	(.005)
Panachage & District magnitude			-.026**	-.027**
			(.002)	(.001)
Negative voting & District magn.			-.031**	-.031**
			(.001)	(.001)
Number of candidates	.035**	.031**	.036**	.033**
	(.007)	(.005)	(.007)	(.005)
Number of incumbents		.007		.005
		(.030)		(.027)
Number of women		.001		-.000
		(.007)		(.005)
Leader(s) on lists		.452**		-.468**
		(.082)		(.065)
Intercept	-1.053**	-.1482**	1.391**	1.852**
	(.061)	(.046)	(.021)	(.062)
Scale - Intercept	2.711**	2.743**	2.725**	2.759**
	(.103)	(.118)	(.120)	(.137)
Observations	726	726	726	726
Log likelihood	580.35	591.78	585.29	597.28

* $p < 0.5$; ** $p < 0.1$, (.) standard errors

Chapter 4

Appendix 4.1. Models by country

Models for Belgium

	(1)	(2)	(3)	(4)
List leader	.838** (.045)	.839** (.045)	.851** (.045)	.763** (.045)
Female candidate	.150** (.016)	.183** (.058)	.147** (.016)	.151** (.015)
National incumbency				
- National legislator	.288** (.043)	.288** (.043)	-.233 (.141)	.238** (.040)
- National executive	.436** (.094)	.436** (.093)	-.015 (.160)	.411** (.088)
Regional incumbency				
- Regional legislator	.418** (.121)	.418** (.121)	.425** (.122)	.372** (.104)
Member of EP	-.052 (.028)	-.052 (.029)	-.045 (.028)	-.121** (.037)
List Place	-.137** (.007)	-.137** (.007)	-.135** (.007)	-.176** (.027)
List Place squared	.005** (.000)	.005** (.000)	.005** (.000)	-.012** (.002)
District magnitude	.091* (.036)	.092* (.036)	.091* (.036)	.104** (.033)
District magnitude&female		.002 (.003)		
District magn. & Incumbency				
- National legislator			.031** (.009)	
- National executive			.029* (.011)	
List Place & District magnitude				-.001 (.001)
List Place ² & Dist. Magn.				-.000** (.000)
N of candidates on list	-.068** (.003)	-.068** (.003)	-.069** (.003)	-.062** (.003)
Intercept	1.880** (.554)	1.865** (.555)	1.895** (.552)	1.705** (.518)
Observations	1412	1412	1412	1412
R ²	.844	.844	.846	.857

p*<.05; *p*<.01, (.) *robust*

Dummy variables for districts are not represented

Models for Denmark

	(1)	(2)	(3)	(4)
List leader	1.524** (.206)	1.524** (.206)	1.512** (.196)	1.497** (.208)
Female candidate	.425** (.068)	.468 (.248)	.428** (.068)	.426** (.068)
National incumbency				
- National legislator	1.453** (.085)	1.453** (.085)	.721* (.296)	1.457** (.085)
- National executive	1.717** (.150)	1.717** (.150)	1.399** (.513)	1.700** (.154)
List Place	-.155** (.043)	-.155** (.043)	-.155** (.043)	.093 (.183)
List Place squared	.012** (.004)	.012** (.004)	.012** (.004)	-.014 (.018)
District magnitude	-.073** (.023)	-.072** (.024)	-.080** (.023)	-.042 (.036)
District magnitude&female		-.003 (.017)		
District magn. & Incumbency				
- National legislator			.050* (.019)	
- National executive			.022 (.037)	
List Place & District magnitude				-.016 (.011)
List Place ² & Dist. Magn.				.002 (.001)
N of candidates on list	-.209** (.018)	-.209** (.018)	-.211** (.018)	-.209** (.018)
Intercept	4.622** (.302)	4.608** (.317)	4.754** (.300)	4.167** (.498)
Observations	879	879	879	879
R ²	.423	.423	.426	.424

* $p < .05$; ** $p < .01$, (.) robust

Dummy variables for districts are not represented

Models for Lithuania

List leader	1.238** (.100)
Female candidate	.015 (.037)
National incumbency	
- National legislator	.335** (.075)
- National executive	.523** (.131)
List Place	-.069** (.002)
List Place squared	.000** (.000)
N of candidates on list	-.003** (.001)
Intercept	1.616** (.070)
Observations	1386
R ²	.763

* $p < .05$; ** $p < .01$, (.) robust

Dummy variables for districts are not represented

Models for Luxembourg

	(1)	(2)	(3)	(4)
List leader	.737** (.111)	.736** (.112)	.775** (.109)	.725** (.114)
Female candidate	-.173** (.037)	-.204** (.134)	-.173** (.037)	-.170** (.038)
National incumbency				
- National legislator	.529** (.061)	.529** (.062)	.163 (.188)	.529** (.062)
- National executive	.343** (.124)	.342** (.124)	-.142 (.247)	.343** (.124)
List Place	-.120** (.016)	-.120** (.016)	-.118** (.016)	-.166* (.074)
List Place squared	.003** (.001)	.003** (.001)	.003** (.001)	.008 (.006)
District magnitude	-.051* (.021)	-.052* (.021)	-.054* (.021)	-.044 (.026)
District magnitude&female		.002 (.007)		
District magn. & Incumbency				
- National legislator			.020* (.010)	
- National executive			.027* (.012)	
List Place & District magnitude				.002 (.003)
List Place ² & Dist. Magn.				-.000 (.000)
Intercept	3.083** (.468)	3.098** (.479)	.3115** (.469)	2.918** (.574)
Observations	547	547	547	547
R ²	.725	.725	.728	.725

* $p < .05$; ** $p < .01$, (.) robust

Dummy variables for districts are not represented

Model for the Netherlands

	(1)
List leader	3.558** (.120)
Female candidate	.818** (.074)
National incumbency	
- National legislator	.339* (.150)
- National executive	1.779** (.326)
List Place	-.118** (.007)
List Place squared	.001** (.000)
N of candidates on list	-.022** (.003)
Intercept	1.096** (.115)
Observations	874
R ²	.696

* $p < .05$; ** $p < .01$, (.) robust

Dummy variables for districts are not represented

Models for Switzerland

	(1)	(2)	(3)	(4)
Female candidate	.085** (.015)	.059* (.028)	.084** (.015)	.082** (.015)
National incumbency - National legislator	.595** (.034)	.595** (.034)	.827** (.050)	.552** (.034)
Regional incumbency - Regional legislator	.075** (.026)	.075** (.028)	.073** (.026)	.071** (.026)
- Regional executive	.430 (.487)	.429 (.487)	.432 (.484)	.380** (.533)
List Place	-.088** (.004)	-.088** (.004)	-.089** (.004)	-.189** (.011)
List Place squared	.002** (.000)	.002** (.000)	.002** (.000)	.007** (.001)
District magnitude	-.023** (.004)	-.023** (.004)	-.022** (.004)	-.030** (.004)
District magnitude&female		.002 (.001)		
District magn. & Incumbency - National legislator			-.014** (.003)	
List Place & District magnitude				.003** (.000)
List Place ² & Dist. Magn.				-.000** (.000)
N of candidates on list	-.046** (.003)	-.046** (.003)	-.045** (.003)	-.045** (.003)
Intercept	4.022** (.082)	4.032** (.083)	4.009** (.083)	4.167** (.087)
Observations	4630	4630	4630	4630
R ²	.732	.732	.733	.739

* $p < .05$; ** $p < .01$, (.) robust

Dummy variables for districts are not represented

Models for Estonia

List leader	1.096** (.180)	1.095** (.180)	1.155** (.205)	.805** (.128)
Female candidate	.078 (.051)	.070 (.170)	.075 (.051)	.099* (.049)
National incumbency				
- National legislator	.385** (.084)	.385** (.084)	.488 (.258)	.251** (.078)
- National executive	.510** (.136)	.511** (.136)	1.044** (.309)	.317* (.146)
List Place	-.498** (.024)	-.498** (.024)	-.496** (.024)	-.957** (.079)
List Place squared	.021** (.002)	.021** (.002)	.021** (.002)	.079** (.007)
District magnitude	.067 (.041)	.067 (.041)	.069 (.041)	.023 (.045)
District magnitude&female		.001 (.019)		
District magn. & Incumbency				
- National legislator			-.011 (.031)	
- National executive			-.060 (.034)	
List Place & District magnitude				.024** (.007)
List Place ² & Dist. Magn.				-.004** (.001)
N of candidates on list	-.079** (.021)	-.079** (.021)	-.079** (.021)	-.079** (.021)
Intercept	3.695** (.324)	3.697** (.330)	3.674** (.326)	4.477** (.348)
Observations	1073	1073	1073	1073
R ²	.624	.624	.625	.658

* $p < .05$; ** $p < .01$, (.) robust

Dummy variables for districts are not represented

Models for Latvia

List leader	.872** (.068)	.873** (.068)	.874** (.067)	.786** (.078)
Female candidate	-.068 (.039)	-.274* (.110)	-.065 (.032)	-.074 (.039)
National incumbency				
- National legislator	.292** (.084)	.295** (.084)	-.022 (.218)	.266** (.084)
- National executive	.411** (.138)	.396** (.140)	.592** (.218)	.443** (.135)
Member of EP	.452** (.138)	.468** (.163)	.458** (.171)	.587** (.142)
List Place	-.131** (.007)	-.131** (.007)	-.131** (.007)	-.227** (.033)
List Place squared	.003** (.000)	.003** (.000)	.003** (.000)	.006** (.002)
District magnitude	.038 (.032)	.038 (.032)	.039 (.032)	.028 (.032)
District magnitude&female		.009* (.004)		
District magn. & Incumbency				
- National legislator			.014 (.008)	
- National executive			-.007 (.007)	
List Place & District magnitude				.003** (.001)
List Place ² & Dist. Magn.				-.000* (.000)
N of candidates on list	-.040** (.004)	-.039** (.004)	-.040** (.004)	-.039** (.004)
Intercept	2.492** (.415)	2.527** (.414)	2.497** (.414)	2.869** (.426)
Observations	1412	1412	1412	1412
R ²	.572	.573	.573	.578

* $p < .05$; ** $p < .01$, (.) robust

Dummy variables for districts are not represented

Models for Croatia

Female candidate	-.112** (.034)
National incumbency	
- National legislator	.131 (.084)
List Place	-.560** (.018)
List Place squared	.029** (.001)
Intercept	3.419** (.078)
Observations	2273
R ²	.438

* $p < .05$; ** $p < .01$, (.) robust

Dummy variables for districts are not represented

Models for Finland

List leader	1.179** (.206)	1.197** (.208)	1.205** (.204)	1.169** (.213)
Female candidate	.042 (.038)	-.108 (.095)	.042 (.038)	.042 (.038)
National incumbency				
- National legislator	1.431** (.059)	1.429** (.060)	1.381** (.164)	1.431** (.060)
- National executive	1.457** (.182)	1.469** (.182)	1.610** (.402)	1.455** (.180)
Member of EP	1.591** (.337)	1.602** (.336)	1.606** (.329)	1.548** (.324)
List Place	-.044** (.008)	-.043** (.008)	-.044** (.008)	-.137** (.028)
List Place squared	.001** (.000)	.001** (.000)	.001** (.000)	.006** (.002)
District magnitude	.045 (.029)	.041 (.030)	.045 (.030)	.035 (.032)
District magnitude&female		.008 (.004)		
District magn. & Incumbency				
- National legislator			.003 (.008)	
- National executive			-.008 (.023)	
List Place & District magnitude				.003** (.001)
List Place ² & Dist. Magn.				-.000** (.000)
N of candidates on list	-.111** (.004)	-.112** (.004)	-.111** (.004)	-.111** (.004)
Intercept	2.477** (.496)	2.564** (.500)	2.485** (.500)	2.748** (.536)
Observations	2122	2122	2122	2122
R ²	.438	.439	.438	.441

* $p < .05$; ** $p < .01$, (.) robust

Dummy variables for districts are not represented

Models for Austria

List leader	3.007** (.461)	3.3004** (.461)	3.175** (.550)	3.543** (.551)
Female candidate	-.106** (.030)	-.096** (.034)	-.108** (.029)	-.114** (.027)
National incumbency				
- National legislator	1.080** (.062)	1.079** (.062)	1.476** (.063)	.589** (.058)
- National executive	2.257** (.399)	2.256** (.399)	3.254** (.533)	1.984** (.382)
Regional incumbency				
- Regional legislator	.324** (.100)	.325** (.100)	.314** (.102)	.288** (.099)
- Regional executive	.245 (.305)	.244 (.306)	.287 (.262)	.529 (.317)
Member of EP	.471 (.486)	.470 (.485)	.324 (.517)	.268 (.481)
List Place	-.037** (.001)	-.037** (.001)	-.039** (.001)	-.192** (.004)
List Place squared	.000** (.000)	.000** (.000)	.000** (.000)	.002** (.000)
District magnitude	-.013** (.001)	-.013** (.001)	-.012** (.001)	-.020** (.001)
District magnitude&female		-.000 (.000)		
District magn. & Incumbency				
- National legislator			-.007** (.001)	
- National executive			-.010* (.005)	
List Place & District magnitude				.001** (.000)
List Place ² & Dist. Magn.				-.000** (.000)
N of candidates on list	-.002** (.000)	-.002** (.000)	-.001 (.000)	-.001** (.000)
Intercept	2.052** (.106)	2.048** (.106)	2.028** (.105)	2.943** (.095)
Observations	6141	6141	6141	6141
R ²	.772	.772	.775	.814

* $p < .05$; ** $p < .01$, (.) robust

Dummy variables for districts are not represented

Models for Bulgaria

List leader	.459** (.075)	.460** (.075)	.483** (.075)	.368** (.082)
Female candidate	-.067 (.044)	-.002 (.103)	-.068 (.044)	-.069 (.044)
National incumbency				
- National legislator	.226* (.088)	.227** (.088)	-.011 (.192)	.218* (.089)
- National executive	.160 (.224)	.161 (.223)	-.834 (.553)	.193 (.234)
Member of EP	1.365 (1.040)	1.366 (1.040)	1.356 (1.036)	1.377** (1.057)
List Place	-.207** (.013)	-.206** (.013)	-.205** (.013)	-.314** (.040)
List Place squared	.003** (.000)	.003** (.000)	.003** (.000)	.009** (.002)
District magnitude	-.062** (.023)	-.060* (.023)	-.064** (.023)	-.089** (.025)
District magnitude&female		-.007** (.011)		
District magn. & Incumbency				
- National legislator			.026 (.021)	
- National executive			.094 (.049)	
List Place & District magnitude				.008** (.003)
List Place ² & Dist. Magn.				-.000** (.000)
N of candidates on list	-.020** (.005)	-.020** (.005)	-.021** (.005)	-.020** (.005)
Intercept	3.543** (.177)	3.521** (.180)	3.569** (.177)	3.864** (.208)
Observations	1798	1798	1798	1798
R ²	.582	.582	.583	.583

* $p < .05$; ** $p < .01$, (.) robust

Dummy variables for districts are not represented

Models for Poland

List leader	1.069** (.050)	1.068** (.050)	1.075** (.048)	.864** (.047)
Female candidate	-.101** (.021)	-.181 (.093)	-.101** (.021)	-.092** (.020)
National incumbency				
- National legislator	.724** (.038)	.723** (.038)	.256* (.130)	.604** (.037)
- National executive	.612** (.136)	.614** (.136)	-.261 (.420)	.472** (.133)
List Place	-.215** (.006)	-.214** (.006)	-.216** (.006)	-.325** (.020)
List Place squared	.005** (.000)	.005** (.000)	.005** (.000)	.013** (.001)
District magnitude	.169** (.042)	.166** (.042)	.162** (.042)	.187** (.042)
District magnitude&female		.007 (.008)		
District magn. & Incumbency				
- National legislator			.039** (.011)	
- National executive			.072* (.031)	
List Place & District magnitude				.002 (.001)
List Place ² & Dist. Magn.				-.000** (.000)
N of candidates on list	-.077** (.012)	-.077** (.012)	-.077* (.012)	-.083** (.012)
Intercept	2.024** (.376)	2.061** (.379)	2.095** (.379)	2.281** (.373)
Observations	4566	4566	4566	4566
R ²	.703	.703	.704	.724

* $p < .05$; ** $p < .01$, (.) robust

Dummy variables for districts are not represented

Models for the Czech Republic

List leader	1.094** (.203)	1.098** (.204)	1.061** (.206)	1.002** (.203)
Female candidate	.058** (.015)	-.053 (.038)	.057** (.015)	
National incumbency				
- National legislator	.314** (.041)	.312** (.041)	.119 (.097)	.268** (.040)
- National executive	.919** (.105)	.926** (.107)	.364* (.154)	.829** (.096)
Regional incumbency				
- Regional legislator	.116 (.078)	.114 (.078)	.115 (.078)	.117 (.075)
Member of EP	.260 (.423)	.273 (.423)	.245 (.452)	.181 (.417)
List Place	-.134** (.003)	-.134** (.003)	-.134** (.003)	-.186** (.010)
List Place squared	.002** (.000)	.002** (.000)	.002** (.000)	.006** (.000)
District magnitude	.006 (.037)	.004 (.037)	.006 (.037)	.016** (.036)
District magnitude&female		.007** (.002)		
District magn. & Incumbency				
- National legislator			.012* (.006)	
- National executive			.035** (.011)	
List Place & District magnitude				.001** (.000)
List Place ² & Dist. Magn.				-.000** (.000)
N of candidates on list	-.036** (.002)	-.036** (.002)	-.036** (.002)	-.034** (.002)
Intercept	3.100** (.470)	3.131** (.470)	3.105** (.470)	2.998** (.459)
Observations	7407	7407	7407	7407
R ²	.619	.619	.619	.628

* $p < .05$; ** $p < .01$, (.) robust

Dummy variables for districts are not represented

Models for Slovakia

Female candidate	.257** (.065)
National incumbency	
- National legislator	1.055** (.268)
List Place	-.071** (.003)
List Place squared	.000** (.000)
N of candidates on list	-.223** (.040)
Intercept	33.823** (6.006)
Observations	896
R ²	.653

* $p < .05$; ** $p < .01$, (.) robust

Dummy variables for districts are not represented

Chapter 5

Appendix 5.1. Questionnaire from the smartwielen VAA for the 2018 elections in Luxembourg

(source: www.smartwielen.lu)

1. Should the number of working hours per week be lowered without reducing wages?
2. Should infrastructure that is of public interest (e.g. water, gas, transportation, electricity) remain public?
3. Should a quota for women on executive boards be introduced?
4. Should the gross minimum wage be raised by at least 10%?
5. Should companies be forced to certify income equality between men and women?
6. Should the number of municipalities be reduced by binding measures?
7. Should property tax rates be increased?
8. Are you in favour of extending the use of expropriation in order to implement projects that are in the general interest (e.g. roads, social housing ...)?
9. Are you in favour of forcing municipalities to tax empty apartments?
10. Should an unconditional basic income be introduced in Luxembourg?
11. Are you in favour of lowering the age of retirement?
12. Should an allowance be introduced for parents (mother, father or legal guardian) who cease their professional activity in order to raise their children at home?
13. Are you in favour of free public transport?
14. Should the use of plastic bottles be banned?
15. Should taxes on fuels be increased=
16. Are you in favour of making it mandatory that more agricultural land be used for organic agriculture?
17. Should the number of windmills in Luxembourg be increased?
18. Should higher incomes be taxed more heavily
19. Should the taxes on small and medium-sized enterprises be reduced?
20. Should a single tax category that only takes into account the number of children be introduced?
21. Should inheritance tax rated be increased?
22. Are you in favour of bilingualism (Luxembourgish and French) in contracted nurseries?
23. Should optional religion classes be reintroduced?
24. Are you in favour of extending the offer of international programmes within public schools?
25. Should the third-party payment system ("tiers payant") be applied at a general level?
26. Should a compulsory vaccination plan for children be introduced?
27. Should condoms be reimbursed by a national health fund (e.g. the CNS)?
28. Should proficiency in two of the three administrative languages (Luxembourgish, French, German) be sufficient to access the civil service?
29. Should full-face veils be banned in all public spaces?
30. Should the level of the Luxembourgish language test required to obtain Luxembourgish citizenship be increased?
31. Are you in favour of the automatic entry of foreign inhabitants into the electoral registers for local elections?
32. Should the number of surveillance cameras in public spaces be increased?
33. Are you in favour of increasing defence spending?
34. Are you in favour of allowing the police to use tasers?

35. Should a public television broadcaster be introduced?
36. Should cannabis be legalised for personal use?
37. Should prostitution be recognised as a liberal profession?
38. Should a single electoral district be introduced for the general elections?
39. Should the accumulation of political mandates (local&national) be abolished?
40. Should it be possible to submit legislative proposals through a citizens' initiative?
41. Are you in favour of establishing a European army?
42. Are you in favour of the legal recognition of the State of Palestine by Luxembourg?
43. Are you in favour of binding distribution of applicants for international protection (asylum seekers) between the Member States of the European Union?

Appendix 5.2. Questionnaire of the *smartvote* VAA for the 2019 elections in Switzerland

(source: www.smartvote.ch)

1. Do you support an increase in the retirement age (e.g. to 67)?
2. Should the federal government provide more financial support for the creation of childcare facilities outside the family?
3. An initiative calls for the introduction of paid paternity leave for four weeks. Do you support this proposal?
4. Should the conversion rate of the occupational pension fund be reduced in order to adjust for increases in life expectancy?
5. Do you support cantonal efforts to reduce social welfare benefits?
6. Should the federal government provide more support for the construction of non-profit housing?
7. Should insured persons contribute more to healthcare costs (e.g. by increasing the minimal deductible)?
8. Would you support the introduction of an opt-out solution of for organ donation?
9. Should compulsory vaccination of children be introduced based on the Swiss vaccination plan?
10. An initiative calls for health insurance subsidies to be designed so that no one needs to spend more than ten percent of their disposable income on health insurance premiums. Do you support this proposal?
11. An initiative wants to give the federal government more powers to introduce measures to reduce healthcare costs (introduction of a cost barrier). Do you support this proposal?
12. Should the government increase its efforts to support equal education opportunities (e.g. through vouchers for private tutoring for students from low-income families)?
13. Are you in favour of schools granting/allowing exemptions from individual subjects or events for religious reasons (e.g. PE/swimming, sex education, etc.)?
14. Should the federal government expand its financial support for continued education and retraining?
15. According to the Swiss integrated school concept, children with learning difficulties or disabilities should be taught in regular classes. Do you approve of this concept?
16. Should foreigners who have lived in Switzerland for at least ten years be given the right to vote and be elected at the municipal level=
17. Is limiting immigration more important to you than maintaining the bilateral treaties with the EU?

18. Should sans-papiers be able to obtain a regularised residence status more easily?
19. Are you in favour of further tightening the asylum law?
20. Should the requirements for naturalisation be increased?
21. Should the federal government provide more support for the integration of foreigners?
22. Should cannabis use be legalised?
23. Should same-sex couples have the same rights as heterosexual couples in all areas?
24. Should the rules for reproductive medicine be further relaxed?
25. Are you in favour of stricter monitoring of pay equity for women and men?
26. Would you be in favour of a doctor being allowed to administer direct active euthanasia in Switzerland?
27. In your opinion, is lowering taxes at the federal level a priority for the next four years?
28. Do you support a further reduction in contributions paid by financially strong cantons to financially weak cantons within the framework of financial equalisation (NFA)?
29. Should married couples be taxed separately (individual taxation)?
30. Are you in favour of restricting competition between the cantons with regard to corporate tax rates?
31. Should private households be free to choose their electricity suppliers (complete liberalisation of the electricity market)?
32. Are you in favour of introducing a general minimum wage of CHF 4000 for all employees for full-time employment?
33. Should investment controls be introduced in order to better protect Swiss companies from takeovers by foreign investors?
34. Are you in favour of a complete liberalisation of business hours for shops?
35. Should the protection against dismissal for older employees be extended?
36. Should the federal government provide more support for public services (e.g. public transport, post offices) in rural regions?
37. Should the expansion of the mobile network according to the 5G standard continue?
38. Should online brokerage services (e.g. "Airbnb" accommodations, "Uber" taxi services) be regulated more strongly?
39. An initiative calls for Switzerland to stop using fossil fuels by 2050. Do you support this proposal?
40. Currently, a CO₂ charge is levied on fossil combustibles (i.e. heating oil, natural gas). Should this charge be extended to motor fuels (e.g. petrol, diesel)?
41. Should the federal government provide more support for renewable energies?
42. Should high traffic motorways be expanded to six lanes?
43. Are you in favour of introducing "Road Prices" for motorised individual transport on busy roads?
44. Do you support the relaxation of the current measures to protect large predators (lynx, wolves, bears)?
45. Should the current moratorium on genetically modified plants and animals in Swiss agriculture be extended beyond 2021?
46. Should direct payments only be granted to farmers that provide an extended ecological performance record (e.g. no synthetic pesticides and limited use of antibiotics)?
47. Are you in favour of extending landscape protection (e.g. stricter rules for building outside existing building zones)?
48. Are you in favour of stricter animal welfare regulations for livestock (e.g. permanent access to outdoor areas)?

49. Should campaign finance for political parties and referendums be openly declared?
50. Should the introduction of electronic voting in elections and referendums (e-voting) be further pursued?
51. Are you in favour of lowering the voting age to 16?
52. Should Switzerland terminate the Schengen Agreement with the EU, in order to reintroduce more security checks directly on the border?
53. Should the Federal Council's proposal to tighten the conditions for admission to the civil service be abandoned?
54. Should the export of war materials from Switzerland be banned?
55. Are you in favour of Switzerland acquiring new fighter jets for the armed forces?
56. Do you support an expansion on the legal possibilities for using DNA analysis in investigations?
57. Should Switzerland start membership negotiations with the EU?
58. Should Switzerland strive for a free trade agreement with the USA?
59. An initiative call for liability rules for Swiss companies with regard to compliance with human rights and environmental standards abroad to be tightened. Do you support this proposal?
60. Are you in favour of Switzerland's candidacy for a seat on the UN Security Council?
61. What is your position on the following statement: "Someone who is not guilty, has nothing to fear from state security measures"?
62. What is your position on the following statement: "In the long term, everyone benefits from a free market economy"?
63. What is your position on the following statement: "Wealthy individuals should contribute more to the funding of the state"?
64. What is your position on the following statement: "It is better for a child, when one parent stays home full-time for childcare"?
65. What is your position on the following statement: "The ongoing digitalization offers significantly more opportunities than risks"?
66. "What is your position on the following statement: "Punishing criminals is more important than reintegrating them into society"?"
67. What is your position on the following statement: "Stronger environmental protection is necessary, even if its application limits economic growth"?
68. Should the government spend more or less in the area of "Development assistance"?
69. Should the government spend more or less in the area of "National defence"?
70. Should the government spend more or less in the area of "Public security"?
71. Should the government spend more or less in the area of "Education and research"?
72. Should the government spend more or less in the area of "Social services"?
73. Should the government spend more or less in the area of "Road traffic"?
74. Should the government spend more or less in the area of "Public transport"?
75. Should the government spend more or less in the area of "agriculture"?

Appendix 5.3. Additional regression models for chapter 5

Additional models with robust SE

Distance from median	-.000 (.002)	.004* (.002)	.008 (.008)	.014** (.005)
Distance from median ²			-.000 (.000)	-.000* (.000)
Distance from median & CH	-.006* (.003)	-.007** (.002)	.003 (.009)	-.000 (.006)
Distance from median ² & CH			-.000 (.000)	-.000 (.000)
Lead candidate	.574** (.106)	.599** (.106)		.599** (.108)
National Incumbency				
- National legislator	.510** (.033)	.501** (.033)		.502** (.033)
- National executive	.469** (.129)	.473** (.123)		.473** (.121)
Regional incumbency				
- Regional legislator	-.012 (.027)	-.022 (.027)		-.024 (.027)
- Regional executive	.516 (.405)	.504 (.419)		.504 (.413)
Local political office				
- Member of council	-.067** (.026)	-.070** (.026)		-.076** (.026)
- Deputy-Mayor	.031 (.059)	.036 (.059)		.034 (.059)
- Mayor	.123** (.042)	.127** (.042)		.121** (.042)
Female candidate	.091** (.015)	.083** (.015)		.089** (.015)
Age	-.001 (.001)	-.000 (.001)		-.000 (.001)
Ballot position	-.110** (.003)	-.109** (.003)		-.109** (.003)
Ballot position ²	-.003** (.000)	.003** (.000)		.003** (.000)
Number of candidates	-.046** (.001)	-.064** (.001)	-.046** (.001)	-.064** (.001)
Name twice on ballot	.151** (.030)	.184** (.036)	.156** (.030)	.185** (.036)
Intercept	2.930** (.041)	2.734** (.064)	2.841** (.052)	2.670** (.090)
Observations	4253	4253	4253	4253
R ²	.740	.608	.741	.609

* p<.05; ** p<.01, (.) SE, fixed effects variables in model 1 not depicted

Dd

Additional models with clustered standard errors

Distance from median		-.004 (.005)	-.000 (.004)	.024 (.011)	.025 (.009)
Distance from median ²				-.001 (.000)	-.000 (.000)
Lead candidate	.330 (.047)		.327 (.079)		.402 (.075)
National Incumbency					
- National legislator	.479* (.023)		.477** (.004)		.483** (.007)
- National executive	.324* (.008)		.320 (.028)		.361* (.023)
Regional incumbency					
- Regional legislator	.016 (.053)		.015 (.064)		.002 (.042)
- Regional executive	.551 (.065)		.550 (.076)		.536 (.055)
Local political office					
- Member of council	-.125 (.042)		-.126 (.031)		-.125 (.028)
- Deputy-Mayor	-.188 (.024)		-.191** (.001)		-.140* (.009)
- Mayor	.037 (.033)		.037 (.031)		.049* (.002)
Female candidate	.087 (.047)		.086 (.036)		.093 (.035)
Age	-.001 (.001)		-.001 (.001)		-.001 (.001)
Ballot position	-.116* (.007)		-.116* (.007)		-.113* (.005)
Ballot position ²	.003 (.000)		.003 (.000)		.003* (.000)
Number of candidates	-.046** (.000)	-.065* (.001)	-.046** (.000)	-.065** (.001)	-.046** (.000)
Name twice on ballot	.166 (.031)	.203 (.030)	.167 (.025)	.202 (.024)	.168 (.022)
Intercept	3.285** (.041)	3.105* (.165)	3.297* (.068)	2.774* (.194)	2.969* (.117)
Observations	4253	4253	4253	4253	4253
R ²	.732	.597	.732	.602	.738

* p<.05; ** p<.01, (.) SE, fixed effects variables in model 1 not depicted

Additional multilevel models

Distance from median		-.005** (.001)	-.002* (.001)	-.008* (.004)	.014** (.003)
Distance from median ²				-.000** (.000)	-.000** (.000)
Lead candidate	.643** (.091)		.638** (.091)		.651** (.091)
National Incumbency					
- National legislator	.558** (.034)		.551** (.034)		.551** (.034)
- National executive	.521** (.142)		.511** (.142)		.522** (.141)
Regional incumbency					
- Regional legislator	.028 (.029)		.023 (.029)		.020 (.029)
- Regional executive	.438 (.257)		.433 (.257)		.427 (.256)
Local political office					
- Member of council	-.051 (.027)		-.054* (.027)		-.059* (.027)
- Deputy-Mayor	.016 (.068)		.015 (.067)		.014 (.067)
- Mayor	.125* (.050)		.126* (.050)		.122* (.049)
Female candidate	.093** (.014)		.089** (.014)		.093** (.014)
Age	-.001 (.000)		-.001 (.000)		-.001 (.000)
Ballot position	-.085** (.003)		-.085** (.003)		-.085** (.003)
Ballot position ²	.002** (.000)		.002** (.000)		.002** (.000)
Number of candidates	-.037** (.004)	-.041** (.004)	-.038** (.004)	-.041** (.004)	-.038** (.004)
Name twice on ballot	.297** (.040)	.441** (.049)	.300** (.040)	.437** (.048)	.296** (.040)
Intercept	3.101** (.084)	2.976** (.107)	3.142** (.086)	2.822** (.114)	2.956** (.091)
Observations	4253	4253	4253	4253	4253
Log likelihood	-2614.5	-3396.9	-2612.3	-3390.3	-2598.7

* p<.05; ** p<.01, (.) SE, fixed effects variables in model 1 not depicted

Additional models with robust SE for Luxembourg

Distance from median		-.000 (.002)	.004* (.001)	.007 (.008)	.010* (.005)
Distance from median ²				-.000 (.000)	-.000 (.000)
Lead candidate	.635** (.108)		.658** (.106)		.652** (.106)
National Incumbency					
- National legislator	.475** (.064)		.490** (.064)		.484** (.064)
- National executive	.488** (.130)		.511** (.126)		.501** (.124)
Local political office					
- Member of council	.050 (.052)		.057 (.052)		.045 (.052)
- Deputy-Mayor	.081 (.063)		.087 (.064)		.083 (.064)
- Mayor	.227** (.075)		.228** (.076)		.228** (.079)
Female candidate	-.154** (.042)		-.149** (.042)		-.143** (.042)
Age	-.002 (.002)		-.002 (.002)		-.002 (.002)
Ballot position	-.110** (.019)		-.107** (.019)		-.110** (.019)
Ballot position ²	.003** (.001)		.003** (.001)		.003** (.001)
Number of candidates	-.047** (.005)	-.075** (.006)	-.048** (.005)	-.074** (.006)	-.047** (.005)
Intercept	3.011** (.134)	2.927** (.122)	2.921** (.138)	2.860** (.145)	2.864** (.143)
Observations	348	348	348	348	348
R ²	.756	.338	.761	.340	.762

* p<.05; ** p<.01; (.) SE

Additional models with clustered SE for Luxembourg

Distance from median		-.000 (.002)	.004 (.002)	.007 (.004)	.010 (.010)
Distance from median ²				-.000* (.000)	-.000 (.000)
Lead candidate	.635* (.168)		.658* (.162)		.652* (.159)
National Incumbency					
- National legislator	.475** (.029)		.490** (.034)		.484** (.032)
- National executive	.488* (.112)		.511* (.091)		.501* (.096)
Local political office					
- Member of council	.050 (.045)		.057 (.039)		.045 (.051)
- Deputy-Mayor	.081 (.026)		.087 (.027)		.083 (.028)
- Mayor	.227* (.061)		.228* (.040)		.228** (.037)
Female candidate	-.154* (.041)		-.149* (.045)		-.143 (.046)
Age	-.002** (.002)		-.002 (.002)		-.002 (.002)
Ballot position	-.110* (.021)		-.107* (.020)		-.110* (.021)
Ballot position ²	.003* (.001)		.003* (.001)		.003* (.001)
Number of candidates	-.047** (.005)	-.075** (.004)	-.048** (.004)	-.074** (.004)	-.047** (.005)
Intercept	3.011** (.180)	2.927** (.110)	2.921** (.168)	2.860** (.125)	2.864** (.158)
Observations	348	348	348	348	348
R ²	.756	.338	.761	.340	.762

* p<.05; ** p<.01; (.) SE

Additional multilevel models for Luxembourg

Distance from median		-.000 (.002)	.004* (.001)	.007 (.008)	.010* (.005)
Distance from median ²				-.000 (.000)	-.000 (.000)
Lead candidate	.635** (.097)		.658** (.097)		.652** (.097)
National Incumbency					
- National legislator	.475** (.068)		.490** (.067)		.484** (.067)
- National executive	.488** (.128)		.511** (.127)		.501** (.126)
Local political office					
- Member of council	.050 (.052)		.057 (.052)		.045 (.053)
- Deputy-Mayor	.081 (.071)		.086 (.070)		.083 (.070)
- Mayor	.227** (.083)		.228** (.083)		.228** (.082)
Female candidate	-.154** (.043)		-.149** (.042)		-.143** (.042)
Age	-.002 (.002)		-.002 (.002)		-.002 (.002)
Ballot position	-.110** (.017)		-.107** (.017)		-.110** (.017)
Ballot position ²	.003** (.001)		.003** (.001)		.003** (.001)
Number of candidates	-.047** (.004)	-.075** (.006)	-.048** (.004)	-.074** (.006)	-.047** (.004)
Intercept	3.011** (.117)	2.927** (.120)	2.921** (.121)	2.860** (.135)	2.864** (.127)
Observations	348	348	348	348	348
Log likelihood	-160.54	-334.06	-157.22	-.333.49	-156.17

* p<.05; ** p<.01; (.) SE

Additional models with robust SE for Switzerland

Distance from median		-.007** (.001)	-.003** (.001)	.011* (.005)	.015** (.004)
Distance from median ²				-.000** (.000)	-.000** (.000)
National legislator	.503** (.037)		.490** (.037)		.493** (.037)
Regional incumbency					
- Regional legislator	-.014 (.027)		-.024 (.027)		-.025 (.027)
- Regional executive	.512 (.397)		.502 (.410)		.500 (.405)
Local political office					
- Member of council	-.090** (.029)		-.096** (.029)		-.098** (.029)
- Deputy-Mayor	.004 (.143)		.004 (.140)		.004 (.142)
- Mayor	.074 (.049)		.080 (.049)		.071 (.049)
Female candidate	.114** (.015)		.105** (.016)		.110** (.016)
Age	-.000 (.000)		-.000 (.001)		-.000 (.001)
Ballot position	-.111** (.004)		-.111** (.004)		-.110** (.004)
Ballot position ²	.003** (.000)		.003** (.000)		.003** (.000)
Number of candidates	-.046** (.001)	-.064** (.001)	-.046** (.001)	-.064** (.001)	-.046** (.001)
Name twice on ballot	.150** (.030)	.186** (.036)	.154** (.030)	.188** (.036)	.156** (.030)
Intercept	3.259** (.030)	3.216** (.035)	3.346** (.038)	2.980** (.070)	3.113** (.065)
Observations	3905	3905	3905	3905	3905
R ²	.735	.616	.736	.618	.738

* p<.05; ** p<.01; (.) SE

Additional models with clustered SE for Switzerland

Distance from median		-.007** (.001)	-.003** (.001)	.011** (.004)	.015** (.004)
Distance from median ²				-.000** (.000)	-.000** (.000)
National legislator	.503** (.077)		.490** (.079)		.493** (.077)
Regional incumbency					
- Regional legislator	-.014 (.037)		-.024 (.039)		-.025 (.039)
- Regional executive	.512 (.425)		.502 (.380)		.500 (.432)
Local political office					
- Member of council	-.090** (.027)		-.096** (.027)		-.098** (.027)
- Deputy-Mayor	.004 (.126)		.004 (.131)		.004 (.129)
- Mayor	.074* (.028)		.080** (.027)		.071* (.026)
Female candidate	.114** (.021)		.105** (.021)		.110** (.021)
Age	-.000 (.001)		-.000 (.001)		-.000 (.001)
Ballot position	-.111** (.011)		-.111** (.010)		-.110** (.010)
Ballot position ²	.003** (.001)		.003** (.001)		.003** (.001)
Number of candidates	-.046** (.006)	-.064** (.007)	-.046** (.006)	-.064** (.007)	-.046** (.006)
Name twice on ballot	.150* (.060)	.186* (.078)	.154* (.059)	.188* (.078)	.156* (.060)
Intercept	3.259** (.109)	3.216** (.099)	3.346** (.112)	2.980** (.096)	3.113** (.148)
Observations	3905	3905	3905	3905	3905
R ²	.735	.616	.738	.618	.738

* p<.05; ** p<.01; (.) SE

Additional multilevel models for Switzerland

Distance from median		-.006** (.001)	-.003** (.001)	.006 (.005)	.012** (.004)
Distance from median ²				-.000** (.000)	-.000** (.000)
National legislator	.566** (.038)		.555** (.038)		.557** (.038)
Regional incumbency					
- <i>Regional legislator</i>	.025 (.029)		.016 (.029)		.016 (.029)
- <i>Regional executive</i>	.434 (.258)		.426** (.258)		.422 (.257)
Local political office					
- <i>Member of council</i>	-.068* (.031)		-.073* (.031)		-.073* (.031)
- <i>Deputy-Mayor</i>	.059 (.149)		.058 (.149)		.058 (.149)
- <i>Mayor</i>	.086 (.060)		.090 (.060)		.084 (.060)
Female candidate	.116** (.015)		.109** (.015)		.113** (.015)
Age	-.000 (.000)		-.000 (.000)		-.000 (.000)
Ballot position	-.085** (.004)		-.085** (.004)		-.085** (.000)
Ballot position ²	.002** (.000)		.002** (.000)		.002** (.000)
Number of candidates	-.037** (.004)	-.040** (.004)	-.037** (.004)	-.040** (.004)	-.038** (.004)
Name twice on ballot	.299** (.041)	.454** (.048)	.304** (.041)	.451** (.048)	.300** (.040)
Intercept	3.170** (.082)	3.087** (.111)	3.246** (.084)	2.933** (.125)	3.061** (.097)
Observations	3905	3905	3905	3905	3905
Log likelihood	-2416.6	-3035.7	-2410.9	-3032.1	-2403.8

* p<.05; ** p<.01; (.) SE

Chapter 6

Appendix 6.1. Number of local candidates by municipality

(1) = CSV; (2) = LSAP; (3) = DP; (4) = Greens; (5) = ADR; (6) = Left; (7) = Communists;
(8) Pirate Party; (9) = Conservatives

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	All
<u>Centre</u>										
Bertrange	1		1	2			1			5
Bissen		1			1					2
Colmar-Berg					1					1
Contern	1	1		1				1		4
Fischbach								1		1
Heffingen										0
Helperknapp		1								1
Hesperange	2	1	1	1	1	3	1			10
Larochette	1									1
Lintgen				1				1		2
Lorentzweiler		1		1				1		3
Luxembourg	9	9	10	8	15	14	11	12		88
Mersch	1		1					2		4
Niederanven	1	1	2	1						5
Nommern						1	1			2
Sandweiler	1		1	1				1		4
Schuttrange				1	1	1				3
Steinsel		1	1	1				1		4
Strassen	1	1	2	1		1		1		8
Walferdange	2	1	2	1						6
Weiler-la-Tour	1	1								2
<u>East</u>										
Beaufort										0
Bech										0
Berdorf		1			1					2
Betzdorf		1		1						2
Biwer										0
Bous		1								1
Consdorf			1		1					2
Dalheim						3		1		4
Echternach	1	1	1	1						4
Flaxweiler										0
Grevenmacher	1	1	1	1	2	3	1			10
Junglinster	1		1	1						3
Lenningen										0
Manternach				1	1					2
Merttert		2								2
Mondorf-les-Bains	1		2	1		1				5
Remich			1	1				2		4
Rospport-Mompach	1							1		2
Schengen					1			1		2
Stadtbredimus	1							1		2
Waldbillig										0
Waldbredimus										0
Wormeldange	1				1			1		3
<u>North</u>										
Beckerich	1					1				2
Bettendorf						1		1		2
Boulaide										0
Bourscheid	1							2		3

Clervaux	1	1	1	1	1			2		9
Diekirch	1	2		3						6
Ell										0
Erpeldange-sur-Sûre			1			1				2
Esch-sur-Sûre	2						1			3
Ettelbruck	2	2	1	1	1					7
Feulen			1	1	1	1				4
Goesdorf					1					1
Grosbous										0
Kiischpelt								1		1
Lac de la Haute Sûre			1							1
Mertzig			1		1					2
Parc Hosingen			1							1
Préizerdaul										0
Putscheid										0
Rambrouch		1			1					2
Redange										0
Reisdorf										0
Saeul										0
Schieren										0
Tandel	1					1				2
Troisvierges			1	1	1	1				5
Useldange			1	1						2
Vallée de l'Ernz								1		1
Vianden						1				1
Vichten							1	1		2
Wahl										0
Weiswampach										0
Wiltz		2		1			1			4
Wincrange					1			1		2
Winseler										0
South										
Bettembourg	2	1	1	1	2					7
Differdange	1	1	2	4	2	2	6	1	4	23
Dippach		1	1							2
Dudelange	3	5	1	2	1	6	1	1		20
Esch-sur-Alzette	3	5	3	4	4	6	4	5	2	36
Frisange	1				1					2
Garnich			1		1					2
Habscht	1		1							2
Käerjeng	1	1	2	1	3		2		3	13
Kayl			1	1			1			3
Kehlen	1							2		3
Koerich										0
Kopstal			1							1
Leudelange			1							1
Mamer	1		2	2				1		7
Mondercange	2	3	1	2	2					8
Pétange	2	1	1	2	2	2	2	11	9	32
Reckange-sur-Mess										0
Roeser	1		1	1			1			4
Rumelange		1			1		2	1		5
Sanem	1	2	1	3	2	5	1		1	16
Schifflange	2	1	1	2		1	2	1		10
Steinfort		1			1	1				3

Chapter 7

Appendix 7.1. Model of the alternative ballot paper in Junglinster

Studie zum Lëtzebuenger Wahlsystem

Instruktiounen

1. Dir hutt siwen (7) Stëmmen fir FIR Kandidaten ze stëmmen. Dir kënn eng Stëmm pro Kandidat ginn. Dir kënn fir Kandidaten vu verschidde Parteien stëmme. Dir gitt engem Kandidat eng Stëmm andeems Dir dat léikst Feld nieft sengem Numm ukräizt.

2. Dir hutt siwen (7) Stëmme fir GEINT Kandidaten ze stëmme. Dir kënn eng Stëmm pro Kandidat ginn. Dir kënn geint Kandidaten aus verschidde Parteien stëmme. Dir gitt engem Kandidat eng negativ Stëmm andeems Dir dat léikst Feld nieft sengem Numm ukräizt.

Dir musst net all 7 Stëmme benotzen

Etude sur le système électoral luxembourgeois

Instructions

1. Vous avez sept (7) voix POUR des candidats. Vous pouvez exprimer une voix par candidat. Vous pouvez voter pour des candidats de différents partis. Vous votez POUR un candidat en mettant une croix dans la case gauche à côté de son nom.

2. Vous avez sept (7) voix CONTRE des candidats. Vous pouvez donner une voix négative par candidat. Vous pouvez voter contre des candidats de différents partis. Vous votez CONTRE un candidat en mettant une croix dans la case droite à côté de son nom.

Il n'est pas obligatoire d'utiliser toutes ses voix

Studie zu Luxemburgs Wahlsystem

Anleitung

1. Sie haben sieben (7) Stimmen um FÜR Kandidaten zu stimmen. Ein Kandidat kann nur eine Stimme erhalten. Sie können Kandidaten mehrerer Partei wählen. Eine Stimme FÜR einen Kandidaten vergeben Sie, indem Sie das linke Feld neben dem Kandidatennamen ankreuzen.

2. Sie haben sieben (7) Stimmen um GEGEN Kandidaten zu stimmen. Ein Kandidat kann NUR eine Stimme erhalten. Sie können Kandidaten mehrerer Partei wählen. Eine Stimme GEGEN einen Kandidaten vergeben Sie indem Sie das rechte Feld neben dem Kandidatennamen ankreuzen.

Sie müssen nicht alle ihre Stimmen vergeben

PIRATEN

	+	-
Daniel FRERES		
Claire HOUDREMONT		
Nancy BOERGER		
Jill CLEMENT		
Tatjana BELLEVILLE		
Catarina MARTINS		
Gerald CONTRERAS		

déi gréng

	+	-
Carole DIESCHBOURG		
Henri KOX		
Chantal GARY		
Fernande KLARES-GOERGEN		
Christian KMIOTEK		
Steve SCHLECK		
Meris SEHOVIC		

LSAP

	+	-
Nicolas SCHMIT		
Lucien BECHTHOLD		
Tess BURTON		
Colette FRISCH		
Aurore RÖSSLER		
Ben SCHEUER		
Jean-François WIRTZ		

CSV - Chrëschtlech-Sozial Vollekspartei

	+	-
Françoise HETTO-GAASCH		
Christian DUBLIN		
Léon GLODEN		
Max HENGEL		
Octavie MODERT		
Yves WENGLER		
Stéphanie WEYDERT		

KPL d'Kommunisten

	+	-
Joëlle ANTONY		
Huguette ARENDT		
Sylvie DI BERNARDO		
Wilhelm HAAS		
Dzeva LICINA		
David MAHNEN		
Christiane PIZZAFERRI-MANEN		

DP DEMOKRATESCH PARTEI

	+	-
Lex DELLES		
Gilles BAUM		
Carole HARTMANN		
Claude SCHOMMER		
Edith JEITZ		
Monica SEMEDO		
Jacques SITZ		

ADR - Alternativ Demokratesch Reformpartei

	+	-
Roby MEHLEN		
Jean SCHOOS		
Tom AGNES		
Nathalie BREYER		
Tessy BRISBOIS		
Ernest KIRCHEN		
Colette SOLNY		

déi Lénk

	+	-
Anne ARENDT		
Gaby BIERMANN		
France BOLLIG		
Adela FUENTES		
Jean KRIER		
Sylvie SCHROEDER		
Dan ZEBROWSKY		

Instructions

1. Voix POUR des candidats

Vous avez 7 voix positives avec lesquelles vous pouvez supporter des candidats. Les voix peuvent être données à des candidats de différents partis. Pour donner une voix positive à un candidat, vous devez marquer la case gauche à côté de son nom.

Partei A

	+	-
Kandidat A1		
Kandidat A2	X	
Kandidat A3		
Kandidat A4	X	
Kandidat A5		
Kandidat A6	X	
Kandidat A7		

Partei B

	+	-
Kandidat B1		
Kandidat B2		X
Kandidat B3		X
Kandidat B4		X
Kandidat B5		X
Kandidat B6		X
Kandidat B7		X

Partei C

	+	-
Kandidat C1	X	
Kandidat C2	X	
Kandidat C3	X	
Kandidat C4		
Kandidat C5		
Kandidat C6		
Kandidat C7	X	

Partei D

	+	-
Kandidat D1		
Kandidat D2		
Kandidat D3		X
Kandidat D4		
Kandidat D5		
Kandidat D6		
Kandidat D7		

2. Voix CONTRE des candidats

Vous avez également 7 voix négatives avec lesquelles vous pouvez exprimer votre opposition à des candidats. Ces voix sont déduites du score du candidat. Pour donner une voix négative à un candidat, vous devez marquer la case droite à côté de son nom.

LES 7 VOIX CHAQUE TYPE SONT UN MAXIMUM, IL EST POSSIBLE DE NE PAS UTILISER TOUTES VOS VOIX.

Appendix 7.3. Model of the alternative ballot paper in Steinsel

Studie zum Lëtzeburger Wahlsystem

Instruktiounen

1. Wielt eng Partei. Dofir musst Dir d'Case
ënner dem Numm vun der Partei ukräzen.
2. Dir léiert op der gewielten Lëscht FÜR a GEINT
all Kandidat stëmme. FÜR ee Kandidat stëmmt
Dir andeems Dir déi lénke Case nieft dem
Kandidatennumm ukräzt. GEINT ee Kandidat
stëmmt Dir andeems Dir déi riets Case nieft dem
Kandidatennumm ukräzt. Dir musst net zu all
Kandidat eng Meinung äusseren.

Etude sur le système électoral luxembourgeois

Instructions

1. Votez pour un parti en mettant une croix dans
la case en-dessous du nom du parti.
2. Sur la liste du parti choisi, vous pouvez vous
exprimer POUR et CONTRE pour chaque
candidat. Vous votez POUR un candidat en
mettant une croix dans la case gauche à côté du
nom du candidat. Vous votez CONTRE un
candidat en mettant une croix dans la case à
droite. Il est possible de ne pas s'exprimer sur un
candidat.

Studie zu Luxemburges Wahlsystem

Anleitung

1. Wählen Sie eine Partei indem Sie das Feld
unterhalb des Parteinamen ankreuzen.
2. Auf der gewählten Liste können Sie sich FÜR
und GEGEN jeden Kandidaten aussprechen.
FÜR einen Kandidaten stimmen Sie indem Sie
das linke Feld neben dem Kandidatenamen
ankreuzen. GEGEN einen Kandidaten stimmen
Sie indem Sie das rechte Feld neben dem
Kandidatenamen ankreuzen. Sie müssen sich
nicht zu jedem Kandidaten auf der Liste äußern.

PIRATEN

<input type="checkbox"/>	
	<input type="checkbox"/>
Sven CLEMENT	
Jerry WEIER	
Pascal CLEMENT	
Lucie KUNAKOVA	
Christian ISEKIN	
Cynthia LAUX	
Sven CANNIVY	
Mireille LIESCH	
Georgie SCHWEICH	
Rudolphe ABERN	
Francy FELTGEN	
Jeanine POTT	
Jill MICHELS	
Jo WAMPACH	
Pierrot BIS	
Lucas ARNDT	
Huguette PHILIPPE-ALFONSETTI	
Marc THOLL	
Loïc DIDELOT	
Jeff CIRRAND	
Thierry ZOLLER	

déi gréng

<input type="checkbox"/>	
	<input type="checkbox"/>
François BAUSCH	
Sam TANSON	
Carlo BACK	
François BENOY	
Djuna BERNARD	
Christa BRÖMMEL	
Gaby DAMJANOVIC	
Nora FORGIARINI	
Tanja FRANK	
Chanel MARGUE	
Roger MILLER	
Carole NEY	
Liz PAULUS	
Paul POLFER	
Claire REMMY	
Jean-Paul ROEDER	
Claude SCHMIT	
Roland TEX	
Jessie THILL	
Yves WAGENER	
Paul ZENS	

LSAP

<input type="checkbox"/>	
	<input type="checkbox"/>
Etienne SCHNEIDER	
Marc ANGEL	
Ben BAUS	
Gabriel BOISANTE	
Francoise CLOESNER	
Nicole D'Angelo	
Claire DELCOURT	
Franz FAYOT	
Monique FELTGEN	
Joanne GOEBBELS	
Cécile HEMMEN	
Ginette JONES	
Marguy KIRSCH-HIRT	
Tom KRIEPS	
Sandra LAHURE	
Liz MAY	
Régis MOES	
Tania SILVA	
David VIAGGI	
Alain WEIRS	
Patrick WEYMERSKIRCH	

CSV - Chrëschtlech-Sozial Vollekspartei

<input type="checkbox"/>	
	<input type="checkbox"/>
Claude WISELER	
Diane ADEHM	
Maurice BAUER	
Marion BRAQUET ap. ZOVILE	
Alex DONNERSBACH	
Paul GALLES	
Claudine KONSBRUCK	
Marc LIES	
Nadine LUX-SCHARES	
Elisabeth MARGUE	
Simone MASSARD-STITZ	
Martine MERGEN	
Laurent MOSAR	
Nico PUNDEL	
Vincent REDING	
Viviane REDING	
François SAUBER	
Natalie SILVA	
Claude STEINMETZ	
Fred TERNES	
Serge WILMES	

KPL d'Kommunisten

<input type="checkbox"/>	
	<input type="checkbox"/>
Jean-Marie JACOBY	
Carole BESTGEN	
Manuel CASANOVA	
Manuela CASTELLANO	
Romy GOULLEVEN	
Quique GUERRERO	
Nicolas HEMMER	
Patrick KIRCHESCH	
Alex MARTINE	
Serge MATAGNE	
Léo NTABALA	
Marco OURTH	
Giulio-Enrica PISANI	
Guido RAMAN	
Marie-Jeanne RECKINGER	
Sony RECKINGER	
Steve RICHIER	
Gertrud RUCKERT	
Nicole SCHWEICH	
Sandra VIBI	
Roland WOLFF	

DP DEMOKRATESCH PARTEI

<input type="checkbox"/>	
	<input type="checkbox"/>
Xavier BETTEL	
Corinne CAHEN	
Guy ARENDT	
Simone BEISSEL	
Hélène BOCK	
Sylvia CAMARDA	
Frank COLABIANCHI	
Tania DE JAGER	
Jana DEGROTT	
Françoise DEUTSCH ap. DUPONT	
Martine DIESSCHBOURG-NICKELS	
Joëlle ELVINGER	
Marc FRISCHER	
Patrick GOLDSCHMIDT	
Marco HOUWEN	
Claude LAMBERTY	
Michel MALHERBE	
Stéphanie OBERTIN	
Lydie POLFER	
Jeff WIRTZ	
Nicolas WÜRTH	

ADR - Alternativ Demokratesch Reformpartei

<input type="checkbox"/>	
	<input type="checkbox"/>
Roy REDING	
Marc ADAMY	
Thierry AHLES	
Claude BINTZ	
Béatrice CLÉMENT	
Daniel DA MOTA	
Mario DAUBENFELD	
Marie-Alexia FABER-SCHANEN	
Marceline GOERGEN	
Dan HARDY	
Tessy JUNG	
Jelena MARINKOVIC	
René MOES	
Nadejda MULLER-TROTSENKO	
Alex PENNING	
Gérard PHILIPP	
Felix REDING	
Daniel RINCK	
Goulmira SOULTANOVA	
Nicky STOFFEL	
Lucien WELTER	

déi Lénk

<input type="checkbox"/>	
	<input type="checkbox"/>
David WAGNER	
Ana CORREIA DA VEIGA	
Nathalie OBERWEIS	
Michel ERPELDING	
Beatriz CARRILHO	
José Luis CORREIA	
Joël DELVAUX	
Jean-Paul FABER	
Guy FOETZ	
Alessandra GALLI	
Sandrina GASHONGA	
Jean PAULUS	
Jeff RIES	
Claude SCHILTZ	
Jeanne SCHOSSELER	
Claude SIMON	
Isabelle TESSARO	
Marc THEIS	
Josée THILLMANN	
Concetta VALVASON	
Sebastian WEIER	

Demokratie

<input type="checkbox"/>	
	<input type="checkbox"/>
Sonja HOLPER	
Susanna FERNANDES	
Paul-Marie CHRISTEN	
Christian SCHLEICH	
Joseph COCARD	
Mihaela PANAI	
Jeanne MEYER	
Patricia EDWARDS	
Jean-Paul DARAGJATI	
Josette-Catherine HANSEN	
Jean-Marc ESTGEN	
Blanche-Hélène LEICK	
Franziska WALLES-ROTH	
José MEDINA-TARNO	
Anne IHRVY	
Susanna CHAUSSEY	
Marcel GRETHEN	
Rose SCHMIT	
Marino MOSSA	
Maria LEBAU	
Giuseppe PALUMBO	

Instructions

1. Voter pour un parti

Marquez la case en-dessous de votre parti préféré par une croix

PARTEI A Partei B Partei C

☐ ☐ ☒

☐ ☐ ☐

2. Exprimer son opinion sur les candidats de la liste

Vous avez la possibilité d'exprimer votre opinion sur chaque candidat du parti choisi.

	+	-
Kandidat 1	X	
Kandidat 2		
Kandidat 3	X	
Kandidat 4		X
Kandidat 5		X
Kandidat 6		X
Kandidat 7	X	
Kandidat 8	X	
Kandidat 9		
Kandidat 10	X	
Kandidat 11	X	
Kandidat 12		X
Kandidat 13		X
Kandidat 14		X
Kandidat 15	X	
Kandidat 16		X
Kandidat 17	X	
Kandidat 18		X
Kandidat 19		
Kandidat 20	X	
Kandidat 21	X	

Vous pouvez voter POUR un candidat en marquant le champ gauche à côté du nom du candidat.

Vous pouvez voter CONTRE un candidat en marquant le champ droite à côté du nom du candidat

Il est possible de ne pas exprimer une opinion sur un candidat. Dans ce cas, vous ne marquez aucun des deux champs.

Le nombre de voix POUR et CONTRE des candidats du parti choisi n'influence pas le nombre de sièges attribués aux partis dans ce système. Les votes préférentiels influencent uniquement le classement des candidats au sein du parti.