A BIASED MODEL OF ELECTION

Spatial Voting and Party Competition in Western Europe (1995-2015)

Nicola Martocchia Diodati

A mio fratello Federico, alla Vita

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Acknowledgments

Introduction

The study of elections has been a central concern for political science since the first half of the last century. Indeed, voting represents a crucial moment in the life of a polity: it is when citizens delegate the decisional power to an agent (depending on the type of regime, a President or a Parliament). Furthermore, if elections represent a decisive event in the democratic life of a state, their study has a major role also in political science. Indeed, since the electoral arena is the link between the research area of party politics' scholarship and that of legislative studies' one, accurately explaining elections might profoundly affect the research of both party politics and legislative studies.

This relevance of the 'elections' might be one of the causes of the high number of contributions that scholars have advanced on the electoral topic. These contributions have covered a large spectrum of interests and have used most of the existing methodological techniques of research. Nevertheless, despite numerous studies have approached the elections from a more institutional viewpoint by focusing (for instance) on the impact of electoral laws on electoral competition and the determinants of aggregated phenomena (like the electoral volatility), two areas of research have represented the centre of interest for the electoral scholarship: electors' voting behaviour and party competition.

The introduction is structured as follows: in the first section, I will explain the crucial concern of this dissertation; the second section will be devoted to the presentation of the Biased Model of Elections, the main novelty put forward by this study; in the third section I will explain why I consider the Biased Model of Elections an innovation for the electoral behaviour scholarship; finally, the plan of the dissertation will follow.

The focus of the dissertation

Why voters cast the ballot in favour of a party and why parties follow a certain strategy have been important research questions for numerous scholars since the pioneering research of the Columbian School in the first half of the last century (among others, see Lazarsfeld, Berelson, & Gaudet, 1944).

Within the broad literature on elections, different approaches can be detected. In particular, it is possible to distinguish between those studies that have aimed at explaining voting behaviour and party strategies by relying more on positional issues, such as policy factors or ideology (Downs, 1957a; Matthews, 1979; Rabinowitz & MacDonald, 1989; Kedar, 2010), and those that have studied the vote for a party by focusing on behavioural factors, such as party identification and leader evaluation (Campbell, Converse, Miller, & Stokes, 1960; Stokes, 1963; Bartels, 2002; Clark, 2009; Costa Lobo & Curtice, 2015).

Even if the presence of different approaches (that will be mainly discussed in the following pages) has allowed scholars to better understand a multi-faceted phenomenon like elections, scholars have rarely aimed at constructing an encompassing theory of elections able to explain and profoundly connect the electors' voting behaviour with the dynamics of party competition. Indeed, only recently a number of scholars (Adams, 2001; Adams, Merrill III, & Grofman, 2005; Adams et al., 2017; Jessee, 2010; Lachat, 2015a, 2015b) have aimed at advancing some theories introducing in classical spatial models (that is, theories explaining electoral choice by relying on positional factors) more behavioural-related factors.

These studies have shown that connecting the two branches of research might represent a turning point for a more profound comprehension and explanation of the electoral phenomenon. Indeed, the consideration of non-policy factors (both party-related and leader-related ones) has allowed to re-define individual utility functions, confirming the determinant role of non-policy factors in the calculus of voters' utility.

In particular, most of the studies that have connected the spatial and the behavioural scholarships have integrated classical spatial model of voting with party identification and leaders' valence advantage. Moreover, such new field of research has mainly focused on the explanation of electors' voting choice, while the study of parties' strategies when non-policy factors are considered has been largely neglected. More specifically, although some studies analysing the influence of non-policy actors on both sides of the electoral market (the voters' and the parties' ones) can be identified (in particular, see Adams et al., 2005; Merrill III, Grofman, & Adams, 2001), the analyses put forward are in line with the literature on spatial party competition. Meaning, also in such case, non-policy factors affect parties' strategies only indirectly, thanks to the fact that they shape voters' utility functions. Parties' positioning is predicted following the classical dominant strategy of party competition (that is, the Nash

equilibrium): the only element that can affect a party positioning is the its opponents' placement.

Consequently, if the introduction of non-policy factors in voting utility function has involved an increment of voting models' explanatory capacity, the empirical results concerning spatial party competition are far from being satisfying. This is even confirmed by the fact that the predictions of pure-optimal position strategies highly differs from parties' actual placement (Adams et al., 2005; Curini, 2015b), and this might be connected to the fact that classical models of party competition do not consider a number of crucial factors. These latter, conversely, will be at the centre of the theory of party competition presented in this dissertation.

From all this reasoning, it follows that an encompassing model of elections able to explain, in light of the presence of non-policy factors, both voting behaviour and party competition according to a spatial model is still needed. Indeed, what is missing is a spatial model able to identify the behavioural factor that profoundly shapes, at the same time, both the individual utility function and also the structure of party competition. Singling out such element and its role during an electoral competition would represent a relevant novelty for the scholarship of the spatial models of elections. Indeed, it would allow at introducing a behavioural element not only in voters' utility functions, but also in parties' ones. In other words, it would make it possible defining an encompassing spatial model of elections able to take advantage to those findings coming from the behavioural and the spatial model research. Thus, it would be possible to substantially increase the comprehension of a crucial topic for political science like elections.

Finding such factor and defining a similar spatial model of election do not represent easy tasks, but it is the principal aim of this dissertation. In particular, according to the framework I will advance in this work, the crucial factor able to affect, at the same time, voters' and parties' behaviour is electors' biases against parties.

The psychological research has already shown that individual cognitive and pre-existing bias strongly condition personal evaluations, by making people accentuate negative traits of groups/people/objects they are biased against and by perceiving as more relevant the positive traits of groups/people/objects they are biased toward. As we will see more into detail in the prosecution of this work, I expect that individual bias strongly conditions electors' voting choices.

Nevertheless, if this first expectation might seem natural, what makes individual bias particularly decisive for the definition of an encompassing model of elections is that it also affects party strategies. Indeed, as we will see below, because of the presence of such bias, we expect voters do not behave at the same manner. In particular, those voters who are biased toward a party take part in the electoral competition not only by voting on the election day, but also by conditioning the strategies of parties, thus forcing them not to compete following a pure-optimal position strategy.

As a consequence, to accurately explain the role of bias both in voting behaviour and party competition, in this dissertation, I will advance two novel spatial models of voting and party competition. First of all, I will present the 'Biased Voter Model', a spatial model of voting behaviour that introduces as key factor in voters' utility function the individual bias with respect to voting behaviour. Then, I will present the 'Three Biased Actors Model', a model of party competition able to model parties' strategies by also accounting for those incentives connected to the biased nature of a section of the electorate.

Furthermore, to verify the goodness and the generalisability of the models advanced in this dissertation, I will empirically test the Biased Voter Model and the Three Biased Actors Model on two datasets that account for 56 elections in 15 countries in West European Countries since 1995. Overall, more than 350000 voters and 100 parties have been considered. More specifically, by departing from individual survey data, I have built two datasets accounting for general elections in Austria, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and United Kingdom. By relying on a similar data structure, this dissertation aims at reaching highly generalisable results to obtain reliable empirical explanations.

The Biased Model of Elections

After having seen why an encompassing model of election connecting spatial model with behavioural research is necessary, and after having anticipated the key factor linking voting behaviour and party competition, it is now possible to deal with the following question: how does this research aim at innovating both the spatial model of voting and party competition?

Let us start from the Biased Voter Model. As I have already argued, some scholars have already tried to introduce behavioural factors into voters' utility functions. Nevertheless, according to their works, voters are positively shaped only in favour of the parties they identify themselves with. This means that voters receive a surplus of utility only from parties they identify themselves with, while they evaluate at the same manner all the others parties.

Differently from these studies, the Biased Voter Model departs from the pieces of evidence put forward by social-psychological research, according to which when an individual is positively biased toward a group (that is, the in-group), he/she will tend to evaluate all the other groups (that is, the out-groups) in light of the individual's preference toward the in-group (see, among others, the pioneering research by Tajfel & Turner, 1979). From this general reasoning, it follows that considering partisanship as a discriminant non-policy factor cannot be sufficient. In this dissertation, based on the evidences of psychological research, I will argue that voters have different preferences also among the parties they do not prefer. That is, they do not evaluate at the same manner all these 'other' parties.

So, the 'affective relationship' between a voter and the party he/she prefers is reflected in the evaluation of all the other parties, according to the different amount of positive inclination that a voter has with respect to all these other parties. Such 'relative and comparative bias' represents a crucial factor in voters' utility function, since it conditions the principal sources of utility a voter relies on, that is, the ideological proximity between the voter and the party, and the evaluation of the party leader (among other, see Ansolabehere & Snyder, 2000; Curtice & Blais, 2001; Lachat, 2015a). Indeed, the Biased Voter Model expects that, when a voter gets more and more biased against a party, his/her voting choice is shaped more relevantly by the bias against the party. Consequently, voters' preferences concerning ideological positioning and leader evaluation gets less and less salient. Therefore, the Biased Voter Model expect that, to an increase of voter's bias against a party, the impact of both policy distance and leader evaluation gets less and less relevant.

From these expectations derived from the Biased Voter Model, the main intuitions at the base of the Three Biased Actors Model of party competition descend. Perhaps, this element is the principal factor that differentiates the Three Biased Actors Model from the existing ones. Indeed, according to the classical spatial models of party competition, voters are passive actors, whose role is confined to casting a ballot on the election day. Nevertheless,

due to the 'affective relationship' that links sections of the electorate (that is, the attached voters) to specific parties, it is hard to believe that these parts of the electorate would not try to affect parties' decisions during the electoral campaign, especially if parties adopt a pure vote-seeking strategy. This is strictly connected to the expectation of the Biased Voter Model, according to which the attached voters care more about ideological proximity than not-attached ones.

Consequently, because of the utility loss that attached voters will face if the preferred party is located too far away from them, they are highly interested in making the party they prefer take a position which is close to their average one. Indeed, due to the affective relationship that connects the attached voters with a specific party, these electors particularly care about the party's position-taking and behave as the principal of the party. In other words, because attached voters are affectively involved and particularly interested in the platform proposed by the preferred party, they feel themselves in charge to condition its electoral strategy, especially when the party is mainly following a vote-seeking strategy.

So, the Three Biased Actors Model expects that, in order not to incentivise a party's leader[1] to take a position particularly far from attached voters' placement deriving from a pure vote-seeking strategy, the attached voters engage with the preferred party's leader a reputational game, according to which the farer the positioning of the party from attached voters' location, the higher the attached voters' criticism of the party placement. Consequently, if the party leader takes a position which is particularly distant from the average location of the attached voters, these latter will profoundly criticise the leader's decision. Nevertheless, attached voters' behaviour represents a very important issue for the party itself. Indeed, if the reputation of the leadership is questioned by the attached voters, this will have consequences also on the non-attached voters' evaluation of the party leader, which in turn will be negatively affected by such events. Indeed, it is difficult to believe that if a leader is considered as non-reliable by the attached voters of a party this would not have consequences on the more general evaluation of the leader himself/herself by voters.

It follows that, since attached voters might seriously affect the party leader's reputation, their criticism represents a relevant issue for the party: we know that leader

[1] The relevance of leaders in the party positioning is more profoundly explained in the fifth chapter of this dissertation.

evaluation is a primary dimension of individual voting behaviour (see the discussion in Costa & Ferreira da Silva, 2015; Curtice & Lisi, 2015). If we add that leader evaluation is strictly connected with attached voters' criticism, then we might conclude that the reputational game that party leaders have to engage with their attached voters is what profoundly distinguishes the Three Biased Actors Model of party competition from the classical ones.

Indeed, thanks to the twofold simultaneous game that party leaders have to play (that is, the reputational game with attached voters, and the positional game with his/her party's opponents), the Three Biased Actors Model can predict a party's positioning that differs from the pure optimal positioning one. In other words, the Three Biased Actors Model can identify the best sub-optimal positioning that a party can take. As a logical consequence, from these predictions, some hypotheses concerning the determinants of sub-optimal party positions can be derived. Therefore, the empirical analysis will be devoted to the estimation of the determinants of sub-optimal party position-taking: this would allow us to confirm (or not) the Three Biased Actors Model's expectations concerning the role played by the attached voters.

Even if the 'Biased Model of Elections' (that is, the Biased Voter Model plus the Three Biased Actor Model) represents a theoretical and empirical novelty for the scholarship of spatial models, there is a further and systemic factor that might play a role both for voters and for parties, and that should be taken into account: the personalisation of politics.

Indeed, this topic has been acquiring relevance in the political science scholarship, but the study of its impact has not reached widely shared conclusions. For instance, there have been contrasting results concerning the growing impact of leadership on voting behaviour (e.g., see the different conclusions in Garzia, 2012; Curtice & Lisi, 2015). So, including the personalisation of general elections in the two models represents a potentially useful yet quite challenging decision.

Moreover, the inclusion of the personalisation of politics represents a further aspect of novelty that such dissertation aims at putting forward. Indeed, the existing literature on the topic (Mughan, 1995, 2015; Campus, 2010; Webb, Poguntke, & Kolodny, 2012; Costa Lobo & Curtice, 2015; Musella & Webb, 2015) operationalises the personalisation of politics by focusing on specific aspects of this phenomenon (e.g., leaders' effects, the presence of leaders in the media, more open party leader selection rules, and the like). Conversely, in this dissertation, I will empirically deal with the personalisation of politics through a variable

operationalising the overall impact of the personalisation of politics in each general election. To take into account the encompassing nature of this personalisation of general elections, I have relied on data derived from the first Personalisation of Party Politics Expert Survey, which measures the degree of personalisation of politics in Western Europe since the mid-1980s. The introduction of the personalisation of general election in the Biased Model of Elections represents a further strength for the two specific models (the Biased Voter Model and the Three Biased Actors Model). Indeed, it will allow to verify under which conditions, and to what extent, a more personalised competition affects the salience of leadership and individual bias in individual voting decisions. Moreover, by including the Personalisation of Politics in the empirical test of the Three Biased Actors Model, it will also be possible to study its impact on the constraining effect of the attached voters' criticisms on the positioning of the party during a political competition. In other words, it will be also possible to understand whether a higher personalisation of general election is connected to an increase in the degree of autonomy of a leader during the electoral competition.

Main innovations of the dissertation

All in all, by advancing the Biased Model of Elections, this dissertation aims at putting forward three different novelties. First, the definition of a spatial model of voting (that is, the Biased Voter Model), according to which voters evaluate all parties' ideological positioning and parties' leaders in light of their pre-existing cognitive bias toward the competing parties. Second, the definition of a spatial model of party competition (that is, the Three Biased Actors Model) , in which attached voters have a crucial say in the positioning of the party. Such model represents an answer to the question 'why do not parties not follow optimal strategies during elections?'. Third, the introduction in the models of voting and party competition the personalisation of general elections. In this way, it will be possible to show how a leader's effect and other non-policy factors are shaped by the personalisation of general elections itself.

Given the analysis performed on a dataset accounting for 56 West European elections during the last 20 years, this work aspires at opening new paths of research, especially in connection with other scholarships of political science. Indeed, according to the relevance of individual bias and the impact of the attached voters in shaping parties'

strategies, a number of possible research questions connected to the party politics and intra-party scholarships can be derived.

For instance, which kind of selection rules should parties implement in order not to increase the blackmail potential of the attached voters? Indeed, we know that, most of the times, voters are not involved in the selection process of party leaders (Pilet & Cross, 2014). Nevertheless, if the analysis shows the attached voters play a decisive role, it could be possible that their inclusion in the selection process of leaders or candidates might represent a tool in the hand of parties to reduce the influence of attached voters after the party leader or the candidate selection. Indeed, by having a higher legitimisation, the party leader's reputation might be less affected by attached voters' criticisms.

Moreover, not only does the impact of attached voters in the electoral game represent a brake for parties' pursue of pure vote-seeking strategies, but it somehow also contests the role of party factions concerning the definition of party placement. Indeed, if the literature underlines the conditioning impact of sub-party groups on the position-taking of the party (Ceron, 2012; Z. Greene & Haber, 2017), the Three Biased Actors Model advances the idea that attached voters are able to condition party positioning. It might be, then, that two different sets of actors (intra-party groups and attached voters) have a say during the process of position-taking in the electoral competition. If these two sets of actors push for different position-taking, then hard decisions might be taken.

A third research question that can be connected to the dissertation concerns the definition of a more dynamic study of electoral campaigns, able to define, starting from voters' preferences and bias, the optimal strategies of the parties at different point in times. Being able to move from a static model of elections (as I will explain later on, a necessary condition for comparative analysis) to dynamic and case-study analyses would represent a fundamental step for a deeper comprehension of the evolution of electoral campaigns (in this respect, some preliminary analyses on a case study are reported in Appendix H). Indeed, not only would it would to define different types of electorate, but it would also allow to estimate whether and to which extent parties follow vote-seeking strategies in the period preceding the elections.

The research questions reported above represent only some of the possible topics to investigate in light of the results of the Biased Model of Election. In fact, whether the impact of individual bias and the relevance of attached voters are confirmed by the empirical

analysis, this represents a crucial starting point for each of the research questions advanced a few lines above. In the conclusion of this dissertation, I will start back from these research questions and expand them starting from the results of the empirical analysis.

Plan of the dissertation

Before proceeding with the dissertation, it could be useful for the reader to get acquainted with the structure of this work. In particular, to adequately present the two models (the Biased Voter Model and the Three Biased Actors Model) composing the more general Biased Model of Elections, I have divided this dissertation into two parts, each one made by three chapters.

In the first part of the dissertation, I will deal with the novel framework of voting behaviour: the Biased Voter Model. After an introduction to the classical concepts of individual rationality, the first chapter will be devoted to the presentation of the main theories advanced by the literature on voting behaviour. Specifically, since this dissertation aims at introducing a non-policy factor (that is, the individual bias) as key element into spatial models of voting, I will present the main contributions both in the spatial models (section 1.2) and in the behavioural scholarships (section 1.3). A further section (section 1.4) will be devoted to the presentation of those studies that have aimed at connecting these two different scholarships, mainly by introducing in classical spatial model either party identification or leadership evaluation.

The second chapter will focus on the Biased Voter Model and the Biased Voter Model that accounts for personalisation of politics (that is, the Personalised Biased Voter Model). Moreover, it will also deal with the explanation of the advantages of such model and the presentation of the hypotheses descending from the utility functions advanced by these models. Consequently, in section 2.1, I will discuss the motivations at the basis of the necessity to advance the Biased Voter Model, by showing the fallacies present in the existing research that connects spatial models with behavioural research. Section 2.2 will be devoted to the formal presentation of the Biased Voter Model and the personalised one. Moreover, I will also discuss the differences between the Biased Voter Model and the ones presented in the literature. In section 2.3, a number of hypotheses derived from both models will be advanced and, in particular, I will separately present the hypotheses on classical factors

behind voting behaviour (ideological proximity and leadership evaluation), the hypotheses on the influence of individual bias, and the hypotheses on the conditioning role of the personalisation of politics.

In the third chapter, I will focus on the empirical analysis to verity the explanatory capacity of the models presented in the second chapter. In particular, I will first introduce the dataset I have built and that accounts for 56 elections in 15 West European countries in the past 20 years (section 3.1). Then, I will discuss the operationalisation of the variables and present some descriptive statistics on the variables considered (section 3.2). Finally, in section 3.3, I will present the quantitative method used in the empirical analysis, and will also put forward the empirical test of the Biased Voter Model and the Personalised Biased Voter Model.

Once the novel spatial models of voting have been tested on a comparative dataset, it will be possible to turn our attention to party competition and, therefore, advance a novel model able to account for the consequences of the biasing nature of voters. Nevertheless, before dealing with the second main topic discussed in this work, I will present a profound and detailed explanation of why, after having put forward a model of voting behaviour, it would be necessary to study also party competition. Moreover, I will also discuss why the Three Biased Actors Model of party competition descends from the Biased Voter Model of voting behaviour. These tasks will be performed in the pages that precede the second part of the dissertation. After having observed why individual bias are crucial when passing from voting behaviour to party competition, the reader will enter the second part of this dissertation, where a novel model of party competition will be advanced.

Following the same structure of the first part of this dissertation, the fourth chapter will be devoted to the presentation of the most important theories of party competition. In section 4.1, I will present the issue-based models of party competition, that is, all those models mostly related to parties' use of specific issues during party competition. Afterwards, I will engage the broad literature on spatial models of party competition, that is, the set of models that descend from the pioneering research of Anthony Downs. So, in section 4.2, I will present the main contributions on the spatial model scholarship, by paying particular attention to those models that have introduced in party utility functions either a positive evaluation of their leader or voters' party identification. Moreover, since the main aim of the Three Biased Actors Model is to define a theoretical model able to predict party positioning

in an empirically reliable way, section 4.3 will be devoted to the presentation of those few works that have focused on linking theoretical and spatial models' predictions to the actual position of parties during an electoral campaign.

After having dealt with the literature on party competition, the fifth chapter will be devoted to the presentation of the Three Biased Actors Model. Consequently, in section 5.1, I will present the structure of the competition as explained by the Three Biased Actors Model, and the payoffs of the actors involved in the game. Subsequently, in section 5.2, the equilibria of the model will be discussed. In this case, the equilibria of the model correspond to the optimal positions that parties could take once the role of the attached voters' is considered – that is, when attached voters' behaviour bounds leaders' party positioning. In this section, parties' positions predicted by the Three Biased Actors Model will be compared with the ones predicted by an optimisation algorithm (based on Biased Voter Model's utility functions) when the attached voters have not a conditioning impact on party placement. From the model's expectations, a number of hypotheses will be derived. These latter will be presented in section 5.3: in particular, I will first advance a number of hypotheses descending from the literature, while more space will be devoted to the presentation of hypotheses deriving from the equilibria of the Three Biased Actors Model and from the alleged impact of the personalisation of general elections.

Finally, chapter 6 will be devoted to the empirical test of the Three Biased Actors Model of party competition. In particular, in section 6.1, I will describe the original data used to empirically verify the hypotheses put forward and to understand which forces drive parties toward less optimal positions. Furthermore, in section 6.2, I will describe the operationalisation of the dependent and independent variables via descriptive statistics. In particular, some space will be devoted to the explanation of the operationalisation of sub-optimal parties' positioning, which is the dependent variable of the empirical analysis for the second part of this dissertation. To conclude, section 6.3 will present the method used for the empirical analysis and then its results, derived from a dataset that accounts for 56 elections in West European countries during the last 20 years.

In the final chapter, I will discuss the results of the biased model of election, explaining why this dissertation might have a noticeable importance in the study of elections and why this is a necessary step for novel analyses, both in the electoral scholarship and in other strands of research of political science

1. Theory of voting behaviour: the puzzle

Explaining individual voting behaviour has been a central concern in political science since the early studies of the Columbia School (Lazarsfeld et al., 1944). During the decades that followed the end of World War II, two different approaches have overcome the Columbia School perspective and dominated the scene: the spatial and the behavioural approaches to voting behaviour.

Starting with the former, since the end of the 1950s, a growing number of scholars has been explaining elections by formalising several spatial models (Downs, 1957a; Black, 1958; Grofman, 1985; Rabinowitz & MacDonald, 1989; Ansolabehere & Snyder, 2000; Adams, 2001; Groseclose, 2001; Adams et al., 2005; Carter & Patty, 2015). This framework aims at formally explaining, at the same time, both voters' choices and parties' electoral strategies (Downs, 1957a; Grofman, 1985; Rabinowitz & MacDonald, 1989; Merrill III & Grofman, 2000; Kedar, 2010). In particular, these studies are based on the assumption that voters are rational actors that 'choose parties that represent their policy preferences best' (Meyer & Müller, 2014, p. 803)[2]. In other words, according to spatial modellers, voters tend to cast their ballot in favour of the party that provides them with the higher amount of 'utility income' (Downs, 1957a). This latter is a sort of individual benefit that voters perceive according to the policy (or policies) each party is expected to implement in the next legislature. Even if all the spatial models analysed here share this epistemic assumption[3], since the early works by Anthony Downs (1957a) and Duncan Black (1958), several scholars have advanced different spatial models of voting, incrementing both the formal refinement

[2] The first section of this chapter is also devoted to the presentation of the main assumptions of the Rational Choice theory.

[3] First of all, all the spatial modellers agree on the fact that the elections can be studied by formalising a model that defines all the factors influencing both voters and parties. Moreover, even if several differences have been advanced also with respect to the concept of individual rationality (see as instance the discussion put forward by Rabinowitz and MacDonald (1989) on Downsian research), spatial modellers define voters and party behaviour as utility-oriented. In other words, as it will be discussed extensively in the next pages, voters decide according comparing the amount of utility *they believe they will receive* according to the party that win the election and the policy it will implement during the next legislature.

and the validity of this family of models. In the second section of this chapter, such kind of innovations will be largely discussed.

Passing to the second approach to the study of voting, we can firstly observe that those scholars following the so-called 'behavioural approach' mostly move from the beliefs that policy proposals are just one of the factors at work in shaping individual voting decisions. More into details, since early fifties behavioural scholars have questioned a number of assumptions of the rational choice approach, such as the idea of maximization of utility (H. A. Simon, 1955; Popkin, 1991; Rubinstein, 1998) and the role of uncertainty in the decision process (Stokes, Campbell, & Miller, 1958), along with a series of methodological fallacies (for more details, see Green and Shapiro, 1994). Specifically, by rejecting both the centrality of policies in voting decisions and also the assumption of individual rationality, behavioural scholars have been focusing on the effect that more psychological and sociological factors may have on voting choices. In particular, three aspects have been carefully studied: partisanship, valence issues, and leadership traits. These three central areas of research have been widely investigated, and behavioural scholars have underlined numerous and different approaches to the interpretation and the operationalisation of partisanship, valence issues, and leadership. The third section of this chapter is devoted to the presentation of state of the art in this scholarship.

Although the spatial and the behavioural approaches show some relevant epistemological and methodological differences, a number of weaknesses can be identified in both approaches. Some of them have been already underlined by scholars who have focused their research on building theories able to encompass features of both the approaches. In particular, in the last decades, a growing number of scholars have been formalising spatial models able to include non-policy-related factors (Ansolabehere & Snyder, 2000; Adams, 2001; Groseclose, 2001; Adams et al., 2005; Carter & Patty, 2015). The principal aim of this group of scholars is to refine spatial models by accounting for the empirical results found by behavioural studies such as assimilation-contrast (Meyer & Strobl, 2016), perceptual (Taber & Lodge, 2006), and in-group (Bankert, Huddy, & Rosema, 2017) biases. For this reason, they included in spatial models a set of variables hitherto excluded from the spatial-related utility function (e.g. partisanship and valence advantage) because believed to be scarcely manipulable by politicians. Conversely, more recent studies (Groseclose, 2001; Adams et al., 2005; Franchino & Zucchini, 2015) have shown that

incorporating behavioural factors in spatial models may increase the explanatory and predictive capacity of the latter. Despite the relevant innovation put forward by these scholars, a number of issues remain still neglected by the scholarship: in the first section of the next chapter, before introducing a new model of voting, I will discuss a number of them.

Summarising, this chapter is organised as follows: in the first section, I will present the main concepts at the base of spatial models: individual rationality and structure of preferences. In the subsequent section, I will present the most relevant policy spatial models advanced by the literature: the Dowsian proximity one (1957), the Matthew's (1979) and the Rabinowitz and Macdonald's (1989) directional models, the Grofman's discounted one (1985), the Merrill III and Grofman's unified model (2000), and, finally, the Kedar's (2009) compensatory model. The third section is instead devoted to the presentation of the three most important branches of behavioural models: partisanship, valence issues and leadership. In the last section of this chapter, the state-of-the-art in the study of spatial models that also include non-policy factors is discussed.

1.1. Individual rationality

Before going more into details and presenting the state of the art of the spatial model scholarship, it is quite relevant to define the central assumptions of individual rationality. Indeed, according to spatial models, voters decide which party they support rationally. Of course, the concept of individual rationality is not only related to spatial models: since the mid-1900s, it has been a core concept for many economists, psychologists, and social scientists. Even if a number of scholars have already explained the rational framework in very detailed ways (Elster, 1986; Morrow, 1994) and a theoretical discussion of the rational and utilitarian framework goes far beyond the aim of this dissertation, this section is devoted to the presentation of the crucial concepts of the Rational Choice Theory. The reader can consider it as a sort of toolbox that gives the necessary and fundamental tools to properly understand spatial model frameworks.

To begin with, the behaviour of an individual can be defined as rational when, to reach a specific goal, and among a set of possible actions, he/she puts forward the action that will best attain his/her goal (Morrow, 1994). All the studies in economics and social

sciences that share these core assumptions about individual rational behaviour take inspiration from Rational Choice Theory (Coleman, 1990). This theory tackles phenomena from a methodological individualistic perspective (Schumpeter, 1909; Buchanan & Tullock, 1962; Hodgson, 2007), and it epistemologically states that an individual pursues an objective and decides to act exclusively in function of his/her utility.

The concept of utility has been introduced by Jeremy Bentham at the end of the XVIII century. He defined the utility as 'that principle which approves or disapproves of every action whatsoever according to the tendency it appears to have to augment or diminish the happiness of the party whose interest is in question: or, what is the same thing in other words to promote or to oppose that happiness' (Bentham, 1781, p. 14). Thus, 'an action then may be said to be conformable to the principle of utility, or, for shortness sake, to utility, (meaning with respect to the community at large) when the tendency it has to augment the happiness of the community is greater than any it has to diminish it' (Bentham, 1781, p. 15). What Bentham calls 'conformable to the principle of utility' is nowadays translated into a single word: rationality. It follows that we can define Rational Choice Theory as 'the notion that individuals act consistently and logically in translating preferences (and beliefs) into choices' (Grofman, 2004b, p. 33).

In rational-choice-related models, individuals are characterised by having specific beliefs over a particular action. This is the first assumption to be taken into consideration. Such beliefs are translated into preferences or desires on the set of outcomes deriving from the individual decisions. This means that, on a set of the all possible outcomes $X = \{x_i, x_j, \dots, x_n\}$ deriving from an action $A = \{a_i, a_j, \dots, a_n\}$, an individual has specific preferences on the outcomes of his/her action.

Individual preferences define different relations among the outcomes: there can be weak or strong preference relations among different outcomes. Specifically, there is a weak preference relation if the outcome x is at least as good as x_j: this means that this individual weakly prefers x_i to x_j, and this relation is formalised by $x_i R x_j$. Moreover, if an individual strongly prefers an outcome x_i to another outcome x_j, the relation between the two outcomes is represented by P: it follows that $x_i P x_j$ means that the outcome x_i is better than x_j.

A second assumption of rational choice is that individuals have a complete and transitive ordering of preferences (Arrow, 1951; Elster, 1986). An ordering of preferences can be defined as complete if an individual can make a comparison in every pair of outcomes: it could be impossible for an individual to make a rational decision without knowing which outcome is preferred between two possible outcomes. Formally:

> An ordering of preferences is complete iff for each pair of outcomes a_i and a_j, either $x_i R x_j$ or $x_j R x_i$ or both.

Moreover, in cases of weak preferences $x_i R x_i$, completeness also implies reflexivity, according to which x_i is evaluated as good as x_i itself. Clearly, this would not be possible, since an outcome cannot be reasonably evaluated better than itself. Another requirement connected to the ordering of preferences is related to the transitivity of individual's ordering of preferences:

> An ordering of preferences is transitive iff to $x_i R x_j$ and $a_j R a_k$ it follows that $a_i R a_k$.

Consequently, if a rational individual prefers an outcome x_i to x_j, and x_j to x_k, he/she will also prefer x_i to x_k. In case of strong preference relationship, the relation $x_i P x_j$ and $x_j P x_k$ and $x_i P x_k$ is defined as quasi-transitive. Indeed, 'why choose y when you can choose x, why choose x when you can choose z, and why choose z when you can choose y?' (McCarty & Meirowitz, 2007). The transitivity assumption also prevents from having cyclic-preferences-related-problems, that could represent a major problem for decisional models. Summing up, completeness, reflexivity and transitivity are the necessary requirements for the existence of a weak ordering of preferences.

Because a rational actor behaves in function of his/her utility, he/she will define his/her ordering of preferences according to the amount of utility each possible outcome will provide him/her with. As a consequence, by comparing the possible outcomes $X = \{x_i, x_j, \dots, x_n\}$, each actor evaluates all the utilities $U = \{u_i, u_j, \dots, u_n\}$ defined by a utility function $u(c)$ that are provided by each possible outcome included in X, and then makes the action that provides him/her with the higher amount of utility. This behaviour is the only

one that rational actors follow in certainty conditions, that is, when they are sure that to a certain action a_i corresponds an outcome x_i that provides the actor with an amount of utility u_i.

Nevertheless, actors often take decisions under conditions of uncertainty: they do not know whether to a specific action it corresponds a specific outcome. In uncertainty conditions, individuals' beliefs over the set of possible outcomes become decisive in affecting their behaviour, given their preferences. In other words, in uncertainty condition, 'an individual's choice is determined by the individual's rational preferences among feasible actions. […] Preferences for actions depend in part on the individual's beliefs about their consequences' (Hausman, 1995, p. 96) and individuals' beliefs are crucial: 'keep her preferences constant and change her beliefs, and her choices may change' (Hausman, 2011, p. 16).

So, when an individual does not behave in a certainty setting, it means that there are several factors beyond individual's control able to condition the outcome of the action in addition to individual's choice: all these factors are summarised in the notion 'state of the world'. In such setting, rational actors assign a subjective probability to each possible outcome: 'they assess which action is more likely to produce the best outcome, considering that each action could produce desirable or undesirable outcomes depending on the state of the world' (Morrow, 1994, pp. 22–23). Following the utility maximisation principle, individuals assign a probability p (depending on the state of the world) to the utility u_i deriving from the outcome x_i, that in turn depends on both the state of the world, defined as s_i, and the individual action a_i.Formally, the expected utility EU is defined by the following formula:

$$EU(a_i) = \sum_{S} p(s_i)u[x(s_i, a_i)] \qquad \text{(Eq. 1.1)}$$

Once an individual knows the amount of utility that he/she will obtain by making all the actions included in $A = \{a_i, a_j, \dots, a_n\}$, he/she will perform the action that will provide him/her with the highest amount of expected utility, given all the possible states of the world $S = \{s_i, s_j, \dots, s_n\}$. Individuals' behaviour in uncertain situations has represented one

of the most important issues scholars in the rational choice scholarship has dealt with (among others, see Burden, 1997; Merrill III & Adams, 2001; Schofield, 2003; Adams et al., 2005). Moreover, the necessity to assign a probability to specific events and states of the world is one of the elements at the core of game theory, the method that is mostly used to represent individuals' interactions and explain the insurgence of specific equilibria and outcomes[4].

Game theory will come back in the second part of this research, when I will present a novel model of party competition. Nevertheless, the assumptions put forward in this section are at the basis of the number of spatial models that we are going to present in the next section. So, let us move to one of the central issues of this dissertation: voting behaviour, and in particular spatial models.

1.2. Spatial Models of voting

Spatial models of electoral competition aim at explaining both voters' behaviour and parties' competition on policy-related dimensions with a unique mathematical model. Within this framework, voters have fixed policy preferences and vote for the party they perceive as the most congruent to their own ideological or policy-based perspective. In this approach, policy positions and their impact on the individual voting behaviour are fundamental to explain voting choices. Indeed, the policy-related congruence between the parties' and the voters' positions is the source of voters' utility (Downs, 1957a; Merrill III & Grofman, 2000), and voters (that are rational actors) decide which party to support by following a maximising strategy.

Since the publication of Anthony Downs' *An Economic Theory of Democracy* (1957), a growing number of scholars has started looking at voters and parties' behaviour by using deterministic and, more recently, probabilistic models (see the discussion in Dewan and Shepsle, 2011; Adams, 2012). Despite the general agreement on policy issues' relevance, more recent spatial models (Lewis & King, 1999; Merrill III & Grofman, 2000; Blais, Nadeau, Gidengil, & Nevitte, 2001; Adams et al., 2005) greatly differ from the pioneering Dowsian

[4] For a more general explanation, see Morrow, 1994; McCarty and Meirowitz, 2007.

proximity one on several aspects. For instance, the operationalisation of the concept of 'policy congruence', the presence of unmeasured non-policy discounting factors, and the complexity of the utility function.

Before delving deeper into this discussion and present more recent research, the next subsection will be devoted to the presentation of the original Downsian model of voting behaviour and party competition. This section is therefore structured as follows: in the next subsection, we will present to the proximity model; then, we will move to the presentation of the two most important directional models of voting (Matthews, 1979; Rabinowitz & MacDonald, 1989); the third model we will account for is Gofrman's discounted model of issue voting(1985); furthermore, in the fourth subsection, we will present Kedar's compensatory model (2010); finally, in the fifth subsection, Merrill III and Grofman's unified model (2000)will be analysed.

1.2.1. The proximity model

Following Hotelling's (1929) research on competitive commercial industries, in 1957 Downs pointed out that voters can be positioned on a left/right continuum and that 'every voter's preferences are single-peaked and slope downward monotonically on either side of the peak' (Downs, 1957b, pp. 115–116). By following Enelow and Hinich's formalisation (1984), the Downsian proximity voting can be represented by the following formula:

$$V_{ij} = -(v_i - p_j)^2 \qquad \text{(Eq. 1.2)}$$

where v_i denotes the bliss point of voter i and p_j indicates the positioning of party j on the ideological continuum. As a consequence, in the Downsian proximity model, each voter places parties on the left/right continuum, the super-issue variable that synthetises parties preferences on the high number of policy issues on the table (Dalton, 1988; Benoit & Laver, 2006)[5]. According to the proximity model, since voters are rational actors, between

[5] In the following lines, I will also account for the reason why, in his famous model, Downs makes parties and voters be positioned on the left/right continuum instead of accounting for specific policy issues.

two different parties they prefer the one that is closer to their positions: the higher the distance between them and the party on the ideological continuum, the lower will be the utility income the voter receives.

Therefore, according to Downs perspective, voters do not take into account whether the parties are located on the left-side or the right-side of the continuum with respect to their own position: they do not consider the direction of party's policy proposals, only has the proximity an impact on their utility. Consequently, given that, according to a rational perspective, the determinant of individuals' voting behaviour is defined by their utility, and their utility depends exclusively on the distance between voters and parties, voters will vote for the closest party on the ideological continuum.

The Downsian model has been criticised from a variety of points of view. One of the most common critiques concerns the account of the ideological continuum instead of policy axes, even if considering the ideological continuum is one of the most used dimensions in empirical research on voting behaviour also nowadays. In this respect, it should be stressed that Downs' decision to rely on the ideological dimension has been the outcome of a determined reasoning. According to Downs, voters' utility is defined as 'a declining function of policy distance from voter to a candidate' (Merrill III & Grofman, 2000, p. 20). This means that the Downsian voter, in line with the assumption of rational behaviour, takes his/her voting decision according to the policy the different parties are expected to implement in the next legislature. Indeed, it is the author himself that has stated in *An Economic Theory of Democracy* that

> we define *utility* as a measure of benefits in a citizen's mind which he uses to decide among alternative courses of actions. […] We can speak of *utility income* from government activity. This income includes benefits which the recipient does not realize he is receiving. It also includes benefits he knows he is receiving but the exact source of which he does not know. For example, many citizens are probably not aware that the water they drink is inspected by governmental agency. If inspection were discontinued, they might not realize their utility incomes had fallen until they received pollution water. (Downs, 1957a, pp. 36–37)

Nevertheless, even if voters' utility income is strictly connected to parties' policy proposals, voters are not perfectly competent in the number of issues that parties put on the table during an electoral campaign. In other words, and recalling a concept examined in the

subsection 1.1, voters take electoral decisions in an uncertainty setting: they would not be able to know whether parties will surely implement a specific policy proposal during their mandate and, as a consequence, voters can hardly outline the consequences of such proposal. For all of these reasons, according to the Downsian proximity model, citizens vote 'on ideological competency, not on specific issues' (Downs, 1957a, p. 99). This sort of heuristic does not compromise the assumption of rational behaviour: what matters in the Downsian framework is that, in front of a specific set of preferences (to which different amounts of utility correspond), voters behave rationally. That is, they vote by maximising their utility income.

Despite the simple formalisation and the straightforward interpretation of voters' utility function, the Downsian model of voting has undoubtedly represented a fundamental step in the history of electoral modelling. This is confirmed by the fact that the most of the spatial models that have been formalised in the last decades share the essential proximity interpretation of utility.

Nonetheless, a well-known different theorisation of voting behaviour is that of the directional models. They are analysed in the next subsection.

1.2.2. The directional model

Directional models of voting, and in particular Matthews' (1979) and Rabinowitz and MacDonald's (1989) ones are among the main relevant alternatives to the Downsian proximity model. The main difference between this set of models and all those models that descend from the Downsian one concerns the operationalisation of the concept of utility.

According to the proximity model, the utility is related to the distances between the voters' position and parties' one, while directional models suggest that voters mostly care about the direction of policies that parties put forward during the electoral campaign (i.e. left-wing or right-wing proposals). This means that a left-wing voter is more satisfied when the policy proposed by a party tends more and more to the left. One of the first directional models appeared in the literature is surely the Matthews' directional one (1979). Matthews advanced the idea that voters' ideal points, as well as the parties' ones, could be represented by points in a Euclidean issues space. At the same time, 'candidate's actions can only marginally shift the status quo. For this reason, only the directions in which he proposes to

shift it are important' (Matthews, 1979). According to Matthews' formalisation, both voters' and parties' ideal points can be connected to the status quo trough two different vectors. What is really important in Matthew's directional model is whether the direction of parties' policy proposals with respect to the status quo (represented by a vectors connecting the status quo and party position) is similar to voters' preferred one (e.g. both the party and the voter are in favour of the increase in the public spending for health policies).

Since, according to Matthews, parties' policy proposals and voters' preference are represented through vectors, 'the utility function [...] depends only on the angle between the voter and the candidate location vectors that emanate from the status quo point' (Merrill III & Grofman, 2000, p. 25).

An efficient formalisation of voters' utility is then represented by:

$$V_{ij} = cos\theta \qquad \text{(Eq. 1.3)}$$

where θ is the angle between the voters' and parties' vectors, and the starting point of both vectors is the status quo. According to this formalisation, voters' utility reaches its maximum value (equal to 1) when $\theta = 0$, that is, when the two vectors are superimposed (e.g. both the party and the voter are in favour of increasing the public spending for health policies as much as possible), while it reaches its minimum (equal to -1) when the angle between the two vectors is 180 (e.g. the party is in favour of increasing the public spending for health policies as much as possible, while the voter is in favour of reducing this spending as much as possible).

If, according to Matthews' model, voters care only about the direction of the policy advanced by a party with respect to the status quo, the directional model advanced by Rabinowitz and Macdonald in 1989 seems more similar to the Downsian one. By taking inspiration from previous critiques to the Downsian spatial model (Stokes, 1963; Coombs, 1964; Rabinowitz, 1978; Matthews, 1979), Rabinowitz and Macdonald (1989) formalise a new spatial model according to which, departing from the concept of 'symbolic politics' (Edelman, 1964), 'an issue conveys a symbol […] that has the potential to trigger a set of association based on prior experiences. [Consequently], these associations often generate emotional responses that make the issues politically meaningful' (Rabinowitz & MacDonald,

1989, p. 94). These symbols evoke two different qualities: the direction and the intensity of the response to the proposals. The direction represents whether the voter is in favour, not in favour, or indifferent to the political symbol, while the intensity component operationalises the strength of favourability or non-favourability of individual response. Formally:

$$V_{ij} = (v_i - n)(p_j - n) \quad \text{(Eq. 1.4)}$$

where v_i denotes the bliss point of voter i on the intensity dimension, p_j is the positioning of party j, and n represents the neutral point of the direction dimension.

Even if the differences between Matthews' and Downs' models are much more evident, the divergences between Rabinowitz and Macdonald's directional model and the Downsian proximity one remain substantial. Indeed, while Downs considers the dimensions on which actors take position as continua, Rabinowitz and Macdonald advance the idea that voters and parties decide between dichotomous issues (e.g. being conservative or progressive; being in favour of or against a specific economic policy). Moreover, they posit that the dimensions on which voters and parties take position are perceived as intensity axes, that define how intense is the shift proposed by parties (e.g. how much being conservative) and the one desired by the voter. This reflects a different conception of individual preferences: indeed, if, in the Downsian model of voting, 'voters are assumed to have specific policy preferences on issues, […] in directional theory, voters are assumed to have only diffuse preferences for one side or the other of an issue debate' (MacDonald Rabinowitz and Listhaung 1998: 654). Therefore, according to Rabinowitz and Macdonald's directional model of spatial competition, 'a voter will prefer a party placed farther away from her as long as she is on the same "side" of the issue [with respect to] the party more similar to her ideological *position* but placed on a different side' (Kedar, 2010, p. 20).

Consequently, voters' utility is computed with a two-step process. Firstly, each voter evaluates whether he/she agrees on a specific policy with a specific party. If the voter and the party are located on the same side of the continuum, the voter faces a positive utility income; conversely, if they are on opposite sides, he/she faces a utility loss. In the second step of the process, the amount of utility is computed: each voter perceives a different

magnitude of utility gain (or of utility loss) depending on both his/her and parties' positions on the intensity continuum: 'empirically, the intensity level is determined by the extent to which the voter or the candidate is on one or the other side of the neutral point' (Rabinowitz & MacDonald, 1989, p. 96).

A further difference between the Downsian proximity model and the Rabinowitz and Macdonald's directional one is that the first one takes into consideration both the presence of uncertainty and also the cost of information-gathering by taking into account the left/right dimension; conversely, the directional model is constructed on specific policy issues. Indeed, even if Rabinowitz and Macdonald consider the conservative/liberal scale as a possible symbol, when they construct a comprehensive index, they formally define the individual utility as the scalar product of the utilities gained from each policy issues.

The scholar debate between the Downsian and the proximity models has not remained a sterile contrast between irreconcilable positions. On the contrary, at the end of XX century, there have been some attempts to unify these two approaches. A first model that has connected two aspects of the Downsian proximity and Matthews' directional models is surely Grofman's (1985) one, which is the topic of the following subsection.

1.2.3. Grofman's discounted model of issue voting

The third spatial model that we take into consideration here is Grofman's discounted model of issue voting (Grofman, 1985), which includes features of both the directional model (specifically, the idea of a directional response) and the proximity one (in particular, the calculus of distances between voters and parties). Grofman departs from the Downsian model and introduces a new element in voters' utility function: the status quo point. He argues that the formalisation of his model does not correspond to the most articulate reasoning put forward by Downs.

More specifically, Grofman underlines that voters do not exclusively compare parties' policy platforms (Davis, Hinich, & Ordeshook, 1970), but, in line with the rational approach, they decide which party to vote for by considering the policy they expect different parties will put forward during the next legislature. Consequently 'if a party is the incumbent party, then the voter may locate the probable outcome of this party's continuing in office at the status quo, or may perhaps assume that the outcome of this party's being re-elected is

that the status quo will shift slightly to the left, since that is the direction in which this party would be expected to seek to move it' (Grofman, 1985, p. 232). Nevertheless, although a policy shift from the status quo does not appear as an impossible expectation, a government's performance also depends on all those contextual factors that can affect the implementation of the entire set of a party's policy electoral proposals. Grofman assumes that no rational voters believe that a party would be able to implement a radical shift from the status quo, precisely for the presence of contextual factors.

For these reasons, according to the so-called Grofman's 'discounted model of issue voting', in times of decisions, voters discount parties' policy proposals. To account for such discount, Grofman introduces a second new element in voters' utility function alongside the status quo and the directional and proximity components: a discounting factor θ representing the ability of parties and their candidates to implement the policy proposals they advanced during the electoral campaign (Grofman, 1985, p. 230). The party-performance discounting parameter 'can be expected to be a function of past performance relative to the status quo' (Grofman, 1985, p. 232) and includes not only the competence of the parties involved in the governmental action, but also all those situational constraints for the policy change (e.g. economic crisis, the efficiency of the bureaucracy, and so forth). Formally, Grofman's voting utility function can be presented as follow:

$$V_{ij} = -\left[v_i - \left(s - (1-\theta)(p_j - s)\right)\right]^2 \qquad \text{(Eq. 1.5)}$$

where v_i denotes the bliss point of voter i, p_j is the announced policy proposal on the ideological left/right *continuum* of party j, s is the position of the status quo on the *continuum*, and θ is the discounting parameter representing the ability of the party to implement the announced policy positions[6].

[6] This is the first time that a spatial model accounts for a non-policy-related component (in this case, a discounting parameter). Nonetheless, since Grofman does not introduce a precisely measured non-policy factor, but only statistical-based discounting parameter (see the operationalisation in Merrill III and Grofman, 2000), this model cannot be included in the set of 'spatial models with non-policy factors' that are presented in

1.2.4. Kedar's compensatory model

In line with Grofman's discounted model (1985), Kedar (2010) formalises a new model of voting according to which the amount of individual's utility that depends on party policy proximity is weighted by voters' beliefs on the post-electoral status of the world[7].

The so-called Kedar's 'compensatory model' of voting takes inspiration from the Downsian 'expected party differential'. According to this latter, a rational voter would decide which party to vote for by comparing the performance of the incumbent at time t (that is, in the legislature that is about to finish) with the expected performance of the opposition party if it would have been in office (Downs, 1957b, pp. 39–40). Nonetheless, following Kedar's reasoning, Downsian proximity model does not really account for the prospective policy formation. According to Kedar's (2010, p. 24), in order to 'use her ballot in a way that will most effectively guard her interests', a voter not only takes into consideration the degree of policy preference congruence between himself/herself and a party, but he/she also takes into evaluation how much the adoption of a specific policy can be affected by different electoral outcomes. Therefore, voters may also adopt strategic voting behaviour (see on this specific point Cox 1997) to facilitate the adoption of less distant policies during the next legislature. Consequently, by behaving as if he/she would be pivotal (Kedar, 2010, p. 20), a voter faces an amount of utility deriving from the combination of two motivations: who is thought to better to defend his/her interests, and who is thought to better represent his/her views (Kedar, 2010, p. 27). Specifically, an individual's utility function within the compensatory model is formalised as follow:

$$V_{ij} = \beta(v_i - p_j)^2 - (1-\beta)[\left(v_i - P_{-p_j}\right)^2 - (v_i - P_C)^2] \qquad \text{(Eq. 1.6)}$$

where v_i is the position of i on a unidimensional continuum, p_j is the position of party j on the same continuum, P_{-p_j} is the expected policy, P_C is the counterfactual policy,

section 4 of this chapter. Nevertheless, Grofman's intuition has represented the starting point for a crucial innovation in spatial model of election: the introduction of behavioural factors within spatial models.

[7] Please remember the meaning of beliefs and status of the world that we have seen in the first section.

and β is a mixing weight representing the nuanced political reality. The first part of the formula (that is, $\beta(v_i - p_j)^2$) represents the proximity component of Kedar's model, and reflects the classical formalisation of the Downsian proximity model. The second part of the formula, conversely, accounts for the compensational element: the intuition behind the compensational component of the utility function is a counterfactual reasoning. In parliamentary elections, this counterfactual reasoning would lead the voter to compare

> the voter's utility from policy produced by a parliament in which j is a member with that voter's utility from policy produced by a parliament from which j is absent. If party j pulls policy closer to the voter, this term is positive. If, on the other hand, j pulls it away from the voter, it is negative. The voter's utility for party j approaches maximum when P is close to the voter's bliss point and P_{-p_j} is far from it. Since the model describes a policy-oriented yet naive voter, [the author] assumes that in j's absence, other parties do not change their ideological placement to fill in the vacuum. Relatedly, while each party's absolute impact increases in j's absence, I assume that parties' relative impacts do not change. (Kedar, 2010, p. 43)

The gap between the expected policy and the counterfactual one depends on a number of factors, such as the inclusion of a party in the government, the discrepancy between the bureaucracy's preferences and the party's ones, and the bureaucracy independence (Huber & Shipan, 2010). Before moving to analyse behavioural and non-policy factors, there is a last model that includes the features of most of the models that have been considered so far: the Merrill III and Grofman's unified model.

1.2.5. Merrill III and Grofman's unified model

Until now, I have taken into consideration two rival approaches to the spatial voting (the Downsian proximity one and the directional one) and the two most well-known evolutions of the Downsian proximity model (Grofman's discounting model and Kader's compensatory model). In addition to these four 'pure' spatial models, that have been considered as the most relevant ones (Meyer & Müller, 2014), the unified model of voting by Merrill III and Grofman represents a relevant attempt to combine different perspectives,

in particular, the Downsian proximity one and the Rabinowitz and Macdonald's directional one.

Indeed, Merrill III and Grofman depart from the consideration that 'the models considered so far have a number of implausible implications [and that] these inadequacies of the various pure models provide additional motivation for the development of a more general model.' (Merrill III & Grofman, 2000, pp. 40–41).

The model put forward by Merrill III and Grofman in 1997 combines both the directional-related intensity and proximity-related features by introducing two parameters in the individual utility function into a unique 'spatial component'. Indeed, as we will see in the formalisation of the model, both the mixing parameter β (Merrill III & Grofman, 2000, p. 45) and the intensity parameter q weigh the relevancy of the directional component and of the proximity element. By combining the features of several different 'pure' models, the two authors try to formalise a unique and very sophisticated utility function able to account for all the improvements that have been advanced in the spatial models' scholarship in the previous decades. The so-called Merrill III and Grofman's 'unified discounting model' is then defined by the following function:

$$V_{ij} = 2(1-\beta)\left[cos\theta \cdot \left((v_i - n)(p_j - n)\right)^q\right] - \beta(v_i - p_j)^2 \qquad \text{(Eq. 1.7)}$$

where v_i is the position of voter i on an ideological *continuum,* p_j is the position of party j on the same continuum, $cos\theta$ is the angle between parties' and voters' vectors of policy preference, q and β are an intensity parameter and a mixing parameter that allow to account for both directional and proximity components.

One of the innovative points of the unified discounting model of voting is that the values of β and q allow to understand which component of the model is more relevant. Indeed, if β is equal to 1, there is no impact to the direction of policies proposed by party j: the directional component drops out from the model and, the unified discounting model becomes a simple Downsian proximity one. Similarly, if q is equal to 0, within the directional component of the unified model, only does the Matthews-related component (that is, $cos\theta$) still have an impact, since the Rabinowitz and MacDonald's one (formalised by

$(v_i - n)(p_j - n)$) is be equal to 0. Finally, let us imagine that both β and q are equal to 0: in such case, the unified discounting model is the same of Matthews' simple direction model of voting.

The innovation put forward by Merrill III and Grofman is quite evident: they have been finally able to account in a unique model for several intuitions that, until their work, were studied and applied separately.

Despite the increasing complexity and sophistication of the spatial models seen so far, we can observe that non-policy factors were still absent from models' formalisation. Nonetheless, before presenting in subsection 1.4 this new and increasingly relevant branch of the spatial model scholarship (that is, the spatial models accounting for non-policy factors), it is essential to take into consideration the literature on the behavioural approach to the vote. This will allow at comprehending why specific non-policy factors (and not others) have been introduced in spatial models by a group of scholars.

1.3. The behavioural approach

Differently from spatial models' scholars, a vast number of works has focused on voting behaviour by rejecting the epistemological assumption of rationality. All these studies can be included in a branch of research called the behavioural approach to voting behaviour. There is another reason that makes behavioural studies different from spatial models: according to the rational approach, the primary cause at the base of individual voting choices is policy preferences; conversely, behavioural scholars posit that to understand voting behaviour it is necessary to take non-policy factors into account.

Most of the post-World-War-II behavioural research on voting behaviour has dealt with three main topics: partisanship (Campbell et al., 1960; Budge, Crewe, & Farlie, 1976; Bartle & Bellucci, 2009), valence issues (pioneering studied by Stokes et al., 1958; Stokes, 1963), and leadership traits (firstly accounted by Stokes et al., 1958; and systematised by King,

2002; Karvonen, 2010; Garzia, 2014). The next three subsections will then be devoted to the presentation of the main contributions in these three areas of research[8].

In the first subsection, I will present the state of the art on party identification and partisanship, in the second subsection, valence issue theory will be discussed, while, in the third subsection, I will present the literature on leaders' effect.

1.3.1. Partisanship

Three years after the publication of Downs' book (Downs, 1957a), and three years before the publication of Stokes's work (1963) entitled *Spatial Models of Party Competition*, a numerous group of scholars (composing the Survey Research Centre of the University of Michigan) published a fundamental book in the field of voting behaviour: *The American Voter* (Campbell et al., 1960).

At the core of this research, there is the presentation of the concept of partisanship, or, by using Michigan School's labelling, 'party identification'[9]. Indeed, Campbell and colleagues have made a step forward in the explanation of individual vote and distinguished themselves from the theory of sociological identification advanced by the Columbia School (Lazarsfeld et al., 1944). In particular, Lazarsfeld and colleagues have supported the idea that the main determinant of the individual vote should have been found within a 'personal' and 'non-political' set of factors (e.g. family or religion). In other words, the voter would vote for a certain party by identifying himself/herself with his/her primary group (such as the family, or the religious community) and by conforming his/her behaviour to the group's one.

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[8] In addition to the models presented in this chapter, a growing number of researchers, by departing from the pioneering research by Simon (1955), has constructed behavioural models of voting based on bounded rationality assumptions (Popkin, 1991; Rubinstein, 1998), or on heuristic reasoning (Kahneman & Frederick, 2002; Bendor, Diermeier, Siegel, & Ting, 2011). Despite the theorethical relevance of these contributions, taking into account also this strand of research would have required a profound and long theoretical discussion on the strengths and the weaknesses of both the Rational Choice Theory and the Bounded Rationality Theory. Nevertheless, this goes far beyond the scope of this dissertation.

[9] In this dissertation I will mainly use, following Bartle and Bellucci (2014), the concept of partisanship, that, as it will be shown in the following lines, includes both the identity approach and the attitudinal approach to partisanship. Nevertheless, I will use the label 'party identification' to present Campbell et al.'s research.

Conversely, according to the Michigan school's model, individuals' identity is also based on secondary groups, such as political parties. So, it is exactly from these secondary identities that researchers should depart to study voters' behaviour.

According to Campbell and colleagues, the sense of individual attachment to party 'is a psychological identification, which can persist without legal recognition or evidence of formal membership and even without a consistent record of party support' (Campbell et al., 1960, p. 121). This identification is a fundamental factor that affects some crucial aspects of the democratic life: electoral competition, the inter-election volatility, and the stability of the party system itself. Specifically, by referring to the psychology literature on group identity[10], Campbell and colleagues have stated that the political party is the group 'toward which the individual may develop an identification, positive or negative, of some degree of intensity' (1960, p. 122). Then, party identification represents a direct determinant of individual voting behaviour, which is thought to be the result of personal and long-standing related factors, such as the influence of primary groups. More specifically, party identification can represent a crucial variable influencing 'the manner in which the individual perceives and evaluates the elements of national politics' (Campbell et al., 1960, p. 120).

The conceptualization of partisanship put forward by Campbell and colleagues has been brought into discussion by some scholars during the 1970s and the 1980s, particularly with respect to the empirical operationalisation of the concept (Budge et al., 1976), its temporal stability (Thomassen, 1976; Fiorina, 1981), and its generalisability to Western Europe (Inglehart & Klingemann, 1976). At the base of such works, there is the belief that partisanship can be seen as an attitude and not as an individual identification with a group. More specifically, there can be a positive or negative disposition with respect to the partisan object. According to this attitudinal approach (see, for a review on the topic, Bartle & Bellucci, 2009), partisanship cannot be interpreted as a pure pre-political element: conversely, it is strictly connected to political characteristics of parties themselves (Richardson, 1991). A particular type of attitudinal partisanship is Fiorina's one (1981), that comes from the rational choice perspective and describes the attachment of a voter to a specific party as the result of a continuous evaluation of parties that is updated continuously by voters. In Fiorina's words

[10] This literature will be systematized several years later by Tajfel and Turner (1979).

(Fiorina, 1981, p. 84), partisanship is not the cause of an 'unmoved voter', but it is a 'running tally of retrospective evaluations of party promises and performance'.

In line with Fiorina's reasoning concerning the dynamic nature of partisanship, other scholars have advanced the argument according to which partisanship can be seen as the product of individuals' evaluation of several issues (Abramowitz & Saunders, 2006). Such evaluations can be either positional (that is, the classic spatial models' dimensions) or valence-related ones[11] (among recent contributions, see Clarke *et al.*, 2004). Moreover, a number of scholars have argued (Page & Jones, 1979) that partisanship might be more influenced by short-term elements (such as the past evaluation of parties' and leaders' personalities), rather than by long-term factors (like religion or social class). This is perhaps in line with what it should be expected in an era of party decay, when voting behaviour is characterized by 'a shift away from a style of electoral decision-making based on social group and/or party cues toward a more individualized and inwardly oriented style of political choice' (Dalton, 1996, p. 346).

Even if the attitudinal approach has been widely used by scholars studying partisanship (for a detailed review, see Bartle and Bellucci, 2009), in the last decades the debate among different approaches has proceeded. If some scholars have strenuously defended the classical identity approach to partisanship (D. P. Green & Palmquist, 1994; Schickler & Green, 1997), a psychological-social-identity approach has been acquiring importance as well (S. Greene, 2002; Huddy, 2003; Huddy, Mason, & Aarøe, 2015).

In particular, according to the social identity theory (Tajfel & Turner, 1979, 1986), individuals perceive themselves as members of groups, and this self-categorisation defines their social identity. Therefore, individuals are inclined to minimise the perceived differences between themselves and their in-group and, conversely, tend to maximise the differences between their in-group and the out-group. This may lead to 'the tendency to favour the in-group over the out-group in evaluations and behaviour' (Tajfel & Turner, 1979, p. 38). Individual in-group bias derives from the fact that individuals can also be defined in term of social identity, that is 'that part of an individual's self-concept which derives from his

[11] Different interpretation of valence issues are discussed in the next subsection: for the reasoning put forward in this subsection is enough to know that valence issues are those issues discussed in politics on which there is an overwhelming consensus by parties and voters (e.g. economic growth and bureaucracy efficiency).

knowledge of his membership of a group (or groups) together with the value and emotional significance attached to the membership' (Tajfel, 1978, p. 63).

A growing number of social psychologists has been applying the social identity framework to the study of partisanship and of political parties and this has brought about new stimuli in the public opinion scholarship (Kelly, 1988, 1990; Duck, Terry, & Hogg, 1998; S. Greene, 2002; Huddy et al., 2015). Indeed, new scales of measurement of party identification have been introduced, and the first results obtained by the scholars that have applied them are quite challenging, especially for the attitudinal approach.

In addition to partisanship, one of the crucial concept in the behavioural research on voting, a second relevant topic studied by the behavioural scholarship is connected to the role played by the valence issues, an argument that we will take into account in the following subsection.

1.3.2. Valence issues

A second factor that behavioural scholars have often taken into consideration as a determinant for voting choice is undoubtedly represented by valence issues. The term 'valence issues' has been advanced for the first time by Donald Stokes (1963) in an article criticising Downs' proximity model. The aim was distinguishing between different dimensions of party competition. In particular, Stokes (1963, p. 373) differentiated between positional issues and valence issues by arguing that:

> I will call 'position-issues' those that involve advocacy of government actions from a set of alternatives over which a distribution of voter preferences is defined. And borrowing a term from Kurt Lewin I will call "valence-issues" those that merely involve the parties with some condition that is positively or negatively valued by the electorate. If the condition is past or present ("You never had it so good", "800 million people have gone behind the Iron Curtain"), the argument turns on where the credit or blame ought to be assigned. But if the condition is a future or potential one, the argument turns on which party, given possession of the government, is the more likely to bring it about.

The relevance of valence issues is not only related to the way in which parties compete during an electoral campaign (a topic that will be discussed more extensively in the

fourth chapter of this dissertation), but it also concerns the way in which voters decide to vote. Indeed, according to Stokes, people's choices are radically linked to voters' evaluation of parties on valence issues. More specifically, Stokes (1963, 1992) argues that most of the dimensions on which different parties take position cannot be considered as proper Downsian positional continua. Indeed, on dimensions like corruption, country prestige abroad, or economic growth, parties cannot advocate different policies. There is an overwhelming consensus (both at the partisan and at the electoral level) against corruption and in favour of the prestige of the country and economic growth. Consequently, all the parties would advance to the voters the same policy proposal (decreasing the corruption, increasing the economic growth, and making the country more prestigious abroad): they could differentiate themselves only on the intensity with which they would support their positions. Nonetheless, Stokes is deeply aware that some valence issues do obscure some positional issues, and for this reason he (1963, p. 373) underlines that 'the question whether a given problem poses a position- or valence-issue is a matter to be settled empirically and not on a priori logical grounds'. The fact that an issue is considered as a valence one and not as a positional one exclusively depends on the fact that, on the former one, 'parties or leaders are differentiated not by what they advocate but by the degree to which they are linked in the public's mind with conditions or goals or symbols of which almost everyone approves or disapproves' (Stokes, 1992, p. 143).

After an extended period in which valence issues have not received a wide scholar consideration, in the last fifteen years, the number of contributions accounting for valence issues as explanatory variables has been relevantly increasing (among others, see Clarke, 2004; Bélanger & Meguid, 2008; J. Green & Hobolt, 2008; Clark, 2009, 2014; Stone & Simas, 2010b; Clarke, Sanders, Stewart, & Whiteley, 2011; Abney et al., 2013).

Within the set of studies analysing the impact of valence issues on individual voting behaviour, we can distinguish between, on the one hand, those studies that have operationalized the valence issues through leader- or party-related factors and, on the other hand, those works that have studied valence issues as policy proposals over which there is an overwhelming agreement.

In particular, among the latter set of studies, we can include all those pieces of research that have focused on negative campaigning (Hansen & Pedersen, 2008; Elmelund-Præstekær, 2010; Curini, 2011; Walter, 2014a, 2014b) and on specific issues such as economic

growth (Lewis-Beck, 1988; Lodge, Steenbergen, & Brau, 1995), crime and terrorism deterrence (Clarke, Sanders, Stewart, & Whiteley, 2009a), and corruption (Curini & Martelli, 2010). The conception and empirical operationalisation of valence issues stemming from this strand of works are deeply connected to the content of party proposals. Strictly linked to this operationalisation of valence politics there are also other analyses based on the concept of 'issue ownership' (Clarke, 2004; Bélanger & Meguid, 2008), according to which voters evaluate different party platforms and vote for the one that most reliably advocates specific issues.

On the other hand, we find those studies focusing on parties' or leaders' valence advantages. They operationalise valence issues as the individual characteristics of leaders and party (Clark, 2009, 2014; Stone & Simas, 2010a; Adams, Merrill III, Simas, & Stone, 2011). In these studies, valence issues are represented by leaders' and parties' evaluation and positive characteristics (such as leadership competence and honesty) (Enelow & Hinich, 1982; Clarke et al., 2009a), and by the retrospective evaluation of governments' performance (mostly operationalized as party incumbency) (Lewis-Beck & Stegmaier, 2000; Fournier, Blais, Nadeau, Gidengil, & Nevitte, 2003; J. Green & Jennings, 2012).

In the last years, the British Election Study (BES) team has built a new 'valence model of voting' that encapsulates most of the different operationalisations of valence issues seen so far (Clarke, 2004; Clarke, Sanders, Stewart, & Whiteley, 2009b; Clarke et al., 2011; Sanders, Clarke, Stewart, & Whiteley, 2011). Indeed, these scholars, by following the idea that 'voters maximise their utilities by choosing the party that they think is best able to deliver policy success in areas that concern them most.' (Sanders et al., 2011, p. 289), include in their 'valence model of voting' several pieces of evidence put forward by social psychologists and behavioural scholars. In particular, they argue that a valence model should recognise that voters decide in low-information or bounded-rationality situations (H. A. Simon, 1955; Tversky & Kahneman, 1986; Popkin, 1991; Shafir, Diamond, & Tversky, 1997), and that they subsequently make use of cognitive heuristics (E. Stanovich & West, 1998; Kahneman & Frederick, 2002; J. Evans, 2008; Gigerenzer & Goldstein, 2011). More specifically, these scholars advance the idea that three different heuristics are at work: party leader's evaluation, the evaluation of parties on the most salient valence issues, and party identification. If the assessment of parties on the most salient valence issues represents a classical concern for valence studies, the other two components of the BES valence model are described as

individual heuristics.

According to the BES valence model of voting, leader's evaluation might represent a conditioning factor because 'if voters have confidence in a particular leader's competence, they use that impression as a cognitive shortcut and make a positive assessment of the problem-solving capacities of her/his party' (Sanders et al., 2011, p. 289). Furthermore, by accounting for partisanship from an attitudinal approach perspective, Sanders and colleagues agree with Fiorina's argument on partisanship operationalisation (1981): partisanship is not a stable identification, but a 'continually updated "running tally" of the performance capabilities of competing parties' (Sanders et al., 2011, p. 289).

Even if there is a generalised agreement on the high explanatory capacity of the BES valence model, whether all the three factors can be considered as endogenous ones is a matter of debate (G. Evans & Chzhen, 2016a, 2016b; Whiteley, Clarke, Sanders, & Stuart, 2016). For instance, Evans and Chzhen (2016b) underline that, since party identification affects individuals' evaluation of the issue during an electoral campaign (G. Evans & Pickup, 2010; Tilley & Hobolt, 2011), and since partisanship is a stable non-political factor, partisanship cannot be included in a valence-based model. In response to Evans and Chzhen's argument, the BES team underlines both that the evaluation of a party's performance on valence issues is at the core of their valence model and also that leadership evaluation, along with the identity approach to partisanship, do not adequately fit within the European (and, in particular, the British) context (Clarke & McCutcheon, 2009). For these reasons, they have introduced a partisanship component, operationalised in line with the attitudinal approach.

All in all, the state of the art of the valence issue scholarship highlights that there are several operationalisations and conceptualisations of valence issues in the literature. Moreover, it is also evident that valence issues are profoundly connected with other strands of research in the behavioural approach to voting (in particular, with the studies on leaders and partisanship). This is perhaps confirmed by the debate between Sanders and colleagues (2011; see also Whiteley et al., 2016) and Evans and Chzhzen (2016a, 2016b) concerning whether and to what extent partisanship can be considered as an endogenous element in a valence model of voting.

Finally, what about leader effect? Indeed, in this section, I have shown that leadership may also be considered as a character-based valence issue (Clark, 2009; Adams, Merrill III, et al., 2011). Nonetheless, many scholars have dealt with the role of leaders in voting

explanations in a different way. The next subsection is devoted to the presentation of the main contributions of this branch of research.

1.3.3. Leader effect

Leadership evaluation represents a factor that, in recent years, has been more and more often taken into consideration by public opinion scholars (Karvonen, 2010; Bittner, 2011; Garzia, 2014; Costa Lobo & Curtice, 2015). Nevertheless, the relevance of politicians' image has been recognised by scholars starting from the early-1950s (Stokes et al., 1958). Specifically, by analysing the non-structured response to the 1952 and 1956 US electoral surveys, Stokes, Campbell and Miller (1958, p. 376) discovered that individual characteristics were already relevant during mid-XX century elections. In particular, both performance-related characteristics and personal qualities such as sincerity, integrity and sense of duty (Stokes et al., 1958, p. 378) were important factors in shaping consensus. Even if scholars belonging to the Michigan school have been analysing leadership effects in US Presidential elections since 1952, it is only in the 1980s that leaders' traits have become a variable considered in parliamentary election studies as well (Kinder, Peters, Abelson, & Fiske, 1980; Bean & Mughan, 1989; W. E. Miller & Shanks, 1996; Mughan, 2000; Clarke, 2004). From this moment onwards, the attention to the role of personality traits and leader evaluation in elections has been growing and growing: in 1997 Hayes and McAllister expected that 'election outcomes are now, more than at any time in the past, determined by voters' assessments of party leaders' (Hayes & McAllister, 1997, p. 3) and, in the same year, Bernard Manin underlined that 'voters tend increasingly to vote for a person and no longer for a party or platform' (Manin, 1997, p. 219).

This can be seen in connection with the decline in the partisan alignments (Schmitt & Holmberg, 1995; Dalton, 2002; Dalton & Wattenberg, 2002), the increasing mediatisation of the electoral sphere (Butler & Ranney, 1992; Farrell, 1996; Mughan, 2000; Bucy & Grabe, 2007; Kriesi, 2012), and the transformations of party organisations, where leaders have been acquiring a more prominent role (Blondel & Thiébault, 2010; Dowding, 2013; Musella, 2015; Poguntke & Webb, 2015). All these results have led a number of scholars to argue that, in contemporary democracies, politics has become more and more personalised, and leaders

should have acquired a more significant role (also in parliamentary elections) (Aarts, Blais, & Schmitt, 2011; Bittner, 2011; Garzia, 2011, 2012).

Research on the role of leaders in elections has analysed several components of the leadership effect. Many scholars have indeed evaluated the impact of leadership by considering the general likeability of the leaders by using a sympathy thermometer (Holmberg & Oscarsson, 2011; Ohr & Oscarsson, 2011; Garzia, 2013b; Curtice & Lisi, 2015). This concept is one of the most used factors to represent the impact of leaders and brings about several advantages: it synthesizes in a unique variable voters' attitude with respect to leaders' qualities; it allows making diachronic and cross-country comparisons and then reaching a higher level of generalisability and reliability of empirical results; moreover, since also attitudes toward parties are measured via a sympathy thermometer, likeability allows scholars to compare individual attitudes toward a leader with individual attitudes toward the party.

Other scholars have differently focused on leaders' traits. Most of them have approached leadership through the study of leaders' traits (Caprara, Schwartz, Capanna, Vecchione, & Barbaranelli, 2006; Bittner, 2011) by distinguishing between trustworthiness (that includes traits like honesty and reliability) and effectiveness (that includes traits such as energy and competence). This typological differentiation is constructed mostly on the base of the social psychology literature (Caprara et al., 2006) and, by finding parallelisms in political science literature (see as instance Bittner, 2011), distinguishes between individual character-related qualities and more political-position-related characteristics.

A third approach (that has been acquiring a growing relevance) concerns the impact of leaders' image and non-verbal communication on individuals' evaluation. In particular, some studies have analysed whether leaders' visual image and their different expressions (Stewart & Ford Dowe, 2013) may have an impact on voters' evaluation of candidates (Barrett & Barrington, 2005; Bucy & Grabe, 2007), especially in situations when TV debates are highly relevant (Gong & Bucy, 2016). Non-verbal communication represents a crucial variable in marketing, and the fact that it has been acquiring relevance also in the electoral behaviour scholarship further suggests the centrality of leaders in elections.

Despite the evident influence of leaders on voters' behaviour, the 'presidentialisation thesis' (Bean & Mughan, 1989; Mughan, 2000, 2009; Clarke, 2004; Poguntke & Webb, 2005)[12] has been largely contested: the effect of leadership evaluation and personality traits on individual voting behaviour is far less relevant in parliamentary elections than in presidential ones (see the discussion in Kaase, 1994; King, 2002; Curtice & Holmberg, 2005; Curtice & Hunjan, 2011; Curtice & Lisi, 2015)[13].

Even if scholars agree on the fact that, nowadays, leadership shapes citizens' voting behaviour, whether the impact has increased in the last years and whether it has replaced the role of partisanship is still a matter of discussion, so much so that leaders' effect is expected to vary from a voter to the next one (Bartels, 2002). Indeed, even if it has been shown that, in the last decades, there has been a generalisable increase of leadership effect in parliamentary democracies (Aarts et al., 2011; Bittner, 2011; Garzia, 2014), some comparative pieces of research have questioned these results (King, 2002; Curtice & Holmberg, 2005; Karvonen, 2010; Curtice & Lisi, 2015)

At the same time, even the idea that party-related factors should have lost their relevance in favour of more leader-related ones has not been confirmed by many scholars. Indeed, many contributions that have compared the effect of both party evaluation and leader evaluation on individuals' voting choices have concluded that the partisan role is still more relevant than the leader-related one (Curtice & Lisi, 2015).

Nevertheless, many scholars have stressed the fact that party and leader evaluations are strictly connected and correlated ((Holmberg & Oscarsson, 2011)[14]. Distinguishing between party and leader effects and solving this 'endogeneity problem' is therefore a crucial issue (Curtice & Holmberg, 2005; Hubert, 2015) to accurately assess the impact of the personalisation of politics. For this reason, many scholars have dealt with this issue by arguing that introducing both variables in an empirical model allows taking into

[12] According to which the impact of leadership in parliamentary elections (and in parties and governments as well) has become similar to the one in presidential systems.

[13] Moreover, also the thesis itself has been contested from a more general viewpoint (see for instance Dowding, 2013).

[14] Indeed, it is not difficult to image that voters prefer a certain leader because of they like a certain party, or the other way around. For a similar seasoning see Garzia, 2013a, 2014.

consideration this strong interaction: by following this procedure, comparative research comes to the conclusion that leadership effect, despite its significant impact on voting behaviour, is still irrelevant compared to party effect (Van Holsteyn & Andeweg, 2010; Curtice & Lisi, 2015).

Another way to deal with the party evaluation and leader evaluation endogeneity problem has been used by Garzia (2012), who proceeds by using specific statistical techniques put forward by Lewis-Beck and colleagues (Lewis-Beck, Nadeau, & Elias, 2008) to artificially make party-related attitudes (specifically, partisanship) exogenous to the explanatory model. The results of his cross-country analysis (Garzia, 2011, 2013a, 2014) strongly differ from the ones reached by other scholars (among others, see Aarts, 2001; Curtice & Lisi, 2015). Indeed, Garzia underlines that if partisanship is not made exogenous with respect to leadership, the leader effect on individual voting behaviour is strongly underestimated. Moreover, he also supports these findings by showing the relevance of leadership effect, that seems to be an explanatory factor for partisanship, and not be caused by a long-term party identification (Garzia, 2014).

All in all, what has been advanced in this section confirms scholars' increasing attention to leadership effect on individual voting behaviour. Nonetheless, a shared conclusion has not been reached yet: this makes the analysis we are going to put forward in the third chapter of this dissertation even more relevant, since it will allow reaching generalisable conclusions concerning the role of leadership impact.

1.4. Spatial models with non-policy factors

As we have already seen in the second section of this chapter, spatial models have been evolving from the pioneering work of Anthony Downs (1957a). In particular, since the presentation of the discounting model by Grofman (1985), many scholars have tried to encapsulate within the spatial framework also all those behavioural factors that have been developed in contrast to the rational-based idea of individual voting behaviour (see the pioneering works of Stokes et al., 1958; Campbell et al., 1960; Stokes, 1963).

Nevertheless, until the studies of Adams and colleagues (Adams, 1998; Merrill III et al., 2001; Adams et al., 2005), the attempt to include non-policy factors (e.g. partisanship and

leader evaluation) in spatial models has not been empirically put forward. The non-consideration of such factors derives from the belief of spatial modellers that 'while other factors such as class background and candidate personalities enter into the determination of the voter choices, these are arguably not important for explaining party strategy' (Iversen, 1994, p. 49). It is with Adams' (1999, 2001) and Adams and colleagues' works (2005) that non-policy factors (most noticeably, partisanship) have been introduced in spatial models.

According to Adams *et al.*, not only does the decision not to introduce behavioural factors lead to misinterpreting individual voting behaviour, but it also 'yields empirically misleading prediction about how parties can be expected to behave' (2005, p. 31). Consequently, they refine the classical proximity model by introducing in voters' utility function a non-policy additive component and, specifically, a partisanship-related one. Formally, Adams et al.'s (2005) 'unified model', voter's utility function is represented by the following equation:

$$V_{ij} = \sum_{k} \beta_k (v_i - p_j)^2 + \alpha b_{ij} \qquad \text{(Eq. 1.8)}$$

where $\beta_k (v_i - p_j)^2$ represents the proximity source of utility of voter i voting for party j for each policy dimension k taken into consideration, while αb_{ij} represents the additive non-policy component of utility factors: in particular, in Adams and colleagues' formalisation, b represents a dummy variable that assumes value 1 if party j is the one i identifies with.

Even if the introduction of non-policy factors in the utility function of voters has represented a relevant innovation, some scholars have underlined that the fact that partisanship affects individual utility only through an additive component reduces the influence of partisanship and non-policy factors that behavioural research has hitherto stressed. In particular,

> according to this assumption *the additive-component one*, party identification only affects voting choices by providing a given party a fixed advantage when voters compare and evaluate parties or candidates. Party identifiers are thus biased in favour of one party, but otherwise they respond

> to spatial factors in the same way as voters who do not identify with any party (Lachat, 2015b, p. 642, italics added).

Following Lachat's reasoning, it is hard to imagine that policy and non-policy variables' effects can be considered as independent components of voters' utility. As a consequence, some scholars have underlined that the effect of partisanship cannot be simply modelled via an additive effect, but that 'spatial factor effects should be conditional on party identification' (Lachat, 2015b, p. 642). Therefore, Lachat (2015b) advanced a new spatial model of electoral voting able to include the moderating effect of party identification.

First of all, he argues that the difference in the perception of distance when voters evaluate the distance between the party they prefer and the other parties is not the only difference that should be taken into consideration. Indeed, according to the author, there is also a difference between, on the one hand, the way in which voters who do not identify with any party evaluate the distance between themselves and parties and, on the other hand, the way in which voters that identify themselves with a party evaluate the distance between them and the parties they do not identify with.

This descends from the fact that the former voters are not biased toward any party, while the latter voters are negatively biased with respect to the parties they do not identify with. Moreover, because of the conditional effect of partisanship on voters' behaviour (Sanders et al., 2011; Whiteley et al., 2016) that affects voters' perceptions in different manners (Jessee, 2010; Adams et al., 2017), according to Lachat partisanship is an heuristic device 'allowing party identifiers to make their voting choice at a lower "cognitive cost," without treating all information in a systematic way' (Lachat, 2015b, p. 655). He formalises his spatial model as follows:

$$V_{ij} = \sum_k \beta_k (v_{ik} - p_{jk})^2 + \alpha b_i + \alpha b_{ij} + \sum_k \delta_k b_i (v_{ik} - p_{jk})^2 + \sum_k \theta_k b_{ij} (v_{ik} - p_{jk})^2 \quad \text{(Eq. 1.9)}$$

where $\beta_k(v_i - p_j)^2$ represents the proximity source of utility of voter i voting for party j for each policy dimensions k taken into consideration, b_i is a dummy variable that assumes values 1 if the voter i has a party he/she identifies with and 0 otherwise, b_{ij} is a dummy variable that identifies whether the party j is the one voter i identifies with. Moreover, in order to formalise the conditioning effect of partisanship on spatial source of utility Lachat introduces the two interaction terms $\sum_k \delta_k b_i(v_{ik} - p_{jk})^2$ and $\sum_k \delta_k b_{ij}(v_{ik} - p_{jk})^2$ and, consequently, the effect of distance on voters' decisions is given either by $\beta_k + \delta_k$ in case of parties a voter i does not identify with, and by $\beta_k + \theta_k$ if party j is the one the voter i identifies with.

The empirical results presented by Adams and colleagues (2005) and Lachat (2015) in their contributions confirm that the introduction of a non-policy factor such as partisanship represents a decisive improvement for spatial models. Especially with respect to Lachat model, the results confirm the expectation that those voters who identify themselves with a party are less shaped by policy distance: 'party identifiers have a very high utility for their preferred party, which is not affected by eventual issue divergences. Of course, this does not mean that party identifiers do not care at all about issue positions. […] Party identifiers are usually attached to a party that is relatively close to them in the political space' (Lachat, 2015b, p. 656).

If the introduction of a party-related factor has represented a quite significant innovation for spatial models, several scholars have introduced in spatial models other factors. Specifically, already in the 1980s did they focus on character-based valence factors such as incumbency advantages and candidate charisma (Hinich & Pollard, 1981; Enelow & Hinich, 1982; Feld & Grofman, 1991). Nevertheless, it is during the last decade of the 20th century that spatial modellers started giving careful attention to the role of valence issues within spatial models. Most of these models operationalise the valence advantage of a candidate as 'incumbency, greater campaign funds, better name recognition, superior charisma, superior intelligence, and so on' (Groseclose, 2001, p. 862). The classical spatial and valence models consider the valence dimension as an additive dimension in voters' utility function (Ansolabehere & Snyder, 2000; Groseclose, 2001; Aragones & Palfrey, 2002, 2004, Schofield, 2007, 2003, 2004; J. Green & Hobolt, 2008; Curini & Martelli, 2010; Adams,

Merrill III, et al., 2011; Curini, 2015a). Formally, the valence advantage has been represented by voter's utility function as follows:

$$V_{ij} = \sum_{k} \beta_k (v_i - p_j)^2 + \alpha a_{ij} \qquad \text{(Eq. 1.10)}$$

where $\beta_k (v_i - p_j)^2$ represents the proximity source of utility of voter i voting for party j for each policy dimension k, and αa_{ij} is the additive character-based valence component of utility factors. As the reader has surely recognized, this formalisation is similar to the Adams et al.'s (2005) one.

If most of the spatial modellers who have considered valence are mainly concerned about the effect that such advantage has on electoral and policy-related strategies, Groseclose (2001, p. 882) advances the possibility that a 'voter appreciates a candidate's competency more when the candidate has adopted a policy that he or she likes', thus focusing more on electoral results.

Nevertheless, this last position is a contested one: a number of scholars have indeed focused on why and when voter should give more weight to valence or policy factors. In particular, Clark and Leiter (2013) and Burden (Burden, 2004) argue that voters give more relevance to valence issues when parties diverge from the median position. On the other side, several other scholars have advanced the opposite conclusion: valence advantages should matter more when the policy differences between the competing candidates are minimised (Ansolabehere & Snyder, 2000; Aragones & Palfrey, 2004; Woojin, 2004; Jiang, Chang, Chen, Wang, & Klein, 2014).

A different methodological approach has instead been followed by Franchino and Zucchini (2015), who have tested a conjoint experimental model in which respondents were asked to value candidates over three valence issues and three positional ones. They concluded that valence and policy issues are non-separable and that 'policy trumps valence in awkward situations and this applies to all types of respondents, regardless of their political traits. […] This is not to say that, at the margin, a valence advantage is irrelevant. It may shape both citizens' incentives to enter the electoral competition and politicians' positioning in the policy- valence space.' (Franchino and Zucchini 2015: 15).

As we have already seen both for spatial policy models and for behavioural studies, also spatial models that include non-policy factors have been profoundly transformed and refined since their very first formalisation. Nevertheless, as we will see in the following chapter, a number of issues remain unsolved. In particular, factors such as the role of individual bias toward the different parties and the simplistic inclusion of leadership characteristics as an independent factor are two issues that should be modelled with more attention. This leaves us space for a further improvement of the state of the art, and for a better dialogue among the theories that have been taken into account in this chapter.

Conclusions

In this chapter, I have dealt with the presentation of the rational and the behavioural approaches to voting behaviour. In particular, I have first made an introduction to the fundamental concepts in the Rational Choice Theory. I have introduced the concepts of ordering of preferences and the rationale according to which people make decisions in particular and uncertain conditions. This has been an short but necessary starting point to introduce spatial models of voting.

In the second section, I have indeed presented the spatial models advanced by scholars that have taken into account only policy related component. By departing from the proximity model (Downs, 1957a) and the directional ones (Matthews, 1979; Rabinowitz & MacDonald, 1989), I have presented the main evolution of this scholarship. Starting from the early proximity and directional models, many further element and parameters have been added by Grofman (1985), Kedar (2010) and Merrill III and Grofman (2000). All these further refinements of the early proximity and directional models have introduced discounting or counterfactual parameters, and have favoured the emergence of a question: are policy dimensions able to explain voting behaviour adequately?

The third section of this chapter has dealt with the behavioural approach to politics. Since the very pioneering research of the Michigan school scholars (Stokes et al., 1958; Campbell et al., 1960), a high number of studies have been published on three main topics: partisanship, valence issues, and leadership effect. In this section, I have presented the

evolution of these concepts, and also the on-going debate on the epistemological interpretation of certain psychological predisposition and biases.

In the fourth section, I have discussed the spatial models (Ansolabehere & Snyder, 2000; Groseclose, 2001; Adams & Merrill III, 2005; Lachat, 2015b) that have introduced in voters' utility function also non-policy factors. Different formalisations of the effects of non-policy factors have been advanced, and the growing debate among scholars on the consequences of the introduction of partisanship and/or valence-issue component in spatial models confirms that these new models are challenging several assumptions of previous research and also represent one of the most important innovations in the rational approach to the vote.

Despite the vast number of works we have analysed in this chapter, the spatial models-related literature leaves a number of questions that still need an answer. Two relevant issues, to the best of my knowledge, are still neglected and require an in-depth investigation.

First of all, individual biases have not been introduced into the individual utility function yet. Indeed, as we have seen so far, only has a dichotomous variable representing voters' identification toward a party been added to the classical utility function. Moreover, as we will see more extensively in the next chapter, this operationalisation does not allow to take into consideration individual biases toward parties properly.

A second neglected element is connected to the role of party leaders in the individual utility function. Indeed, although the leadership effect represents a well-known factor in spatial models of voting, the impact of leaders has been mostly interpreted either as a general valence-related variable, or as a second decisional axis independent from the other determinants of utility. Indeed, there is not a study that has investigated and modelled the impact of individual leadership in light of the presence of individual biases. So, whether the impact of leadership is independent from individual bias is still an unanswered question.

All these arguments will be at the centre of the first section of the next chapter, where, after having underlined the strengths and the weaknesses of the evidence provided by the literature presented in this chapter, I will present a novel spatial model of voting aiming at tackling such weaknesses of the literature.

2. A novel of voting behaviour

After having dealt with the extensive literature on voting behaviour, it is possible to make a step forward and present the first innovation this dissertation aims at advancing. That is, a novel spatial model of voting behaviour, able to account for the problems in the existing litertaure we have seen at the end of the previous chapter and we will account in a more detailed way in the next section. In fact, the model I am going to advance aims at including in the utility function not only classical factors (such as proximity, leadership evaluation, and the like) but also novel ones (such as individual biases toward or against parties).

This is the first time that a similar model is put forward and clearly represents a step forward for an adequate comprehension of voting behaviour and for a precise formulisation of individual utility function. As I will argue along this entire chapter, I believe that the introduction of non-policy factors has represented the most crucial innovation for the spatial model scholarship in the last decade. Nevertheless, a number of issues still affect the way in which scholars have interpreted the impact of such factors. Indeed, individual biases towards or against all the parties have not been introduced in the voters' utility function yet, and the intrinsic relationship between individual biases toward parties and leader evaluation needs to be modelled as well.

The spatial model of voting I am going to advance in this chapter aims at filling this gap in the literature according to the idea that introducing in voters' utility functions biases of voters themselves towards or against parties allows estimating the role played by positional and non-policy factors with a higher degree of precision. Moreover, a second innovation that this model aims at putting forward concerns the role of leadership evaluation, which not only represents an additive source of utility, but that it can also be seen as one of the key factors affecting voters' behaviour when voters are biased toward a party. Finally, for the first time both in the spatial-model-related and the behavioural-related literature, I will introduce in a theoretical formalisation the idea that personalisation of politics can affect voters' voting decisions.

This chapter is structured as follows: in the first section, I will briefly discuss the weaknesses of studies already put forward in the previous chapter[15]. This discussion will introduce the second section, where I will advance a novel spatial model of voting behaviour, called the Biased Voter Model. Subsequently, I will also advance a personalised version of the Biased Voter Model, the Personalised Biased Voter Model. Moreover, to make it easier to understand the individual utility function and the impact of individual bias, in this second section, I will also compare the utility functions of the Biased Voter Model and the Personalised Biased Voter Model with the utility functions of many other models. Finally, a number of hypotheses to be tested in Chapter 3 will be derived from the model presented in the chapter. Conclusions will follow.

2.1. Strengths and weaknesses of the existing literature

One of the main innovations of the literature on spatial voting behaviour (presented in the previous chapter) is undoubtedly the emerging of spatial models of voting that also include non-policy factors in voters' utility function. Among this set of models, we can firstly highlight the pieces of research put forward by Adams, Grofman and Merrill III (2005) and by Lachat (2015b), that have introduced into the classical spatial model of voting a partisanship-related component. The second set of spatial models has been characterised by the inclusion into spatial models leaders' and candidates' non-policy characteristics (Groseclose, 2001; Lachat, 2015a).

According to both these sets models, non-policy factors and leaders' traits (or likeability) represent additive sources of utility that voters take into account when evaluating candidates and the parties they vote for.

Despite the relevant innovations introduced by these studies, they are not able to adequately model the impact of non-policy factors on voters' behaviour: in other words, there is something missing in the literature. This section aims at underlining the strengths

[15] Although someone could argue that these critiques should have been advanced in the first chapter, they are strictly connected to the way in which I formalise Biased Voter Modelmy model of voting behaviour. Consequently, for readability purposes, I have included such discussion in this chapter.

and weaknesses of the existing models, to make it evident why the formalisation of the new spatial model I am going to introduce represents a relevant and useful innovation for the scholarship.

2.1.1. Models introducing partisanship

The introduction of non-policy factors within spatial models undoubtedly represents a relevant innovation in the field of this scholarship. Nonetheless, this does not allow to accurately account for the impact of individual bias in voting decisions.

In particular, in the previous chapter, we have already seen the first pioneering models of voting accounting for party-related non-policy factors (Adams, 2001; Adams et al., 2005)[16] have been further modified by Lachat (2015b). Lachat has made a step forward, departing from existing models of voting, by underlining that the effect of party-related non-policy factors (such as, partisanship) not only represents a push for voting the preferred party, but it also plays a moderating role in voters' evaluation of the ideological distance between their own location and parties' positioning[17]. Lachat posits the impact of party-identifiers' ideological proximity is less relevant than non-party-identifiers one, since 'the utility for their preferred party is virtually unaffected by spatial considerations' (Lachat, 2015b, p. 656)[18]. Lachat's work has allowed researchers to make a potentially step forward

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16 In particular, in their unified model, Adams, Merrill III and Grofman account for the impact of non-policy factors through an independent and dichotomous factor in the utility function operationalising whether a voter identifies with a party or not (Adams et al., 2005).

17 As we have already seen in the previous chapter, the crucial critique that Lachat has advanced to Adams and colleagues' research is that 'they assume that all voters respond to spatial factors in the same way, whether or not they identify with a party' (Lachat, 2015b, p. 642). Indeed, by simply operationalising non-policy factors via an additive component (in this case, partisanship), Adams and colleagues' models assume that all voters have the same distance-utility-loss-function, that is, the part of the utility function that depends on the distance between their own position and the location of the parties. On the contrary, Lachat argues that to properly introduce behavioural factors in a spatial model of voting, it is necessary to model also the conditioning effect brought by non-policy factors on the evaluation of policy proximity.

18 On the other side, when voters identifying with a party have to calculate their utility for the other parties (that is, their non-preferred parties), their calculus is mostly affected by the evaluation of ideological or

in the comprehension of the role played by individual bias and in the formalisation of a more precise definition of spatial utility models.

Indeed, this research is in line with the social psychology literature (also accounted by Enelow & Hinich, 1982; Redlawsk, 2002; Taber & Lodge, 2006) that underlines the importance of consolidated non-policy preferences during voting decisions. More specifically, according to this literature, a first individual and psychological bias that affects the assessment of the distance between a voter and different parties is the so-called 'perceptual bias', which predicts that, in the acquisition and the processing of information concerning party positions, voters try to achieve a confirmation of their own previous beliefs and preferences (Taber & Lodge, 2006). Indeed, voters look for positive information regarding their preferred candidate or parties (that is, information that confirms the closeness between them and a party) and negative information concerning his/her preferred party's opponents (that is, information that confirms the differences between them and the other parties) (Popkin, 1991).

A second psychological bias that affects voters in evaluating party positioning is represented by the so-called 'assimilation-contrast bias'. According to such bias, voters tend to locate preferred parties or candidates closer to their own positions (assimilation) and to locate opponents further away (contrast) (Markus & Converse, 1979; Enelow & Hinich, 1982; Meyer & Strobl, 2016). The assimilation-contrast bias has been confirmed by case studies and comparative research (Merrill III et al., 2001; Drummond, 2011; Busch, 2016), thus substantially corroborating the idea of a potentially high degree of affection on voters' behaviour of these psychological factors, which are, indeed, non-policy ones.

As we will see more into detail in the presentation of the Biased Voter Model I have devised, these two individual biases can be introduced in spatial models of voting and connected with more classical voting choice determinants (like ideological proximity) by using continuous factors representing the positive inclination of a voter toward different parties. Indeed, when the level of the assimilation bias gets higher, the voter will perceive himself/herself as more positively inclined and, at the same time, more similar to the party

issue-related distances: in such case, to a higher distance, it corresponds a much lower degree of utility. The work of Lachat(2015b) is the first time in which the impact of a non-policy factors is considered as a biasing the impact of the classical ideological distance.

he is biased toward[19]. It follows that, notwithstanding the existing differences between the voter's and the party's positioning, the voter will discount the differences' relevance since he/she is positively inclined toward the party. This means that whether the voter agrees more or less with a party's platform, his/her preference is shaped by the amount of his/her pre-existing positive inclination toward this party. Therefore, we could expect individual biases to play a conditioning role in more classical variable's effect. As a consequence, to adequately understand the role of more classical variables on voting choices, it is necessary considering the degree of individual bias toward or against the parties under evaluation.

In other words, despite the improvements put forward in the last years, especially by Lachat[20], there are some issues that still need to be solved. Indeed, all the studies taken into consideration until now (Adams, 1998, 2001, Adams et al., 2005, 2017; Jessee, 2010; Lachat, 2015b) introduce, in their spatial models of voting, partisanship, and in particular a dichotomous variable that identifies whether a voter prefers or not a specific party.

Nevertheless, as briefly argued above, the approach used by all the scholars accounting for partisanship does not capture adequately the nature of biases and the way in which these latter affect voters' evaluation of different party platforms. Indeed, despite the differences between the Adams and colleagues' model (2005) and the Lachat' one (2015), both pieces of research assume that voters evaluate differently only the platform of their preferred party. On the contrary, when voters have to evaluate the platforms put forward by non-preferred parties, their utility function is allegedly not influenced by their level of bias toward or against such party. This means that, according to these pieces of research, voters have a qualitatively different utility function only when they judge the proposals of the political party they identify with. As a consequence, all voters evaluate political proposals in the same manner when the parties under evaluation are not their preferred ones[21].

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[19] This is connected from the social psychology research on intergroup relation, and in particular to the self-categorization and in-out group biases (Tajfel & Turner, 1979, 1986; S. Greene, 1999).

[20] He (Lachat, 2015b) considers partisanship not only as an additive component of individual utility but also as a conditioning factor. For this reason, he introduces in its spatial model of voting an interaction between partisanship and voters' distance evaluations.

[21] Indeed, in the Adams, Grofman and Merrill III's unified model (2005) that we have seen in the previous chapter, voters get the surplus of utility deriving from the non-policy factor only in the case of the

Most of the problems of these models descend from authors' decision to operationalise the individual non-policy biases by using a dichotomous variable representing partisanship. Indeed, this decision does not allow to differentiate among the set of parties that are not the one that the voter prefers, even if this is a crucial factor in multiparty systems, where voters have to compare the utilities for some different parties and not just for two opposing parties. Therefore, this element acquires particular relevance in the study of Western Europe, where most of the party system are multiparty ones, and where voters have to compare several parties before deciding which one to vote for.

From all this reasoning, two fundamental questions descend: do really voters get utilities in the same way for all the parties that are not their preferred one? Are really voters not biased in different ways when they evaluate the distance between themselves and all the other non-preferred parties? I argue that the answers to both questions are negative, and this is at the base of the spatial model of voting I will present in the following section.

In particular, I argue that when voters evaluate parties' positioning to estimate their proximity from every political formation, not only are they biased toward their preferred party, but they are also influenced by antecedent attitudes also respect all the other parties composing the political supply. More specifically, voters are not merely able to decide which party they prefer and they identify with, but they also have an opinion on all the parties they deal with in their decisional process. In other words, they know how much they are positively or negatively inclined with respect to each party they are evaluating. From this reasoning, not only are voters able to decide which is the party they prefer the most, but they are also able to define an order of preferences of all the other parties, since they know how much they prefer a party than another.

Consequently, the impact of cognitive bias affects the calculus of utility according to each voter's ordering of preferences and also each voter's positive inclination with respect to each party. This impact will be stronger for those parties that are highly preferred by the

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preferred party. Conversely, when they estimate the utility for non-preferred parties, they are not affected by non-policy factors, given that in such case the partisanship will be equal to 0. Similarly, the partisanship moderating effect in Lachat's model differentiates exclusively between, on the one hand, the way in which voters evaluate the distance of their preferred parties and the other parties and, on the other hand, all the other proposals.

voter, while it will be less shaping for those parties that are towards the bottom of voter's order of preferences.

All in all, to adequately address the impact of individual non-policy related biases in a spatial model, it is necessary to go beyond the assumption according to which voters are influenced by bias only in the calculus of utility for their preferred party. Conversely, it is relevant taking into consideration that voters are always biased when they have to evaluate parties, and, therefore, that the amount of bias that affects their evaluation depends on their ordering of preferences on all the parties considered in the voting decision.

Until now, we have taken into consideration only the impact of partisanship-related bias. Nevertheless, as we have seen in the previous chapter, there is a second important source of non-policy bias that affects individual utility and voting behaviour: leadership evaluation[22]. The next section is dedicated to such factor.

2.1.2. Models that introduce leadership evaluation

A second non-policy factor that has been introduced in spatial models of voting is the leadership-related component. In most of the spatial models we refer to (Ansolabehere & Snyder, 2000; Groseclose, 2001; Zakharov, 2009; Curini & Martelli, 2010; Adams & Merrill III, 2013; Carter & Patty, 2015), leader's effect is an additive source of utility whose goodness is recognised by the entire electorate and, as a consequence, represents a valence advantage for the party[23]. On the contrary, by taking inspiration from the behavioural scholarship, Lachat (2015a) introduces in the empirical analysis of voting the degree of likeability of the

[22] Most spatial models of party competition, as we will see more into detail in the fourth chapter, consider the impact of positive leader characteristics as a valence issue. Obviously, this makes the concept of valence issue particularly different from the one put forward by Stokes (1963, 1966), that is the one I will take into consideration in Appendix H. Nevertheless, in order not to incur in terminological ambiguities, I will rely on the most used concept of "leader effect", that is the impact of leadership evalutaion.

[23] In this case, since the leadership component represent a valence factor, it increases the utility for voting such leader's party for all the electorate. On the valence nature of leadership evaluation, see the discussion on the interpretation of valence factors by Clarke and colleagues(2004) discussed in subsection 1.3.3.

leadership for each voter[24]. The research put forward by Lachat's represents a relevant attempt to unify the spatial and behavioural models of voting behaviour, where, as we have already seen, the crucial variable is represented by voters' evaluation of leaders' likeability and traits (Curtice & Blais, 2001; Curtice & Holmberg, 2005; Costa Lobo, 2006; Curtice & Lisi, 2015; Garzia & De Angelis, 2016).

Notwithstanding the increasing amount of behavioural research accounting for the role played by leaders in individual voting behaviour (among others, see Barisione, 2009a; Garzia, 2011; Costa & Ferreira da Silva, 2015; Mughan, 2015) and the growing relevance of leadership-related-factors in the spatial model scholarship, a number of issues remain still largely neglected.

Indeed, to the best of my knowledge, no spatial model has explored the connection between individual bias and leadership evaluation in the calculus of individual voting utility. In other words, the possibility that individual cognitive biases might play a role in the perception of leader-related-utility has not been considered yet. Indeed, spatial scholars have always considered the impact of leadership as an independent and additive source of utility, that is not conditioned by any other cognitive bias[25].

Nonetheless, we know that including individual bias as a conditioning factor in the evaluation of parties' policy platforms represents a relevant theoretical and empirical innovation. It follows that a question naturally arises: do individual biases also influence leadership evaluation, along with spatial proximity?

Also in this case, an answer to such research question is still missing. Indeed, as seen in subsection 1.3.3, existing research has mostly investigated the direct impact of leadership

[24] This operationalisation differs from most of the spatial models' ones, that insert in the general utility function a fixed component representing the advantage for the party brought by the leader. Indeed, following Lachat's operationalisation, the positive influence of a specific leader is not fixed among all the voters, but it varies depending on the preferences of each single voter.

[25] Both Lachat (2015a) and Franchino and Zucchini (2015) have investigated the effect of socio-demographical factors on the impact of leadership evaluation on individual voting behaviour. Nevertheless, this substantially differ from investigating party-related-bias effect on leader's impact, especially in front of the debate that behavioural scholars have been putting forward in the last decade on leadership and partisanship role in voting behaviour (Hayes & McAllister, 1997; Curtice & Blais, 2001; Garzia, 2011, 2013a; Holmberg & Oscarsson, 2011).

effect on voters' utility function by considering the leader as an additive and independent source of utility, in other words as a second critical dimension, in addition to the ideological one. Still, in line with the argument put forward in the previous section, it is plausible to expect that if a voter has an order of preferences with respect to all the parties he/she evaluates before taking a voting decision, and if this creates a bias in the evaluation of party positioning in favour of highly ranked parties, it is possible to expect that such kind of biases might also play a role in respect the evaluation of parties' leadership.

Whether the preferences of voters with respect to a party have also an effect on the impact of leadership evaluation in individual voting behaviour or, conversely, whether it is the leader who drives the positive inclination of the voters with respect to his/her party, is a relevant conundrum in the behavioural literature, as we have seen in the previous chapter.[26]

[26] Indeed, the behavioural literature on voting departs from the pioneering contribution of the Michigan School (Campbell et al., 1960), according to which voters are influenced in their voting behaviour by 'the cumulative consequences of temporally ordered sets of factors' (W. E. Miller & Shanks, 1996, p. 192). According to this perspective, the driving factor that affects voters' perceptions and evaluations is party identification. Consequently, in the framework of the 'funnel of causality', the individual partisan orientation (a long-term and stable factor) influences voters' preferences concerning policy issues and leadership evaluation. With the increase in the studies on the personalisation of politics, the Michigan School's assumption has been deeply questioned in the last decades (Garzia, 2013a). Indeed, a growing number of scholars have started doubting the unidirectional causal relationship between partisanship and more short-term factors like leadership evaluation. In other words, at the end of the XX century, the argument according to which partisanship could have been considered as an exogenous factor with respect to all the short-term factors (e.g., leader evaluation) has been profoundly questioned. In line with this reasoning, (Garzia, 2012, p. 176) argues that, surely, 'voters might well like a party leader just because he or she is the leader of the party with which they identify. Yet the reverse might be true as well – voters could declare themselves partisans simply because of the appeal of the party's leader'. A very stimulating debate on the relevance of partisanship and leadership effect in the vote has been put forward by the behavioural electoral scholarship (Curtice & Holmberg, 2005; Ohr & Oscarsson, 2011; Garzia, 2013a; Bellucci et al., 2015; Curtice & Lisi, 2015). Nevertheless, most of the research on this field has underlined that leadership evaluation and the identification with a party go hand in hand in the voting explanation. Consequently, since party identification and the positive attitudes toward a leader evaluation influence each other, this may question the reliability of models if both factors are contextually taken into consideration. In other (and more empirically related) words, since the two factors can be highly correlated, this would introduce in the empirical analysis of voting behaviour a relevant problem of multicollinearity. In such situation, it would be difficult to understand which factor explain better individual voting decision. As we

Notwithstanding the debate in the behavioural literature that we have seen in the previous chapter concerning the relationship between attitudes toward leaders and towards parties, also behavioural scholars have rarely taken into consideration voters' biases and their possible conditioning effect on leadership evaluation's impact on voting. Moreover, even if hypothetically scholars had conditioned the effect of leaders' evaluation via partisanship, it would have been possible to evaluate the non-policy-related factor's shaping effect only when voters evaluate their preferred party. All in all, even in this case, there is a fundamental problem related to the number of parties included in the analysis. When more than two political formations are taken into consideration, as already seen in the previous subsection concerning voters' party preferences, the inclusion of leader effect suffers from serious problems.

Indeed, to adequately account for individual biases, a first requirement is to consider its conditioning effects: it is due to individual biases that voters differently perceive and evaluate specific factors when they have to evaluate their utility[27]. A second requirement (that we will see more in detail in the next section) is connected to the relative (and not absolute) nature of individual bias: voters perceive their bias toward or against a party only by comparing this latter with other political formations.

Because of the relevance of the topic, introducing voters' bias against or toward parties as a crucial conditioning factor for the impact of leaders on voting choices represents another innovation advanced by the model I will present in the next section.

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have more extensively seen in the previous chapter, the scholarship has advanced a number of empirical solutions in order to solve the 'hand-in-hand problem' of partisanship and leadership evaluation. Some scholars have accounted for this relationship by including in their models both variables and then controlling the multicollinearity of the models (Curtice & Holmberg, 2005; Holmberg & Oscarsson, 2011; Curtice & Lisi, 2015), while another group of researchers has adopted specific econometric solutions in order to exogenise one variable from the effect to the other (Garzia, 2014). Scholars following these different procedures come to different results, also concerning the question whether the exogenised variable, the leadership evaluation or the positive attitude with respect to a party, has an impact on the results of the empirical analysis.

[27] This is in line with the argument already put forward by Lachat (2015b) and discussed in the previous subsection: if the non-policy factor does not affect the way in which voters account for the most relevant choice dimensions (such as ideology or leadership evaluation), this would mean that such non-policy factor will not have a real biasing effect, while it will be only another source of utility.

Indeed, I expect that individual biases do not just condition voters' perceptions and evaluations of parties' policy platforms (as argued in the previous subsection). Since the evaluation of party leaders represents a second relevant dimension of individual voting choice, voters' evaluation will also be conditioned on this respect by pre-existing biases. Indeed, we know from the due to in-group/out-group (Tajfel, 1978; Tajfel & Turner, 1979) and assimilation/contrast biases (Sherif & Nebergall, 1961; Mussweiler, Rüter, & Epstude, 2004) each individual tends to exaggerate the differences between himself/herself and the perceived outgroup in light of the in-group-feelings.

Consequently, since the evaluation of policy platforms and of leadership represent the two principal dimensions of individual decisions, the conditioning effect of individual bias also holds concerning leadership evaluation. This means that pre-existent individual biases are expected to condition the evaluation of leadership and, consequently, that leadership evaluation cannot be considered as an additive factor that affects voter's utility independently from voters' biases.

After having accurately introduced two of the main points of the new model of voting behaviour I will present in this dissertation, it is time to pass to the presentation of the model itself. This task will be performed in the next section below.

2.2. The impact of individual bias

In front of the questions that have been still neglected by the literature, in this section, I will advance a new spatial model of voting that aims at encompassing non-policy factors in individual function of utility and, at the same time, avoiding the criticisms that have been underlined with respect to the models advanced until now.

Indeed, two aims of the model presented in this section are to connect the two classical strands of electoral research seen above (that is, the spatial model and behavioural scholarships) and insert into a spatial model such individual biases that have been widely neglected until now, even if social psychology's studies have shown that they profoundly affect the individual perception of reality.

Consequently, the model I am presenting aims at going beyond the assumptions of classical spatial models of voting, that is, the rational evaluation of voters' and parties'

ideological proximity. It does so by arguing that, to estimate the different amounts of utility a voter perceives by voting for different parties, it is fundamental considering his/her pre-existing biases toward or against the political formation under evaluation.

In particular, two main dimensions are especially subdued to voters' pre-existing biases: the distance utility function (that is, the impact of ideological proximity) and the leader effect (that is, the impact of leadership evaluation). How individual biases affect the perception of ideological proximity and leadership evaluation is at the core of the following pages.

2.2.1. Biasing effect on the distance utility function

As already pointed out, the primary factor at the base of the new model of voting behaviour I am advancing is voters' bias toward or against parties. Indeed, by departing from some contributions on spatial models (but considering the intrinsic relationship between policy and non-policy factor in a more consistent way), I argue that the bias toward or against a party is the crucial factor that conditions a voter's evaluation of the ideological proximity between him/her and all the parties he/she evaluates before deciding which formation to vote for.

Differently from all the spatial models advanced until now, in my model, there is the intuition that when voters evaluate the principal source of utility (that is, the principal dimensions of competition), they look at the differences among parties in a biased way. It follows that the dimensions of positional competition do not affect voters' utility independently from voters' bias toward or against parties[28]. Conversely, their effects are profoundly conditioned by the degree of bias that each voter has with respect to all the parties under evaluation. For these reasons, the model I will present in this section has been called the *Biased Voter Model.*

Indeed, as already shown in the previous section, when voters gather and process information, they are cognitively influenced by some biases (such as the perceptual bias and the assimilation-contrast bias) that lead them to rely on cognitive shortcuts before forming

[28] This will be further shown in the fifth and the sixth chapters, where I will present a novel model of party competition.

attitudes toward parties. It descends that the amount of utility-loss caused by a higher ideological distance between the voter and the parties under evaluation does not simply depends on the effective distance between the two locations, but it is also affected by voters' non-policy attitudes. Consequently, according to the logic behind the Biased Voter Model, the amount of voters' utility deriving from the distance-utility-component depends, at the same time, both on the strength of biases toward parties and also on the ideological (policy-related) distance between voters and parties.

What profoundly differentiates the Biased Voter Model from the existing spatial models that account for non-policy factors is that my model does not include party identification as non-policy factor in voters' utility function, but operationalises individual biases via a continuous and comparative factor. The Biased Voter Model has been built in this way for a number of reasons.

First, to adequately account for biasing factors, it is necessary to introduce a variable at disposal for all parties, which is able to estimate the differences between the inclinations of a voter with respect to all the parties he/she is taking into consideration, and not just for the party the voter identifies himself/herself with. By accounting for the different levels of inclinations toward all the parties competing in an election, it will be possible to order voters' preferences and derive a ranking of parties. From this ranking, then, it will be possible to estimate voters' amount of bias toward or against each party.

Moreover, the social and political psychology literature (among others, see Tajfel, 1978; Tajfel & Turner, 1979, 1986; Kelly, 1988; Sacchi, Carnaghi, Castellini, & Colombo, 2013) underlines that individual biases affect individual evaluation especially when out-groups are compared to the group of which the individual is member (in-group). Consequently, to adequately estimate the biasing effect in voters' utility function, the degree of voters' positive or negative inclination toward each party should be estimated in a comparative way. This means that the magnitude of a voter's bias against an out-group party should be estimated starting from the voter's evaluation of the other parties. Specifically, by following the psychological literature, the Biased Voter Model estimates the magnitude of individual bias against a party with respect to the voter's positive inclination towards the party he/she prefers.

The introduction of such comparative factor in the individual utility function is the first innovation put forward by Biased Voter Model. Indeed, for the first time, voters' biases

are crucial in the process of evaluation of the ideological proximity, that is, the distance utility component of voters' utility function. Moreover, by formalising the individual bias following a comparative perspective, the Biased Voter Model introduces in the spatial model scholarship one of the characteristics at the base of the intergroup-related biases that have been widely neglected by the larger electoral scholarship so far.

Formally, the distance-utility component of the Biased Voter Model is defined as follow:

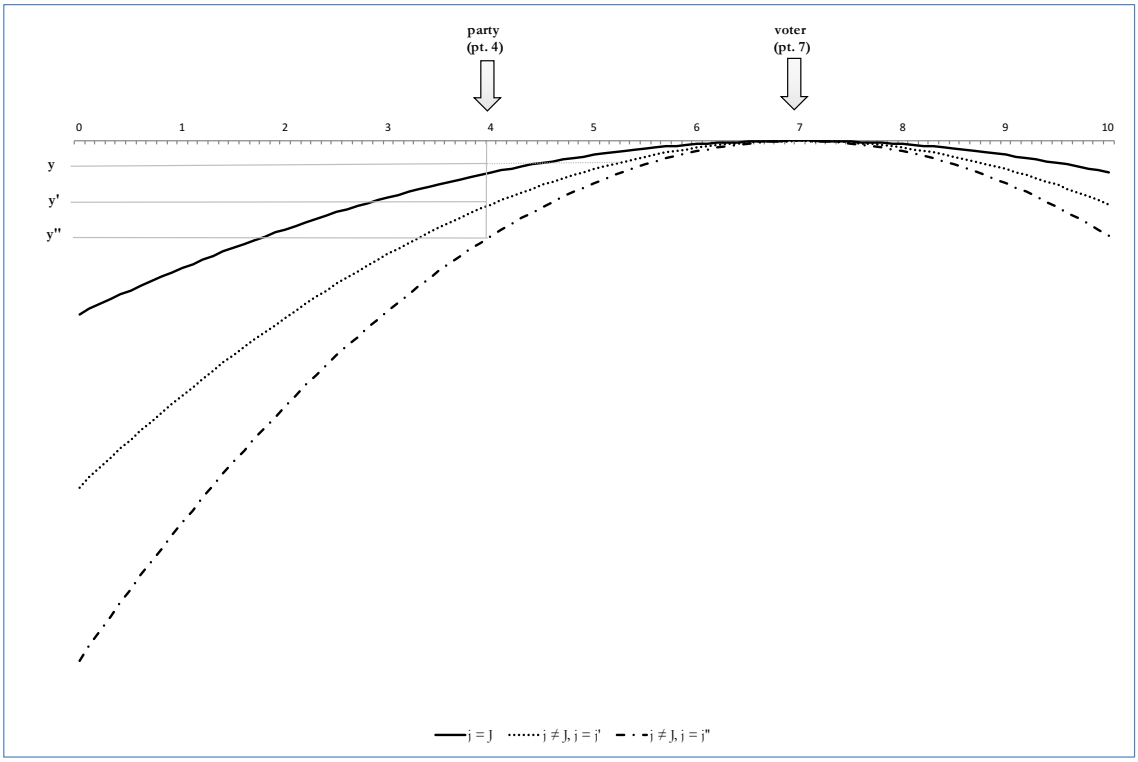
$$V_{ij} = -\gamma_1(v_i - p_j)^2 - \gamma_2(|B_{ij} - B_{iJ}|) - \beta_1(|B_{ij} - B_{iJ}|)(v_i - p_j)^2 \quad \text{(Eq. 2.1)}$$

where v_i and p_j represent, respectively, the positions of voter i and party j on the ideological dimension; B_{iJ} represents the strength of voter i's positive inclination with respect to J, that is, the party toward which the voter i is more positively biased, while B_{ij} stands for the strength of the positive inclination of the voter i with respect the party j under evaluation; $\gamma_1, \gamma_2, \beta_1$ are positive weighting parameters.[29] This means that the higher the absolute difference (the delta) between the positive evaluation of the J and j, the higher the negative impact of individual bias on the utility loss caused by the ideological distance between i and j. Indeed, by keeping constant the distance between i and j, the higher the difference of the positive inclination of the voter i with respect to party j compared to J, the higher will be the utility loss caused by the increasing of the distance between the party and the voter. On the contrary, if the voter i is biased *toward* j (that is, $j = J$) or if the magnitude of i's bias against j is smaller (that is, the difference between B_{iJ} and B_{ij} gets smaller), the Biased Voter Model expects that the distance-utility-loss faced by the voter i gets smaller and smaller.

[29] Despite the general norms according to which the expected effect of the variables is not represented in the formalisation of the utility function, I have decided to write the expected signs of the relationship of the variables to make the readability of the equation easier. The same will be done when the leadership-related component will be presented (in the following Subsection 2.2.2).

In other words, an increase in the delta $|B_{iJ} - B_{ij}|$ (that is, an increase in the magnitude of the bias of i *against* j) makes the voter i to increase the perception of his/her distance from the party j, while a reduction of the contrast-bias effect makes the voter i less reactive to an increase in the distance between himself/herself and the party j. Consequently, if we represent graphically i's utility-distance-loss curve, we observe that, if the voter is positively inclined toward a party, the curve will be less inclined, meaning that the utility loss for an increase in the distance will be perceived as less relevant when the individual bias against party j is smaller.

Figure 2.1 *Impact of individual bias on perception of ideological distance*



To better understand how, according to the Biased Voter Model, individual biases affect individuals' distance utility, let us consider the example presented in Figure 2.1, where a voter i is positioned at 7 on a 0-10 ideological scale, and a party j is positioned at 4. By taking constant the positioning of i and j, let the individual bias assume three values. So, three different distance utility-loss functions are defined: the distance utility loss function for voter i when $j = J$ (upper line), the distance utility loss for voter i when the delta between

his/her *positive* inclination toward J and j' is equal to x (middle dashed line), and the distance utility loss for voter i when the delta between his/her positive inclination toward J and j'' is equal to $(x + y)$ (lower interrupted line).

According to the Biased Voter Model, if i is biased toward j ($j = J$), to an increase in the distance between the voter i and j, he/she loses an amount of utility y smaller than the one (y') she would have gained if the party j had not been his/her preferred one, and the i's bias against j had been equal to x (that is, j=j' as represented by the middle dashed line). At the same time, if the absolute differences between the positive inclination toward voter i's preferred party J and the party j (that is, $|B_{ij} - B_{iJ}|$) had been $x + y$ (that is, j=j'' as shown by the lower interrupted line), the impact of the biases on the utility loss caused by the increasing distance between i and j would have been even bigger (y'').

Since in the simulation presented in Figure 2.1 the positional factors have been taken constant while only the degree of individual bias was varying, the difference between the amounts of utility that i would have obtained by voting for j and J is given only by those aforementioned individual biases. These biases affect voters' evaluations and perception of distance between his/her position and parties' locations. Figure 2.1 graphically shows that, in the Biased Voter Model (at least with respect to the distance utility function), individuals' biases are crucial: the amount of distance utility that a voter achieves by voting for a party strictly depends on the magnitude of his/her psychological bias toward or against such party.

Furthermore, the delta of utility that depends on $|B_{iJ} - B_{ij}|$ can also be seen, from another perspective, as i's tendency to perceive the party j as closer to him/her than it is in empirical reality, especially if j is voter i's preferred party. Indeed, we know that voters are inclined to perceive the distance between themselves and party j as less relevant when there is a strong positive inclination of voter i with respect to j (Tajfel & Turner, 1979; Merrill III et al., 2001; Drummond, 2011; Busch, 2016). Consequently, the Biased Voter Model advances the idea that, exactly because of the assimilation bias, i perceives a lower loss of distance-utility when the degree of his/her bias *against* j is lower.

This is made graphically intuitive by the example in Figure 2.1: by voting for j if $j = J$, i achieves the same amount of distance utility reached by the same voter voting for a party

$j = j'$, positioned closer to i's bliss point (that is, his/her position on the ideological dimension).

At the same time, to let i rationally vote for $j = j''$,[30] j should have been positioned much closer to i's position (see the dashed grey horizontal line in the graph).

After having seen the impact of individual bias on the distance-utility loss, we can safely conclude that first relevant innovation put forward by the Biased Voter Model is strictly connected to individual biases' role. Indeed, the Biased Voter Model introduces, for the first time, the idea that the perceived distance utility the voter i perceives by voting for all the parties competing for election strictly depends on i's individual biases with respect to each party.

This is also confirmed by Figure 2.2, which shows that the shape of the distance utility function can assume individually personalised slopes only in the case of the Biased Voter Model. Both the unified model of Adams, Grofman and Merrill III (2005) (Figure 2.2, upper graph) and Lachat's model (2015a) (Figure 2.2, lower graph) allow the individual distance-utility loss function to vary *only if* the voter identifies himself/herself with a party (i.e., when a party is the most preferred one). On the contrary, both models do not enable the distance utility loss to assume values and slopes depending on the magnitude of individual bias[31] and his/her order of preferences when the party is not the most preferred one.

Indeed, on the one hand, the model of Adams and colleagues allows the utility function of the voter to be vertically translated only in the case $j = J$ (upper graph of Figure 2.2). In such case, then, the positive inclination toward the preferred party represent a surplus of utility and works on individual perception as most of the valence advantages. On the other hand, in the case of Lachat's model, the voters' utility function may assume different slopes only in specific cases (lower graph in Figure 2.2), that is if the voter has a preferred party or not and whether the preferred party is the one under evaluation by the voter.

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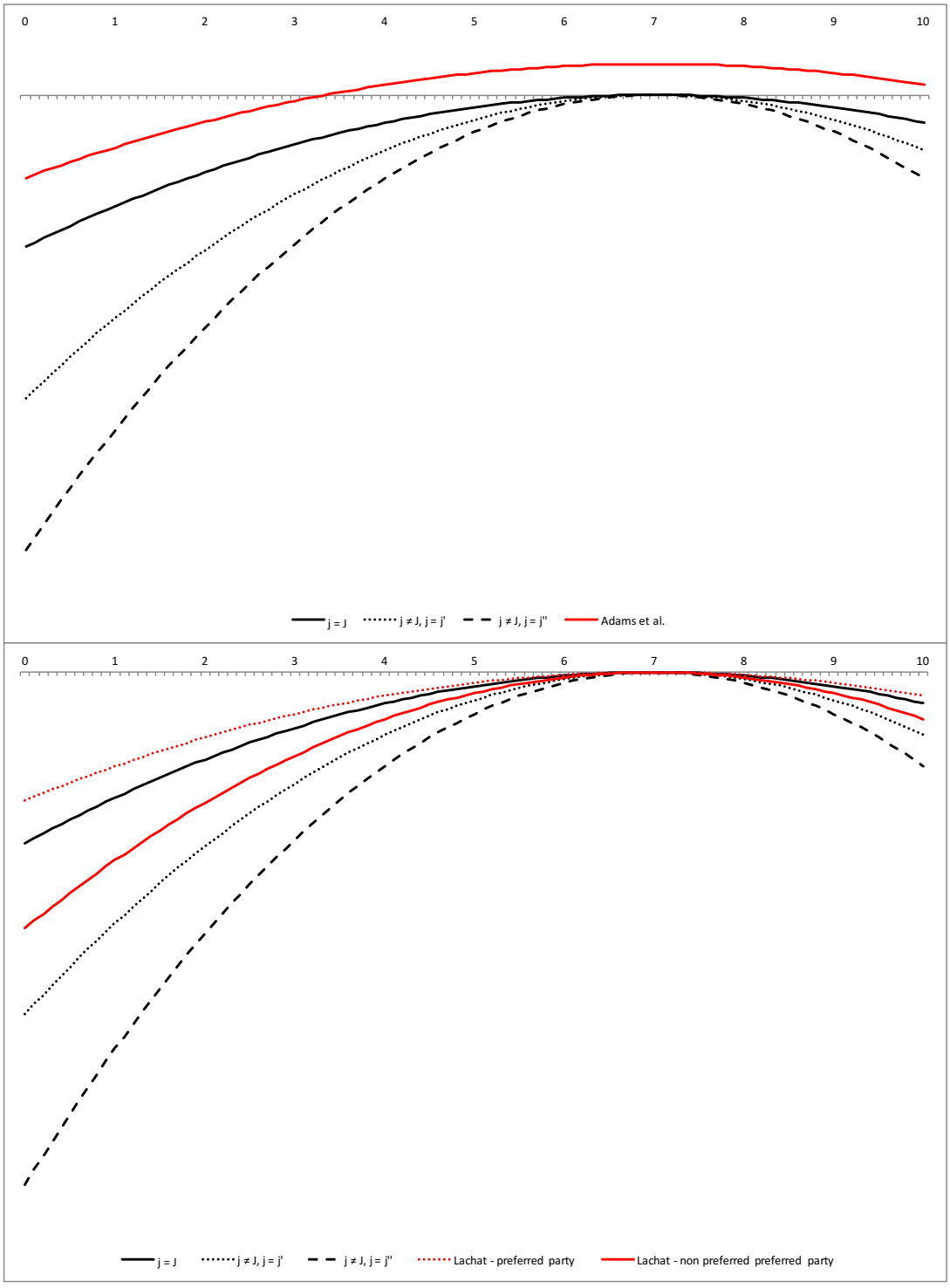
[30] That is, to achieve an amount of distance utility at least equal (that is, weakly preferred) to what he/she would have achieved if $j = J$.

[31] In the case of party identification, the magnitude of the individual bias could have been represented by the strength of individual identification respect to a party. This would have allowed to differentiate between voters that identify themselves with a party. Nevertheless, it would have been not possible differentiate between the utility loss derived by non-preferred parties.

Figure 2.2 *Individual biases effect compared (Adams at al. 2005; Lachat 2015)*



Differently from both models (that is Adams and colleagues' model and Lachat's one), the Biased Voter Model has introduced in the evaluation of ideological proximity a

continuous and comparative biasing factor that acquires *different* values according to the *magnitude* of individual biases against *each* party. The introduction of this personalised parameter is not merely a variation in the formal definition of a spatial model. On the contrary, it allows voters' biases to affect in several and different manners their perception of the distance between their own positioning and the location of the parties. Therefore, this allow to formally operationalise the role of cognitive bias in voting choice. In other words, we have moved from models arguing that the decisive factor was 'being biased or not' to a model in which the crucial factor is the 'magnitude of the bias'.

2.2.2. Biasing effect on leadership evaluation

As already seen, a second relevant source of utility for voters is party's leadership evaluation. Although this factor is increasingly taken into consideration in the spatial model and behavioural literatures (Groseclose, 2001; Costa Lobo & Curtice, 2015; Curtice & Lisi, 2015; Franchino & Zucchini, 2015; Lachat, 2015a), most of the studies have focused on the pure effect of leadership on the vote, trying to estimate the impact of the 'leadership-valence-component' dimension in the voters' choice.

On the contrary, to the best of my knowledge, leadership-related-utility has never been estimated in light of voters' cognitive biases toward or against leaders' parties. Indeed, until now, spatial models of voting have introduced either a leader's 'valence advantage' or a more general 'non-policy party-related factor' that add a certain amount of utility independently from the other variables affecting individual choice. Consequently, whether there is a conditioning effect of individual party-related bias on the impact of leadership evaluation is still a neglected issue for the spatial model literature.

At the same time, also the behavioural research on the personalisation of politics and voting behaviour has not investigated the role of individual bias. Indeed, it has mostly concerned in identifying, on the one hand, the relationship between partisanship and leadership evaluation (Mughan, 2009; Garzia, 2013a; Garzia & De Angelis, 2016) and, on the other hand, which factors, between the level of positive inclination towards a party and the evaluation of leaders, are more explanatorily powerful (Karvonen, 2010; Curtice & Lisi, 2015).

Consequently, whether the degree of individual biases really influences the impact of leadership evaluation on voting choice remains a neglected question. So, the Biased Voter Model introduces a second relevant innovation. For the first time, also leadership evaluation depends on voters' cognitive biases. Indeed, according to the model I am advancing, not only are voters biased in evaluating parties' policy proposals, but pre-existing positive inclinations towards specific parties also condition their evaluation of leadership. It descends that the impact of leadership evaluation on voters' utility is not fixed for all voters[32]. Indeed, according to the biased evaluation perspective, if voters are positively biased toward a party, they will tend to exaggerate the perceived utility that derives from the evaluation of the leader of such party. On the contrary, if voters are biased against a particular party, their negative bias will lead them to decrease the positive impact of the evaluation of the leader of this specific party.

Considering the impact of individual bias on the evaluation of leadership represents the second relevant element that distinguishes the Biased Voter Model from all the other existing ones. Indeed, consistently with the reasoning adopted in the case of the distance-utility function and the effect of in-group bias (Tajfel & Turner, 1979, 1986; Kelly, 1988; Sacchi et al., 2013), I expect that when voters' are biased against a specific party, the impact of a positive evaluation of this party's leader on voters' utilities is downsized by voters' pre-existing negative attitude toward this party.

Formally, the leader-utility component of the Biased Voter Model can be defined as follow:

$$A_{ij} = \gamma_3 l_j - \gamma_2(|B_{ij} - B_{iJ}|) - \beta_2(|B_{ij} - B_{iJ}|)l_j \qquad \text{(Eq. 2.2)}$$

where l_j represents i's evaluation of leader l of party j; B_{iJ} represents the strength of voter i's positive inclination with respect to party J, that is, the party toward which the voter i is more positively biased; B_{ij} stands for the strength of the positive inclination of

[32] Some scholars could also argue that this expectation should be empirically tested, since it is a matter of profound discussions among scholars. In the empirical analysis and in Appendix D, I will deal with this issue.

voter i with respect the party under evaluation j; γ_2, γ_3, β_2 are positive weighting parameters[33].

It follows that, in the Biased Voter Model, to a higher level of i's biases it corresponds a lower impact of the leadership evaluation. Indeed, only when $j = J$ [34], γ_3 would not be reduced by the impact of individual bias. On the contrary, if the voter i is biased *against* j (that is, $j \neq J$), the individual bias affects the impact of leadership evaluation, and its effect becomes stronger and stronger as the delta $|B_{iJ} - B_{ij}|$ increases as well. Conversely, if a voter i has a bias *against* a party, the positive effect of this party's leadership evaluation will be reduced by the negative perception of the party itself.

Let us consider Figure 2.3, where different utility functions of a voter are represented. In particular, the figure shows the additive impact of party j' leadership evaluation and the conditioning impact of bias against party j on the utility function of a voter located at 7 on the ideological continuum[35].

In this example, the additive advantage of having a highly evaluated leader has been diminished by the cognitive bias of the voter. Indeed, when $j = J$ (upper solid line), the voter has the greatest increment of utility that he/she can receive given a certain evaluation of a leader. On the other side, when the party under evaluation is not a preferred one (that is, when $j \neq J$), the additive impact of the positive evaluation of the leader appears to be downsized (lower dashed line).

The utility functions presented in the figure below underline the relevant impact of voters' cognitive tendencies. In particular, the comparative nature of individual bias toward or against parties (that is, $|B_{iJ} - B_{ij}|$) becomes decisive to understand the biased impact of

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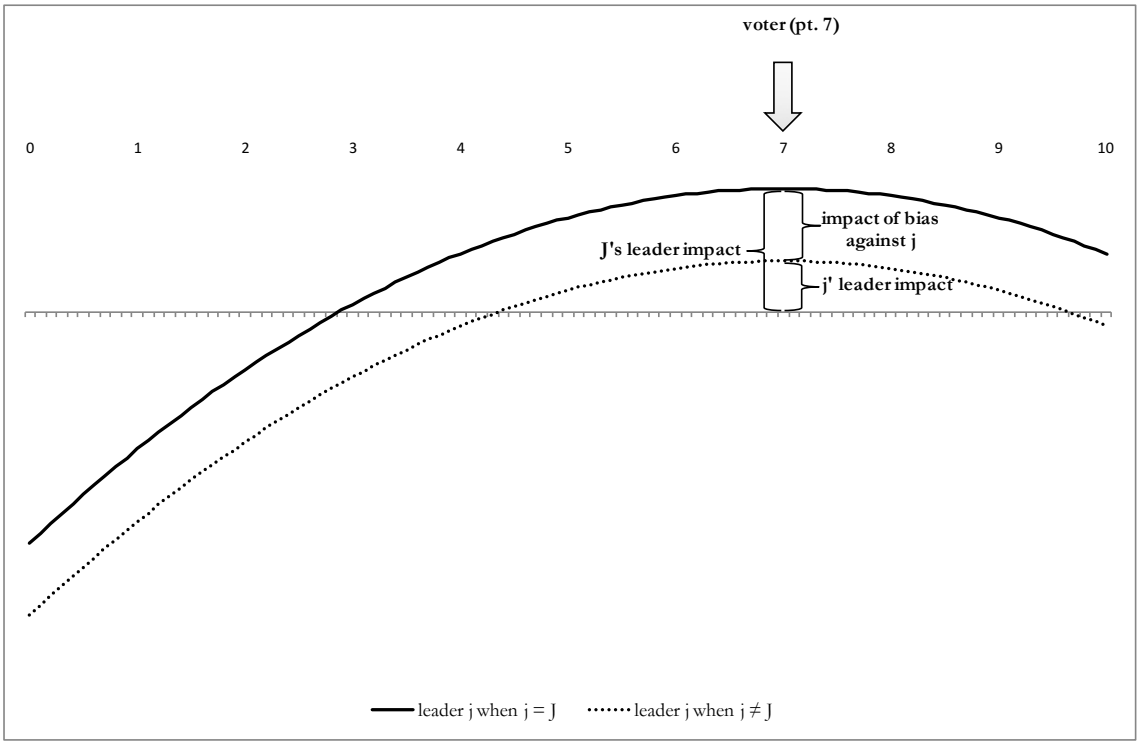
[33] In line with the function presented in the previous subsection, despite the general norms according to which the expected effect of the variables are not represented in the formalisation of the utility functions, I have decided to write the expected signs of the relationship of the variables to make the readability of the equation easier.

[34] In this case the absolute difference between the positive inclination of the voter i with respect to the party j and the positive inclination of i with respect to J is equal to 0.

[35] Since, in this casem we only evaluate the leader-related component, while the ideological distance is not considered, the slope of the utility function does not vary.

leadership evaluation. Indeed, according to the Biased Voter Model, to an increase in i's evaluation of j's leader, if i is biased against j ($j \neq J$), his/her additive amount of utility is smaller than the one he/she would have gained if the leader had been the leader of $j = J$, that is, the leader of his/her preferred party.

Figure 2.3 *Individual bias impact on leader evaluation*



This means that, in line with the impact of individual biases on the distance utility function that we have previously analysed, individual bias against parties plays a discounting role. Indeed, it reduces the importance of leadership evaluation according to the delta between the voter's positive inclination toward the party under evaluation and the voter's preferred party. This operationalisation substantially differs from the ones presented in the behavioural literature, where non-policy factors do not have any conditioning effect on the assessment of leadership, and where the impact of the evaluation of the party and the evaluation of the leadership are summed and merely increase voters' utility.

Indeed, in the behavioural literature, parties and leaders represent additive and parallel sources of utility (Aarts et al., 2011; Bittner, 2011; Costa Lobo & Curtice, 2015), while in the Biased Voter Model, the effect of party-related factors are instrumental to voters' evaluation of leaders. According to such perspective, and in line with the literature on spatial models of voting, voters' utility can be increased via a second 'valence' dimension: leadership evaluation. Nevertheless, it seems reasonable to expect that pre-existent and long-term biases, like voters' positive inclination toward or against parties, might influence the evaluation of such more-short-term dimension.

After having seen the impact of individual bias toward and against parties both on the evaluation of the ideological distance and the judgement of the leaders, and having compared the functioning of the Biased Voter Model vs. other spatial models, it is possible to finally derive the Biased Voter Model and present a number of hypotheses to be tested in the empirical analysis. This will be the aim of the following section.

2.3. The Biased Voter Model

The distance-utility and the leader-related components that have been presented in the previous section are the two main innovations introduced by the Biased Voter Model. Indeed, the introduction of individual cognitive bias in voters' utility function as a key element in the evaluation of the two principal dimensions of political competition (the ideological dimension and the leadership-related one) can strongly innovate the classical approach of spatial models of voting.

According to the Biased Voter Model, voters do not simply take into consideration 'pure' dimensions anymore. Conversely, they evaluate both policy proposals and leadership characteristics in light of their pre-existing biases toward or against parties. So, voters' utility functions are tailored to the preferences of every single individual: voters get different amounts of utility on the base of their biased representation of the political supply.

Indeed, from the Biased Voter Model viewpoint, each individual would estimate the amount of utility deriving from the dimension under evaluation from different perspectives. What matters is not just how much a voter positively evaluates a leader or how much he/she is close to the ideological location of a party. All these elements are shaped by a pre-existing

individual bias, that conditions the saliency that each voter assigns to the dimensions under consideration.

After having presented and discussed the two main components of the Biased Voter Model, it is now possible to present the overall model[36], formally defined as follows:

$$U_{ij} = A_{ij} + V_{ij} \qquad \text{(Eq. 2.3)}$$

that is,

$$U_{ij} = -\gamma_1\left(v_i - p_j\right)^2 + \gamma_3 l_j - \gamma_2\left(|B_{ij} - B_{iJ}|\right) - \beta_1\left(|B_{ij} - B_{iJ}|\right)\left(v_i - p_j\right)^2 - \beta_2\left(|B_{ij} - B_{iJ}|\right)l_j + Xt_i + \varepsilon_{ij} \qquad \text{(Eq. 2.4)}$$

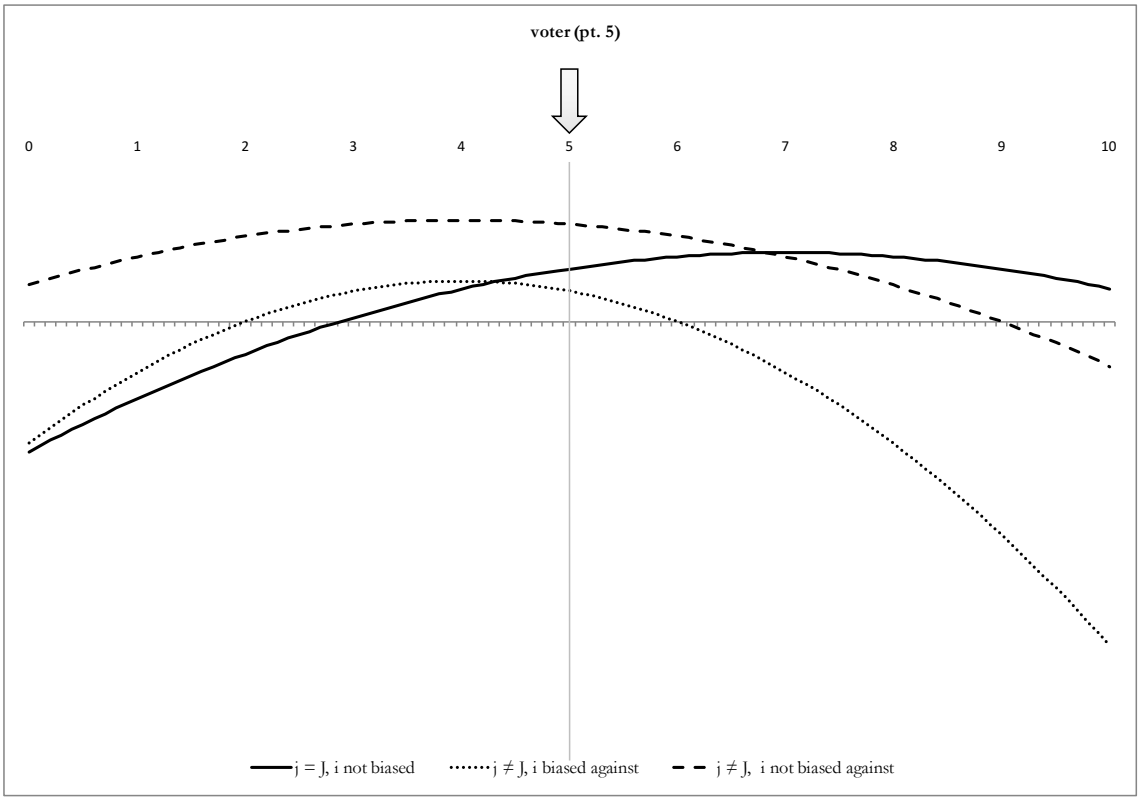
where v_i and p_j are the positions of voter i and party j on the ideological dimension; B_{iJ} is i's positive inclination with respect to J, that is, the party that i prefers the most; B_{ij} represents the positive inclination of the voter i with respect to party j; $l_j$is i's evaluation of leader j; $\gamma_1, \gamma_2, \gamma_3, \beta_1, \beta_2$ are positive weighting parameters – their positive or negative expected impact is specified by their signs; X is a vector of individual sociographical characteristics; ε_{ij} is the random error term (given the model is a probabilistic one).

The encompassing consideration of both the biased distance component and the biased leader evaluation component allows to model voters' decision processes by making three dimensions vary (this is graphically represented in Figure 2.4): the distance between each elector's location and each party's positioning; the slope of each voter's utility function;

[36] Following the work of Adams, Grofman and Merrill III (2005), I have decided to specify a probabilistic model of voting and not just a deterministic one. This means that 'the voter's choice is indeterminate from measured policy components alone so that this choice is probabilistic from the candidates' (and the analyst's) perspectives.' (Adams, Grofman and Merrill III 2005: 22). For a more detailed justification and a longer discussion on this point, see Section 3.3.

the maximum amount of benefit that a voter could reach by voting for a specific party which is given by the biased evaluation of this party's leader.

Figure 2.4 *The Biased Voter Model*



Indeed, as we have already seen, the amount of utility that a voter would get by casting the ballot in favour of a specific party not only depends on his/her actual preferences for leaders and on parties' ideological stances, but also (this is a crucial point from the Biased Voter Model viewpoint) on the *magnitude* of his/her *biases against* such party. To better understand how the Biased Voter Model works, let us consider Figure 2.4: here, three different curves of utility are examined. The solid line represents the curve of utility of voter i for party J (that is, i's preferred party) when the party is positioned at 7, while the dashed line stands for the utility function of voter i for another party j positioned at 4, and the interrupted line represents the utility of voter i for party j (positioned at 4) if he/she were not biased against j and toward J.

As we can see from Figure 2.4, since i is located at 5, party j is located much closer to i with respect to J on the ideological dimension. Consequently, according to the classical proximity model, if the voter i had considered only the ideological dimension and had been not biased towards any party, i should have voted for party j instead of party J.

Moreover, in the example presented in Figure 2.4, voter i prefers j's leader to J's one: according to the figure, on a 1-10 scale, i assigns a positive evaluation equal to 6 to J's leader and a positive evaluation equal to 8 to j's leader. This means that either if the leadership evaluation had been the only parameter taken into consideration by i, or if the assessment of the leader were not biased by i's previous attitudes, i should have voted for j instead of J.

Consequently, if voter i had not been biased in favour of J and against j, since the amount of utility for voter i provided by j (interrupted line) is higher from the one provided by J (continuous line), i should have been more inclined to vote for j with respect to J.

Nevertheless, Figure 2.4 also tells us that voter i has a strong bias toward party J. This makes i more inclined to perceive in a biased way both the distance between his/her position and party j's one and also the surplus of utility that derives from his/her preferences on party leadership. More specifically, i's biases are graphically evident by looking at the differences between the amounts of utility provided by j when i is biased against j (dashed line) and when the voter is not biased (the interrupted line).

Indeed, when voter i estimates the distance-utility he/she would obtain by voting for j, he/she perceives a benefit that is very different from the one presented by the interrupted line: because of the cognitive bias toward party J, i faces a decrease of utility which is proportionally much more relevant for party j than for party J when the distance between him/her and the party increases[37].

Moreover, as we have seen in the previous section, in the Biased Voter Model, also the amount of utility deriving from leadership evaluation strictly depends on the individual bias. Indeed, we can see in Figure 2.4, even if i prefers j's leader to J's one, the amount of benefit provided by J's leader evaluation is greater than the one provided by j's leader. The

[37] Moreover, this holds also even if j is located closer to i with respect to J.

impact of i's bias against j has made i unable to rationally perceive the same surplus of utility deriving from the leadership evaluation he/she would have received if he/she had not been biased: on the contrary, he/she has downsized the amount of this component of utility.

Summarising, the impact of i's bias toward his/her preferred party (J) conditions i's perception of utility deriving both from the leadership evaluation and the ideological proximity. More specifically, the Biased Voter Model argues that individual cognitive bias is so important that, if a voter has a bias toward a party, he/she could perceive (depending on the magnitude of the bias) a higher amount of utility by voting for such party instead of all the other ones, even if he/she strictly prefers both the leader and the ideological positioning of other parties. Consequently, the positive impact, on each individual utility, of a higher leader evaluation and a lower ideological distance are strongly shaped by the amount of each individual's bias against a party.

So far, I have presented the intuitions behind the Biased Voter Model, the important innovations that such model advances in the spatial model scholarship, and the formalisation of both components (ideological distance, and leadership evaluation) and also the overall model. By making a step forward, from the model I have presented in the previous pages, it is also possible to derive a number of hypotheses that I will test in the empirical analysis of Chapter 3. If the empirical analysis confirms these hypotheses, it will consequently validate the Biased Voter Model.

2.4. Hypotheses

Passing to the hypotheses that can be derived from the Biased Voter Model, the first two expectations are strictly connected to the literature on voting behaviour, and, in particular, to the scholarship of spatial models and to the behavioural research on the impact of leadership (H 2.1 and H 2.2).

The second set of hypotheses (from H 2.3 to H 2.7) concerns the first significant innovation put forward by the Biased Voter Model: the role of individual biases. More into detail, these latter hypotheses are related to the direct impact of individual bias on voting choice, to its conditioning effect on the perception of policy proximity, and to its

conditioning effect on the impact of leadership evaluation[38]. Finally, Section 2.5 will present two final hypotheses (H 2.8 and H 2.9) concerning the possible impact of the personalisation of politics within

2.4.1. The impact of ideological distance and leadership

Starting from the ideological dimension, the Biased Voter Model shares the idea of voters' proximity reasoning with the pioneering research put forward by Downs (1957a) and most of the spatial models advanced by scholars in the last decades[39]. This means that, differently from all the models based on the directional assumption (Matthews, 1979; Rabinowitz & MacDonald, 1989; Macdonald, Rabinowitz, & Listhaug, 1998; Merrill III & Grofman, 2000), I expect that, in the calculus of utility, voters do not take into consideration whether the party is located on the left-side or the right-side of the continuum with respect to their own location and, consequently, do not take into account the directional strength of parties proposals as a determinant of individual utility.

As a consequence, due to their Euclidean structure of preferences, when voters estimate the amount of utility they would get by voting a party, they consider only the distance between their own positions and the location of the different parties under examination.

Consequently, by defining the ideological function of utility in a quadratic manner, I expect that:

[38] Before going into detail with the presentation of the hypotheses, a further specification is needed. First of all, in line with the studies on spatial models, in this study, I assume that voters will support the party that provides them with the higher amount of utility. In other words, a voter will more likely vote for the party that provides him/her with the higher amount utility. Moreover, since the model I have formalised is a probabilistic one, in the presentation of the hypotheses, I will deal with the positive or negative relationship between the factors included in the model and the probability for a voter to vote for a party: the more a factor increases the utility provided by a party for a voter, the higher the probability that such voter will vote for such party.

[39] Among others see Adams, 1999; Ansolabehere and Snyder, 2000; Groseclose, 2001a; Merrill, Grofman and Adams, 2001; Adams, Merrill III and Grofman, 2005.

H 2.1. The higher the Euclidean distance between the voter i *and the party* j*, the lower the probability that* i *vote for* j*.*

According to the formalisation of the biased spatial model presented in the previous section, this means that the pure effect of an increase in $(v_i - p_j)^2$ is negative, both when the impact of individual bias is considered and when it is not taken into account. In other words, the sign of γ_1 is expected to be negative, as specified by the sign of the weighting parameter introduced in the formalisation (see Equation 2.1).

In addition to this first hypothesis, a second expectation that has been already tested in the literature concerns the effect of party leaders' evaluation. Indeed, the Biased Voter Model expects a positive impact of the leader assessment on the probability to vote for such leader's party [40]. It follows that, independently from the conditioning influence of individual bias, the additive nature of leadership evaluation *per se* has a positive impact on voters' utility. Consequently, we can hypothesise that

H 2.2. The higher the evaluation of party j*'s leader, the higher the probability that* i *vote for* j*.*

According to the formalisation of the biased spatial model, this means that the pure effect of l_j is positive, both when the impact of individual bias is considered and when it is not taken into account: the direction of the impact of γ_2 should be positive, as specified by the sign of the weighting parameter introduced in the formalisation (on this respect, see Equation 2.2).

2.4.2. Bias-related hypotheses

If the two hypotheses advanced in the previous subsection are common to many works in the electoral behaviour scholarship, the structure of the Biased Voter Model allows

[40] This is in line with most spatial models of voting that account for leadership evaluation (Lachat, 2015b) and with the expectations of the behavioural literature on voting behaviour (Costa Lobo, 2008; Garzia, 2014; Bellucci et al., 2015; Costa & Ferreira da Silva, 2015; Faucher, 2015).

to advance a number of hypotheses, which are particularly innovative for the scholarship of spatial models and are strictly connected with the impact of individual biases on voting behaviour.

In particular, the first expectation connected to the role of individual bias concerns its direct impact on the probability to vote for a party. The nature of this third hypothesis makes evident (again) the substantial differences existing between the Biased Voter Model and all the other spatial models that have already accounted for non-policy factors.

Indeed, as seen in the first chapter, the existing spatial models considering non-policy factors have only analysed unidirectional and positive factors, and in particular partisanship (Adams, 2001; Adams et al., 2005; Lachat, 2015a). Differently, the Biased Voter Model has operationalised the individual biases in a novel relative and continuous way.

Indeed, in line with the psychological literature on intergroup relationship (among others, see Sherif & Nebergall, 1961; Tajfel & Turner, 1979; Drummond, 2011), I have operationalised voters' bias by comparing the degree of voters' positive inclination toward the party under evaluation respect their positive inclination toward the preferred parties. By defining the individual bias as the results of a comparative reasoning, it has been possible to innovate, both theoretically and formally, the conceptualisation of voters' bias; to substantially transform the role played by individual pre-existing preferences; to introduce a non-policy conditioning factor that influences voters' evaluation with respect to all parties competing for elections.

By formally defining the individual bias as $|B_{ij} - B_{iJ}|$, the Biased Voter Model assumes that what really matters in the reasoning of voters (and in their utility estimation) is the magnitude of their cognitive bias toward parties. Indeed, it is exactly the magnitude of this individual bias that makes (more or less positive) leader's evaluation or a (bigger or smaller) ideological distance more or less crucial in the calculus of utility.

Moreover, since the baseline of evaluation in the conceptualisation of voters' bias is represented by voters' preferred party, it follows that the higher the individual bias, the lower the positive inclination of such voter with respect to the party under evaluation. From this reasoning, it also descends that the *more relevant* the gap between the positive inclination toward j and J, the higher the magnitude of the bias *against* j.

Consequently, if the amount of bias *against* a party increases, the probability that a voter will cast his/her ballot in favour of such party will decrease. In other words:

H 2.3. The higher the magnitude of i*'s bias against party* j*, the lower the probability that* i *votes for* j*.*

We have already seen that, according to the formalisation of the Biased Voter Model, the pure effect of $|B_{ij} - B_{ij}|$ is negative, and that, to a higher amount of i's bias, it corresponds a decreasing amount of utility. Consequently, we can expect γ_2 to be negative, as specified by the sign of the weighting parameter introduced in the formalisation.

In addition to the direct effect of individual bias on the amount of personal utility, at the core of the Biased Voter Model, there is the belief that the individual cognitive bias has a significant conditional effect on the impact of the other determinants of individual utility. Indeed, the first theoretical innovation put forward by the Biased Voter Model is the following: in the evaluation of the political supply, voters are profoundly conditioned by a cognitive bias that shapes their utility function.

The first conditioning effect of individual bias is the distortion of the distance-utility-loss estimation. Indeed, as already seen in the previous section, the presence of cognitive bias conditions the rational evaluation of the ideological distance between the voters themselves and the parties that compose the political supply. Specifically, when the magnitude of the individual bias against a party increases, the Biased Voter Model expects that the amount of utility loss deriving from the ideological distance between the voter and the party increases more than proportionally. This is graphically represented by Figure 2.1, that shows how, to higher biases, it corresponds a more pendant negative slope of the utility function: this means that if two parties are equally distant from voter i, the one towards which the voter i has the *greater* bias will provide him/her with a *higher* amount of distance-utility-loss. From this reasoning, it descends that to a *higher* bias, it corresponds a *lower* amount of utility due to the different impact of the distance-utility-loss. Therefore, to a greater amount of bias against a party j it corresponds a lower probability of voting for such party. Formally:

H 2.4. The higher the magnitude of i's bias against party j and the higher the Euclidean ideological distance between i and j, the lower the probability that i vote for j.

There is a second expectation that descends from the conditioning impact of individual bias on the distance between a voter and a party. Indeed, in addition to a lower probability to vote for a party when the distance between this party and the amount of a voter's bias against such party increases, we could also derive a second hypothesis. More specifically, we could expect that the negative impact of a small increase of the distance between a voter and a party is not equal when the voter's bias against such party is small or when it is particularly relevant.

In particular, if a voter is not profoundly biased against a party, whether a party is a little more ideologically distant from the voter might have a decisive role in voter's evaluation of the electoral alternatives. On the other hand, when a single voter profoundly holds in disfavour a party, even if such party is located less distant to the voter does not make a great difference in the overall utility of the voter. Indeed, in such case, due to the individual bias, even a small distance between the voter and the party would cause an enormous distance utility loss, making the overall utility of the party less attractive for the voter. As a consequence, in this latter case, an increase in the ideological distance would not have a significant effect on the probability for the voters to cast the ballot in favour of such party. More formally:

H 2.4b. The higher the magnitude of i's bias against party j, the lower the impact of Euclidean ideological distance on the probability that i vote for j.

The second general conditioning impact of individual bias expected by the Biased Voter Model is connected to leadership evaluation. In particular, as we have seen in Figure 2.3, if a voter has a bias against a party j, the magnitude of the additive impact of the leadership on voters' evaluation cannot be compared to the impact of leadership effect when the political formation under evaluation is the preferred one.

Indeed, by recurring again to the intergroup theory (Tajfel & Turner, 1979; Drummond, 2011), voters tend to discount the difference between those who are within the

same group by paying less attention to the negative traits of group members. On the contrary, they tend to exaggerate the negative traits of those individuals who are categorised as the outgroup by perceiving them as particularly different from the voter himself/herself. Consequently, we expect that also individual assessment of the leaders can be affected by party-related bias. This means that possible negative traits of i's preferred party's leaders will be discounted by i himself/herself in his/her calculus of utility. Moreover, at the same time, i will be more inclined to find negative traits for the leaders of parties he/she is biased against.

This naturally conditions the amount of utility perceived by a voter when he/she evaluates different parties and leaders (see the discussion of Figure 2.3 above). From all this reasoning, the Biased Voter Model expects that, despite the degree of a positive evaluation of a leader, when a voter is more biased against a party, the positive impact of leadership evaluation on voter i's overall utility will be lower. Consequently:

H 2.5. The higher the magnitude of i's bias against party j, the lower the positive impact of leadership evaluation of the probability that i votes for j.

This last expectation represents one of the most important challenges that the Biased Voter Model moves to the existing literature on the topic. Indeed, it introduces in the spatial model scholarship the idea that leadership does not exclusively represent an advantage for a party, but, conversely, is also another dimension that voters (with their own cognitive biases) take into consideration. Moreover, this formalisation, following the classical studies on electoral behaviour, introduces the idea that the positive inclination of voters towards parties is not an additive factor that necessarily goes hand-in-hand with leadership evaluation. Conversely, biases toward and against parties are crucial factors in the definition of individual utility, also concerning the leadership-related-component.

2.5. The role of the personalisation of politics

The definition of the Biased Voter Model and the hypotheses presented in the previous section have allowed to present a formal model that finally introduces the role played by pre-existing voters' biases in the spatial model scholarship. At this point of the discussion, there is a further element that this research aims at putting forward into a spatial model: the personalisation of politics.

Indeed, despite the fact that the personalisation of politics has become a more and more central element in the electoral scholarship, its operationalisation has prevented to understand the profound impact that it might have on individual voting choices. Indeed, electoral scholars have mostly operationalised the personalisation of politics through a more restrict concept: the impact of leadership-related-variables on voting behaviour[41].

The problem with this operationalisation is that the personalisation of politics is a compound phenomenon, that has been connected by many scholars to a number of transformations within Western politics. In particular, the personalisation of politics has been connected to changes in the mediatisation of politics (Butler & Ranney, 1992; Farrell, 1996; Mughan, 2000; Bucy & Grabe, 2007; Kriesi, 2012), the transformations of party organisations, where leaders have been acquiring a higher relevance (Rahat & Sheafer, 2003; Poguntke & Webb, 2005; Blondel & Thiébault, 2010; Balmas, Rahat, Sheafer, & Shenhav, 2014; Musella, 2015), the increase in the leadership's decisiveness for the governmental and parliamentarian careers (Dowding & Dumont, 2015; Marino & Martocchia Diodati, 2017; Martocchia Diodati & Verzichelli, 2017), and so forth. Much has been said on the increasing personalisation of the several faces of politics (see a discussion in Marino, Martocchia Diodati, & Verzichelli, 2017), and the profound debate among scholars on such topic goes far beyond the scope of this research.

41 This reasoning can be applied also to the so-called 'presidentialisation hypothesis'. According to this latter hypothesis, the impact of leadership is getting relevant in parlamentary system to such an extent that leaders' role in parliamentary system can be compared to the one in presidential ones. To empirically test such hypothesis (Curtice & Holmberg, 2005; Barisione, 2009a; Karvonen, 2010), scholars have often compared the magnitude of the impact of leaders' and parties' evaluations on voting decisions.

What matters here is that, despite the increasing attention to the role played by party leaders, the personalisation of politics in the electoral arena has been mostly overlapped with a different and more restricted concept: the relevance of leadership in voting behaviour. Indeed, most of the times, an election is considered as more personalised if the impact of the leadership on individual voting behaviour is shown to be higher. Nevertheless, by allowing these two concepts to overlap (the personalisation of politics and the relevance of leaders in individuals' voting behaviour), we cannot estimate the real effect of the personalisation of politics, since we do operationalise the concept into an indicator whose indicating portion cannot be considered as sufficiently large.

According to this reasoning, the relevance of leadership impact in individual voting behaviour can be understood as one of the consequences of a *more general* increase in the personalisation of politics during general elections. Indeed, when voters evaluate different leaders and estimate the impact of these latter on their utilities, such evaluation is conditioned not only by voters' biases, but also by all those elements that affect the degree of personalisation of general elections.

Among these elements, we can surely include the presence of the leaders in the media, the degree of mediatisation of the political campaigns, the (different) personalization of the different political parties, the role of the incumbent Prime Minister during elections, the salience of issue-related debates and leader-related debates during the campaign, and the like. All these factors represent only single aspects and features of the more general concept of the personalisation of politics, and affect the way in which voters take into account the evaluation of leadership in their calculus of utilities.

So, considering the personalisation of politics from a more general point of view might be a crucial way to detect the real impact of such phenomenon in voters' electoral choices. Indeed, voting is the ultimate decision that a voter makes during an electoral campaign, at least from the point of view of the first part of this research. It follows that, to comprehensively and reliably understand whether the personalisation of politics has an impact on the individual voting decisions, we should take into consideration all the factors happening before the voting choice and that makes the electoral campaign and the election more or less personalised.

Indeed, we can expect that when a general election (and the related electoral campaign) are more personalised (meaning, the leaders is more present of the media, leader-

related issues are relevant, and the like), voters will be more inclined to give more salience to leaders' evaluation in their utility.

This is a novel way to approach the personalisation of politics' impact on voting behaviour. If it has been shown the existence of a connection between a number of institutional or long-term factors and the impact of leadership effect (Bittner, 2011; Lachat, 2015b), whether a more personalised general election has an effect on the capacity of leaders to affect individual voting decision remains a neglected issue.

The introduction of such element in the analysis of individual vote would allow not only to better refine existing research on the conditioning factors of leadership effect [42], but it would also allow to make a step forward in the comprehension of the leader effect, an issue at the centre of a relevant debate that has not reached a consensus yet (Garzia, 2014; Bellucci, Garzia, & Lewis-Beck, 2015; Curtice & Lisi, 2015). By following this reasoning, we can refine the Biased Voter Model by introducing in the calculus of individual utility also the conditioning effect of the personalisation of general elections. From this introduction, a

[42] This point requires a longer explanation. As we have seen, some studies (Curtice & Blais, 2001; Bittner, 2011; Curtice & Lisi, 2015; Lachat, 2015a) have tested the conditioning impact of a number of factors on the effect of leadership evaluation. In particular, it has been shown that the institutional structure of a democracy (that is, the fact that it is a parliamentarian or a presidential one) and the electoral law (usually, plurality vs. proportional) have a conditioning effect on the impact of leadership evaluation in the vote. In particular, if there is a presidential election and if there is a disproportional electoral law, the impact of leadership evaluation will be high. Moreover, it has also been shown there is an impact of a number of individual long-term factors. For instance, a higher individual sophistication does not decrease the influence of leadership on voting behaviour. Nevertheless, the personalisation of a general election (a short-term variable) can strongly affect the interpretation of long-term factors effect on leadership evaluation's impact. Indeed, in line with the classical funnel of causality reasoning, short-term factors affect the impact of long-term conditioning factors. Indeed, if it is possible that the effect of the institutional setting or the individual sophistication matter more or less because of different levels of personalisation of a general election, it is not possible that long-term factors (again, the individual level of sophistication) affect the level of personalisation of a general election. It follows that the conditional impact of long-term and institutional factors can be mediated (Imai, Keele, & Tingley, 2010; Imai, Keele, Tingley, & Yamamoto, 2011) by the personalisation of a given election, and this could reveal that the empirical findings about the conditioning effect of long term factors on leadership's impact in voting behaviour could be spurious.

more detailed spatial model of voting can be derived: the Personalised Biased Voter Model. Formally:

$$U_{ijE} = -\gamma_1\left(v_i - p_j\right)^2 - \gamma_2\left(|B_{ij} - B_{iJ}|\right) + \gamma_3 l_j + \gamma_4 P_E - \beta_1\left(|B_{ij} - B_{iJ}|\right)\left(v_i - p_j\right)^2 - \beta_2\left(|B_{ij} - B_{iJ}|\right)l_j + \beta_3 P_E l_j + \beta_4 P_E\left(|B_{ij} - B_{iJ}|\right)l_j + Xt_i + \varepsilon_{ij} \quad \text{(Eq. 2.5)}$$

where, in addition to the already seen parameters of the Biased Voter Model (see Equation 2.4), P_E is the degree of personalisation of politics at a given election, and β_3 and γ_4 are two positive weighting parameters – their positive or negative expected impact is specified by the specified signs.

By analysing this model, we notice that the personalisation of politics has an influence not only on the direct impact of leadership evaluation on the individual utility, but also on the conditioning influence of personal bias on leadership evaluation[43].

According to this model, the personalisation of general elections plays a double role. First of all, it boosts the effect of leadership evaluation: indeed, when an electoral campaign is more personalised, voters should pay more attention to leadership evaluation, since all the electoral campaign has been highly personalised, and the salience of the leadership has strongly increased. This obviously does not mean that when the general elections are not 'much' personalised the role played by the leadership is not relevant *at all* in voters' calculus of utilities. Nevertheless, in line with the saliency theory[44], the personalised Biased Voter Model expects that the more the personalisation becomes salient during an election, the more the electorate will be shaped by the leaders, and the more the leaders will become decisive in voting behaviour. In other words:

[43] This twofold conditioning effect is not only a theoretical expectation, but it is also a requirement of the model. Indeed, if the personalisation of politics affects the impact of leadership evaluation, it affects all the components of the equation in which the leadership evaluation is included (Brambor et al., 2006).

[44] According to salience theory, the more an issue becomes salient during an electoral campaign, the more that issue get relevant in the individual vote in favour (or contra) a party (among others see Bélanger & Meguid, 2008; Wagner & Meyer, 2014).

H 2.6. The higher the personalisation of the general elections, the greater the effect of leadership evaluation on voting choice.

This means that the impact of l_j increases to higher values of P_E. It also follows that β_3 should be positive, as specified by the sign of the weighting parameter introduced in the formalisation, and that, when the personalisation of general elections is higher, better evaluating a leader has a higher salience in the overall utility.

Moreover, a second hypothesis that can be derived from the personalised Biased Voter Model concerns the impact of the personalisation of politics on the conditioning effect that the individual bias has on the impact of leader's evaluation[45]. Indeed, I also expect that when general elections are highly personalised, the conditioning role of voters' biases on the impact of leadership decreases.

More into detail, the role of leadership evaluation is affected by the degree of saliency of the personalisation of politics during elections. Given the boosting impact of personalisation of general elections on the role of leadership evaluation, it is reasonable to expect that pre-existing cognitive biases should decrease their braking effect when the level of personalisation increases. In other words, when leadership becomes more salient during an electoral campaign, the shaping role played by individual biases loses part of its relevance and allow voters to be more influenced in their calculus of utility by the evaluation of the leadership, which appears to less dependent by the variation of individual biases. More formally:

H 2.7. The higher the personalisation of the general election, the lower the conditional impact of the voter i's bias against party j on the impact of leadership evaluation on the probability that i vote for j.

This means that the negative impact of $\left(|B_{ij} - B_{ij}|\right)l_j$ on i's utility decreases to higher values of P_E. It follows that β_4 should be positive, as specified by the sign of the

[45] It would have been quite unintuitive and formally incorrect (Brambor et al., 2006) considering the effect of personalisation of politics only focusing on the impact of leadership evaluation.

weighting parameter introduced in the formalisation, and that when the personalisation of general elections is higher, the negative impact of the conditioning effect of individual bias decreases.

Conclusions

This chapter represents the first innovation that this research aims at advancing. Indeed, re-defining individual voters' utility function and introducing individual cognitive biases in their voting reasoning represent the preconditioning and necessary steps for advancing new models of party competition – especially from a game theory perspective (that will be developed in the second part of this dissertation).

In this chapter, I have introduced a number of novelties in the spatial model scholarship, and in particular in recent spatial models accounting for non-policy factors. Indeed, after having discussed the weaknesses of the model advanced by the literature and having justified the need for a new model of voting able to account also for individual biases, I have advanced a new spatial model (called the Biased Voter Model) that accounts for individual bias toward or against all the parties competing in a given election and not just in favour of the political formation voters identify themselves with.

Specifically, according to the Biased Voter Model, each voter is conditioned in the perception of utility deriving both from the ideological proximity and from party leaderships' evaluation by the impact of cognitive bias, represented by the differences of the positive inclinations with respect to the party under observation and voter's preferred party.

The introduction of such factor in voters' utility function allows the Biased Voter Model to introduce a new conceptualisation of individuals' evaluation of the sources of utility. Indeed, according to the spatial models presented in the literature, all non-preferred parties are evaluated by voters in the same way. On the contrary, the Biased Voter Model has drastically changed the interpretation of voters' utility estimation. More into detail, the evaluation of each relevant dimension of voters' utility is strongly conditioned by pre-existent voters' party-related bias. It seems that voters wear unbalanced glasses, that increase the relevance of negative elements when voters have evaluated parties they are biased against. When the level of voters' bias against a party increases, consequently, they will perceive a higher utility loss as the party get farer and a lower benefit from a higher leader evaluation.

An exactly specular voters' perception happens when voters evaluate parties towards which they are positively biased.

Not only does the Biased Voter Model finally introduce in a voter's utility function an individual bias conditioning his/her perception of party proposals, but it also advances the idea that the conditioning effect of individual bias also affects the impact of leadership evaluation on voters' utilities. Indeed, if spatial models have always taken into account only the independent and direct impact of leadership effect, there is also a great debate in the behavioural research concerning the strength of the impact of leadership effect with respect to parties' one (see sections 1.3.3 and 2.2.2). The introduction of individual party-related bias in voters' utility function as a leader's impact conditioning factor will allow to test in the empirical analysis whether leadership plays a decisive role in voting behaviour in a more precise and accurate way.

After having presented the Biased Voter Model, this chapter has aimed at introducing a further conditioning factor able to profoundly affect individual voting behaviour and the explanatory capacities of voters' utility's determinants: the level of personalisation of general elections. Indeed, despite the growing relevance of the personalisation of politics in the political science scholarship, whether in Western Europe the personalisation of general elections has an impact on individual voting behaviour is still an unsolved question, mainly due to operationalisation-related problems. Indeed, in the electoral behaviour scholarship, the personalisation of politics has often been overlapped with leaders' effect on voting choices. Nevertheless, the degree of personalisation of a general election depends on several and different factors, that can be hardly synthesized by leaders' effect: most of these factors are indeed exogenous to voters' perception (e.g. the presence of leaders on media, the relevance of leader-related issues, and the like).

Nevertheless, even if the concept of personalisation of general elections has not been tested adequately until now, it is possible that the degree of personalisation of politics relevantly affects individual voting behaviour, and, in particular, the saliency of leader effect. In particular, the level of personalisation of general elections might be, on the one hand, a boost for the relevance of leaders' effect and, on the other hand, a brake for the impact of individual party-related bias. Consequently, to verify whether the personalisation of politics plays a decisive role in individual voting behaviour, I have put forward an updated version of the Biased Voter Model (called the personalised Biased Voter Model). Not only does this

second model account, for the first time, for the level of personalisation of general elections in an individual utility function, but it also allows testing the impact on individual-related factors (especially leadership evaluation and party-related bias) in very different environments (that is, in situations with potentially very different levels of personalisation of general elections).

Summarising, this chapter has presented two novel spatial models (the Biased Voter Model and its personalised version) of voting that will be empirically tested in a comparative setting in the next chapter. If the empirical analysis confirms the expectations put forward in this chapter, the Biased Voter Model and the personalised voting model will be considered as empirically valid. If this is the case, it will be possible concluding that we have done a step forward in the understanding and the explanation of the individual structure of utility and on the determinants of voting choices.

3. Biased voting: an empirical test

The Biased Voter Model and the Personalised Biased Voter one are the two new spatial models of voting presented in the previous chapter and represent the theoretical innovation at the core of the first part of this research. After having presented the models, in section 2.3, I have put forward some hypotheses, derived from the formalisation of the two spatial models. First of all, I have advanced the idea that individual party-related biases might affect both the distance utility loss[46] and the utility gain deriving from a higher leader evaluation with respect to all the parties competing for the elections – and not only for voters' preferred party. Furthermore, I have also argued that, despite the diffuse use of leader's effect as a proxy for the personalisation of general elections, such factor does not represent an adequate operationalisation of a more general and multi-faceted concept like the personalisation one. Indeed, even if the there is a strong relationship between them, the impact of leader's effect is not only conditioned by individual biases, but it is also affected by the impact of the degree of personalisation of general elections. Personalisation of general elections can be imagined as a boost for leaders' impact.

To obtain reliable results that confirm or disconfirm the goodness of these hypotheses and several other ones, I have collected data for fifteen West European countries in the last twenty years. This has made possible gathering data on more than 300 lists presented during competitions, and in particular 113 different parties, and on fifty-six elections.

Thanks to this dataset, it will be possible to perform an empirical analysis able to reach satisfying levels of generalisability and reliability. Indeed, although most of the contributions in this field are based on case studies or comparison of few analyses in different countries, one of the aims of this research is to find generalisable results that hold in Western Europe and verify the existence of a generalisable model of voting. Given the structure of the data considered, the nature of the dependent variables (individual vote), and the number

[46] That is, the utility loss that derives from the ideological distance between voters' positioning and parties' location on the ideological dimension.

of elections considered, I will perform a generalised mixed linear regression, accounting for the clusterization of the data at the election level.

Before entering in the details of the model used, explain the statistical assumptions and describing the results of the analysis (section 3.3), it is fundamental describing the dataset and presenting the cases included in the analysis (section 3.1), and justifying the operationalisation of the factors introduced in the previous chapter (section 3.2).

3.1. Fifty elections in Western Europe

To validate the Biased Voter Model in Western Europe in the last 20 years, and obtain highly generalisable results, during the process of data selection, I have aimed at creating the most comprehensive dataset possible. In other words, the driving factor for the selection of countries, national elections, and parties have been obtaining a generalisable and representative dataset of Western Europe from 1995 until 2015.

First of all, before selecting the parties and elections, the first choice has concerned the time span (that is, since 1995) and the geographical area (that is, Western Europe). The decision not to privilege only one dimension of comparison (i.e. to consider both diachronic and synchronic data) has been taken to increase the reliability of the findings, both within and across countries.

Indeed, we know that comparative electoral research usually tends to enlarge the *n* on the space dimension without considering the time-related dimension: this means that the research question aims at obtaining generalisable results across countries but sacrificing the variation within countries across time[47]. This approach (that is, considering a small period but several countries) brings about several advantages: first, it allows to detect differences in the electoral behaviour across countries and find generalisable patterns of individual voting behaviour. Moreover, by adopting a cross-sectional comparative perspective, it is possible to test the impact of differences at the macro-level, such as at institutional, economic, or sociological ones.

[47] See for instance the numerous pieces of research put forward by using single waves of comparative project, such as CSES.

On the other side, the opposite approach is to select a small number of countries (usually, from one to four) for an extended period (more than three elections per country). In this case, since the selected countries should be meaningful for the research question, it is necessary to follow a precise case selection design (Seawright and Gerring, 2008). By comparing the results of the empirical analysis both within and across countries, scholars following this approach aim at detecting qualitative results and profound explanations that, unfortunately, suffer from a smaller degree of generalisability.

To obtain the highest possible generalisability, I have enlarged the number of elections considered to be able to give an encompassing explanation of voters' biased behaviour during elections that hold both across countries and through time. Specifically, I have decided to select National Election Survey data departing from the second part of the 1990s and not to consider previous elections. There are a number of motivations for this decision; three are the most important ones.

The first motivation is related to data availability: the mid-1990s is the starting period of comparative survey research initiatives, such as the Comparative Study of Electoral Systems, that have made possible to have similar batteries of questions in National Election questionnaires across the world. Such initiatives have had an indirect effect on the construction of a number of questionnaires across Western Europe [48].

A second motivation is connected to the importance for this research to have a relatively long time-span if data availability makes it possible. Indeed, by departing from the mid-1990s, we are able to verify whether the impact of individual bias and the personalisation relevantly changes as time passes by in the same country, and not only whether there are noticeable differences across countries.

Moreover, it is in the 1990s that the role of leadership has acquired a more significant space in the sphere of politics: let us just recall that, in those years, only four democracies out of forty-five had not shown a leader debate during the electoral campaign (Norris, LeDuc, & Niemi, 1996). Moreover, it is with the beginning of the 2000s that the electoral

[48] As we will see later on, recurring to National Election Studies is surely not enough to have a complete comparative dataset of voting behaviour, and several transformations on the data are required. Nevertheless, the homogenization of scales and questions favoured by comparative survey research, which started in the mid-1990s, has represented an important advantage for comparative electoral studies.

scholarship has started to focalize on the personalisation of politics (Curtice & Blais, 2001; Bartels, 2002; King, 2002), and even if there are studies that verify whether there has been an increase in the shaping role of leadership evaluation since the 1960s (Stokes et al., 1958), most of the comparative studies have focused on a time span that departs from the former years.

Within this time-frame, I have considered all the National Election Studies that have included in their questionnaires the items necessary to validate the Biased Voter Model and the personalised Biased Voter Model. The election studies including the necessary questions and that have been considered in this analysis are listed in Table 3.1 below.

First of all, out the eighty-one elections that have been held since 1995 in the 15 countries considered, only in the 85% of the elections has a National Election Study been put forward and made accessible to the public. So, it has not been possible to perform a systematic data gathering via survey research for all the Western European countries during the 1995-2015 period.

In particular, in Austria, the first National Election Study had been conducted in 2008; in Finland, in 2003; in Ireland, after the 2002 election, while a systematic data collection on the Portuguese elections has been conducted by two different groups of research since 2002. It descends that it has been possible to access only to 73 national election studies out of the 81 elections that have been held since 1995 in the countries considered. Moreover, at the time this chapter was written, it has not been possible to access to some National Election Studies both for embargo-related reasons, or because the data were not available, even if a National Election Study has been put forward. Within this set of unavailable data, we find the following studies: Denmark 2015; Greece 2000, 2007, and 2015. It descends that the number of elections that could potentially compose the dataset for this empirical analysis is composed by 69 General Elections in Western Europe since 1995 to 2015.

Nevertheless, within the set of available National Election Studies, there are a number of studies that do not include the variable needed for the empirical validation of the Biased Voter Model and that had consequently been excluded from the analysis: Austria 2008; France 1997 and 2002; Germany 2002; Greece 1996 and 2004; Portugal 2006 and 2011; Sweden 2010; Spain 2004, 2011, 2015; Switzerland 2015. All in all, our sample is composed by 56 National Election Studies in 15 West European countries, that is the 80% of the

available National Election Studies that have been conducted since 1995 and the 69% of the elections that have been held.

Table 3.1 *National Election Studies Considered*

Country	National Election Study
Austria	2013
Switzerland	1999, 2003, 2007, 2011
Germany	1998, 2005, 2009, 2013
Denmark	1998, 2001, 2005, 2007 2011
Spain	1996, 2000, 2008
Finland	2003, 2007, 2011, 2015
France	2007, 2012
Greece	2009, 2012
Ireland	2002, 2007, 2011
Iceland	1999, 2003, 2007, 2009, 2013
Netherlands	1998, 2002, 2003, 2006, 2010, 2011
Norway	1997, 2001, 2005, 2009, 2013
Portugal	2002, 2005, 2009, 2015
Sweden	1998, 2002, 2006, 2014
United Kingdom	1997, 2001, 2005, 2010, 2015

As we have already seen, comparative survey research represents a significant help for those studies aiming at reaching a generalisable explanation of voting behaviour across countries and through time. For this reasoning, to build the data that will be used in the empirical analysis, I have firstly relied on the four modules of the CSES research[49]. First of all, I have homogenised the data of the four CSES modules[50]. Moreover, since not all the

[49] That is, the 1995-2001, 2001-2006, 2006-2011, 2011-2016 waves.

[50] That is, I have built unique IDs for each party across modules, assigned the same names to the variables related to the same party across modules, recoded all the related variables, defined party families, and the like.

studies inserted in the CSES datasets have been included because of the absence of the necessary variables to test the Biased Voter Model[51], I have integrated (when possible) the data with the related variables gathered from the original and single National Election Studies[52].

Furthermore, not all the existing National Election Studies have taken part to the in CSES project: several National Election Studies Associations have decided not to take part in CSES but to participate to other comparative projects (such as the Comparative National Election Project) or not to share their datasets via comparative electoral research projects. Nevertheless, to make the dataset used in this research more complete and reliable, and also increase the degree of generalisability of the results, in this research, I have also taken into consideration data derived from other sources, like other comparative research projects and single National Election Studies. In particular, I have included data from British Election Studies for the elections of 2001 and 2010; the Finnish Election Study for 2015; Danish Election Study for 2001, 2005 and 2011 elections; the Dutch Election Studies for the elections of 2003 and 2012[53].

Although the amount of data collected allows to put forward a highly generalisable analysis, there are two cases that pretty evidently has not been included in the dataset: Italy and Belgium. These two countries have been excluded from the dataset for two different reasons.

First of all, it has been not possible to include Italy because of data availability problems. Indeed, Italian National Election Studies put forward between 1995 and 2014

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51 For instance, the CSES module 2 (2001-2005) had not inserted in the questionnaire a question concerning the evaluation of the leadership.

52 In particular, I have integrated the CSES dataset with variables included in the following dataset: Swiss Election Studies for the 2003 election; the data of the Portuguese Voting Behaviour survey for the 2002 election; the Finnish National Election study data for the 2003 election; the Irish National Election Study survey for the 2002 data; the Icelandic National Election Study for the 2003 election; the Dutch Election Study for the 2002 election; the Swedish National Election Survey for the 2002 election; the Norwegian Election Study for the 2001 election; the Finnish Election Study for the 2015.

53 Also in this case, it has been necessary to homogenise the datasets in order to let the IDs assigned to the parties correspond to the party identifiers assigned in the unified CSES dataset.

have not included in the survey's questions measuring voters' positive inclination toward parties by using a likeability scale (the surveys only ask about positive inclination – that is, the likeability – toward leaders). It follows that, since the Biased Voter Models take into account individual positive inclinations towards parties as a crucial variable, it has been not possible to include Italy in the analysis.

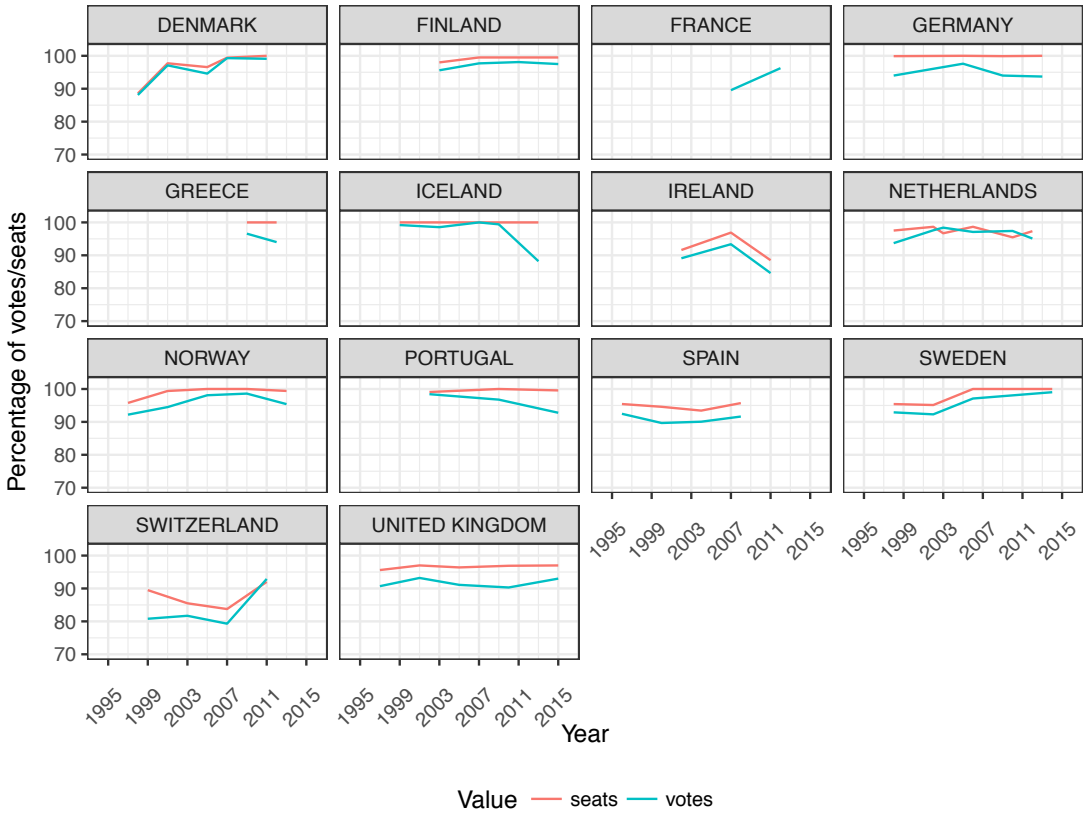
On the other side, the exclusion of Belgium from the sample of studies considered is related to the particular institutional setting of the county. Specifically, the issue that does not allow to include Belgium is linked to the fact that the division of the national territory in three different regions (Wallonia, Flanders, and Brussels-Capital) cannot be overlapped with the electoral competition arena. Indeed, if, in Wallonia, only the Francophone parties compete to obtain seats in the national parliament, and, in the Flanders, only the Flemish parties present electoral lists, in the Brussels-Capital region both the Flemish and the Francophone parties may forward lists[54]. This means that the arenas of competition for both Flemish and Francophone parties are different, but not mutually exclusive. The fact that the parties do not compete in mutually exclusive territories does not allow to include the different partitions as 'artificial and independent countries' since it would be difficult (especially in the second part of this research) to put forward a statistically reliable and valid analysis. Indeed, if Wallonia, Flanders, and Brussels-Capital had been considered as three different states, it would have been meant that both Francophone and Flemish parties would have taken various positions in Wallonia (or Flanders) and Brussels-Capital. However, this seems not reasonable in a logic of spatial competition in national elections. Consequently, I have been forced to exclude Belgium from the sample.

After having selected the election studies that will be taken into consideration, a second crucial decision for the empirical analysis that will be put forward in the following pages concerns the selection of the parties to be included. Also in this case I have included in the dataset I will use in the empirical analysis all those parties whose organisations and leaders have been evaluated by the voters by answering the questionnaire. Although it is common to a priori set a threshold of electoral support to allow a party be included in the analysis (see the discussion in van der Eijk, van der Brug, Kroh, & Franklin, 2006), I have followed the most inclusive criterion possible, in order not to lose information and increase

54 For a more detailed explanation of the Belgium institutional setting see Deschouwer (2012).

the reliability of the empirical analysis. This strategy has allowed me to consider 113 unique parties, that have competed in 56 different elections. Overall, I have included in the dataset 366 different party per electoral competition.

Figure 3.1 *Percentage of votes and seats represented by the parties included in the analysis*



Note: In the French case, seats are not displayed because Presidential Elections have been considered

By following the 'most inclusive criterion', it has been possible to comprise in the empirical analysis parties that represent a significant portion of the electorate. Indeed, as we can see in Figure 3.1[55] , the parties included in the dataset we will use in the empirical analysis represent a very high percentage of elections' votes and parliamentary seats. Indeed, on

[55] Because there is no trend data in the Austrian case, Austria has not been included in the graph. Nevertheless, the Austrian parties considered in the analysis represent the 97.93% of the Austrian voters and the 100% of the parliamentary seats.

average the parties considered in the dataset per election represent the 93.99% of the voters that have cast the ballot on the election day[56].

More into detail, Figure 3.1 shows a substantial stability of the percentage of seats considered in the analysis, which in most of the cases is above the 90% of the parliamentary seats. Only in few cases do we consider a percentage of votes close to the 85%: the Irish 2011 election and the Swiss 1999, 2001 and 2007 election. Despite the quite high percentage of votes, these four cases are consequently the less representative national election studies in the sample, since the amount of non-considered votes gets close to the 15% of the ballots. The other studies with a percentage of votes below 90%[57] show a percentage of votes that is always bigger than 88.5%.

If only eight studies include a percentage of votes smaller than 90%, seven studies[58] show a percentage of considered votes greater than 99%, of which two include the 100% of the votes expressed by the electorate.

Such a high percentage of votes considered in the analysis is even more significant if we observe the percentage of seats that the parties included in the analysis represent. Indeed, the parties included in the dataset obtained on average the 97.03% of the parliamentary seats. Moreover, three studies account for less than 90% of the seats[59], while, in seventeen elections, the parties considered have gotten more than 99% of the seats[60]. This strategy of party selection not only has allowed accounting for a very high percentage of expressed votes and parliamentary seats, but it has also made it possible to consider in the analysis very different parties. Let us just point out that the party with the most significant percentage of

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56 See also Appendix A for a cumulative density distribution of the votes and the seats considered in the analysis.

57 These studies are the following: Denmark 1998; Spain 2000; France 2007; Ireland 2002 and 2011; Iceland 2013.

58 The studies holding more than 99% of the expressed votes are the following: Denmark 2007 and 2011; Iceland 1999, 2007 and 2009; Sweden 2014; Austria 2013.

59 The studies holding less than 90% of the expressed votes are the following: Switzerland 1999, 2003, 2007.

60 The studies in which parties considered have gotten more than 99% of the parliamentarian seats are the following: Germany 1999, 2005, 2009 and 2013; Finland 2007 and 2011; Greece 2009 and 2012; Norway 2001, 2005, 2009 and 2013; Portugal 2002, 2009 and 2015; Sweden 2006 and 2014.

votes (the Spanish Popular Party in 2000) has obtained the 44.5% of the votes, while the political formation that has obtained the smallest amount of vote has been the Plaid Cymru, that has conquered the 0.5% of the votes in 2010.

This first descriptive data allows to conclude that considering in the analysis such a high number of parties and not having set a threshold of minimal support have allowed us to overcome a crucial issue for those who study electoral choices. Indeed, excluding certain parties and 'restricting the number of choice options in the analysis one *change* the nature of the phenomenon under investigation. Rather than investigating voter choice, one ends up investigating choice from among the largest parties. This transformation of the problem makes it more difficult, and sometimes even impossible, to investigate the importance of some independent variables' (van der Eijk *et al.*, 2006, p. 430, italics added).

The inclusion of a such number of parties and the related high percentage of seats and votes gotten at the elections has allowed us to overcome the risk put forward by van der Eijk and colleagues, and built a data-infrastructure that allows investigating the individual voting choice in a generalisable way.

3.2. Operationalisation of variables

After having explained the case selection, and the process of construction of an encompassing dataset including a high number of West European National Election Studies since the mid-1990s, it is now possible to empirically translate the factors considered in the Biased Voter Model into variables, and put forward the empirical analysis[61].

3.2.1. Vote Choice: the dependent variable

The discussion concerning the optimal dependent variable for an empirical test of a spatial model of voting has represented a relevant issue for the electoral scholarship. Indeed,

[61] In the following pages, all the variables considered in the empirical analysis will be described. Since graphical representation will be used, see Appendix B for the table of descriptive statistic of the variables.

because spatial models aim at explaining individuals' voting decisions by comparing the amounts of utility voters would acquire by casting their ballot for different parties, whether the nature of the dependent variable is discrete (the choice) or continuous (the utility) has been a relevant matter of debate.

The first option (that is, operationalising the dependent variable via a discrete dependent variable standing for individual choice) represents undoubtedly the most common solution (Grofman, 1985; Adams, 1999; Adams et al., 2005; Kedar, 2010; Abney et al., 2013; Meyer & Müller, 2014). In this case, what can differentiate the empirical test of a spatial model is the use of a deterministic or a probabilistic model (Adams et al., 2005).

More specifically, the introduction of a probabilistic approach has represented a significant innovation for the spatial models of voting. Indeed, it has allowed considering in the functions of utility those unobservable factors that the empirical research has shown to condition individual behaviour (Adams et al., 2005, p. 18) by inserting an error term in the model. Therefore, by selecting a discrete variable as the dependent one and by defining a probabilistic spatial model, scholars aim at estimating the impact of the explanatory factors on the vote choices, given that 'the voter supports the candidate who maximizes his combination of measured policy-related utilities and his unmeasured utilities' (Adams et al., 2005, p. 20). Then, according to this reasoning, the higher the utility provided by a party with respect to the others, the higher the probability for a voter to propend for that party. Following this line of thought, Adams and colleagues argue that, by adopting a random-utility model, the probability that a voter casts the ballot in favour of a party 'is proportional to the exponential of the deterministic component of the utility associated' (Adams et al., 2005, p. 20).

Differently, van der Eijk and colleagues (2006) have strongly criticised the use of voting choice as the dependent variable, by arguing that empirical tests of the spatial model should consider continuous variables as the as the dependent one(s), and in particular the probability to vote for a party as declared by the voters. The first motivation that van der Eijk and colleagues advance in favour of a continuous dependent variable is related to the fact that (according to the authors) an individual's utility is an exogenous factor with respect to his/her utility function. Moreover, following such reasoning, the estimation of a voter's utility precedes the decision of which party to vote for and, consequently, the decision to regress the electoral choice on the determinants of voters' utility would be theoretically

incorrect. In this sense, the amount of utility is the real determinant of individual vote, while the utility function affects the individual voting choice only via the utility's mediation.

The second motivation in favour of a continuous dependent variable put forward by van der Eijk and colleagues is related to the decision of these scholars to avoid the use of discrete choice models. Indeed, according to van der Eijk et colleagues (van der Eijk et al., 2006, p. 430), in discrete choice models

> electoral utility is not measured at all, but post hoc deduced from the relative frequency with which each of the choice options is chosen by individuals after controlling for what are assumed to be all relevant characteristics (i.e., the independent variables). This means, however, that the utilities that are the dependent variable in discrete-choice models are in fact derived from (conditional) probabilities.

To overcome these problems, the authors propose to use as the dependent variable an exogenous electoral utility, which 'can be observed by standard survey methods. This involves asking respondents to report on a scale the utility they would derive from voting for each party in turn. The problem here, however, is how to formulate such questions' (van der Eijk *et al.*, 2006, p. 430).

According to van der Eijk and colleagues, the use of a continuous variable as the dependent one is also an essential factor to avoid the statistical assumptions of the generalised discrete choice modelling and to foster comparative research. In particular, they argue that, by constructing a stacked dataset (van der Eijk, Franklin, & Ackaert, 1996) and by using as the dependent variable the utility declared by the voters, it is possible to pool data from different studies. At this point

> the multi-level structure of such a pooled set of stacked surveys makes it possible to analyse the effects of variables at different levels of analysis in a single integrated model, and to assess interactions between variables at different levels (van der Eijk et al., 2006, p. 442).

Among these two opposite approaches, I will follow the first one and, consequently, I will use as the dependent variable of the empirical analysis individual voting choice. This decision has been made for a number of reasons.

First of all, not only, as van der Eijck and colleagues underline, is fundamental 'using

the proper words' in the survey question in order to measure the utility associated with each party, but it is also essential to correctly define the variable operationalizing individual utility. Indeed, even if some scholars (van der Eijk et al., 2006; Lachat, 2014, 2015b) argue that the question that operationalizes individual utility is represented by the 'probability to vote' (PTV) expressed by the voter, other scholars have operationalized individual utility through party evaluation or feeling thermometers (among others, see Rabinowitz & MacDonald, 1989; Schmitt, 2009). It is evident that these variables are operationalising different concepts and that if, according to van der Eijk and colleagues, PTV can represent electoral utility, party evaluation operationalises a profoundly different concept from the utility one. Indeed, party evaluation can be seen as one of the determinants of individual voting choice, but it can be difficulty overlapped to the individual utility. Consequently, since there is no general agreement in the literature on which variable should be used as a dependent variable (especially when PTVs are not at researchers' disposal), it could be problematic to justify the choice of this latter as the dependent variable.

Moreover, despite PTV has a more significant indicating portion than party evaluation for the concept of individual utility, the fact that the probabilities to vote for the different parties are assigned by voters themselves and that are not statistically and reliably derived from the utility function represents a diriment issue for the decision not choose a continuous variable as the dependent one. Indeed, in line with the argument put forward on the evaluation of ideological distance and leadership assessment, it is evident that also voters' definition of PTVs might be conditioned by voters' biases toward/against the different political organisations. Consequently, in line with the arguments I have put forward in the previous chapter, if a voter i is biased toward the party J, he will be inclined to increase the probability to vote for party J with respect to the rely on. On the contrary, he/she will be highly likely to declare a lower chance of voting party j when he/she is highly biased against j.

This seems to be also confirmed by van der Eijk and colleagues (2006), who argue that 'most voters give high scores to several parties, with their second highest score usually only a little lower than the highest. As an illustration, we find that no less than 47% of the respondents give a score of six or higher to at least three different parties; an additional 21% do so for two parties' (van der Eijk et al., 2006, p. 434). The fact that the sum of the

probability to vote for different parties assigned by the voters is not equal to 100 confirms that voters are somehow biased towards the parties they prefer, since they attribute a high probability to several parties while we know that, given the asset of possibilities, the sum of the probabilities assigned to each option is 1. Consequently, due to the non-ipsative nature of PTV, and since this first section of this research deals with the problem of individual bias, it is fundamental not to have endogeneity problem between our predictors and our dependent variables: how could we validly account for the impact of individual biases on the probability to vote for a party if such probability is endogenous to individual biases? Indeed, if the differences declared by the voters on the probabilities to vote for different parties were endogenous to the biased evaluation of the parties, the results we obtained would have a lower degree of reliability since the estimated coefficient of the independent variables would be affected by the biased scale of the dependent variable.

Finally, a more empirical issue that prevents us from considering as the dependent variable the individual PTV is related to data availability. Indeed, all the CSES surveys (and also most of the other National Elections Studies included in the dataset) have been run after the date of elections, and this has led to ask respondents only the expressed vote and not the PTV.

After having discussed the decision to account for a discrete variable as the dependent one and having both theoretically and empirically justified this choice, it is possible to make a step forward and present the independent variables that will be accounted in the empirical analysis.

3.2.2. Independent Variables

As we have seen in the previous chapter (and in particular in section 2.3), both the Biased Voter Model and the personalised Biased Voter Model account for a number of explanatory factors in the utility function. In particular, they consider, at the individual level: the ideological distance, the leadership evaluation, the personal bias, and socio-demographic information (age, gender, and the level of education); at the election level: the personalisation of politics. In the following pages, I will present the operationalisation of the variables that

have been introduced in both the biased models and that will be accounted for in the empirical analysis that I will put forward in the following pages.

1. Sociodemographic factors. I have selected the variables by following the same aim that has driven both the case and the party selection: increasing as much as possible the number of voters considered in the analysis. In other words, since sociodemographic factors represent a control variable in the empirical analysis, I have selected those variables that were included in all the national election studies under consideration and that have allowed me not to eliminate any national study from the dataset. Consequently, I have included the gender of respondents (where one is female), their level of education (operationalised following CSES codification, that is 1=no education and primary education; 2=secondary education; 3=university degree or more), and their age.

2. Ideological Distance. Moving to the ideological distance, I have operationalised the related variable by following the most relevant literature on spatial modelling. Consequently, in line with the studies on the topic (among others, see Downs, 1957b; Grofman, 1985; Merrill III & Grofman, 2000; Adams et al., 2005; Kedar, 2010; Lachat, 2015a, 2015b), I have operationalised the ideological dimension by relying on a 0-10 left-right scale, where 0 means extreme left and 10 extreme right. The decision to rely on the left-right dimensions derives from a number of reasons: first of all, left-right is the most diffused positional scale across the post-electoral surveys. Consequently, considering such scale instead of single policy dimensions has allowed maximising the number of studies included in the analysis. Moreover, the left-right dimension is the most common dimension used to capture voters' positional preferences (Inglehart & Klingemann, 1976; van der Eijk, Schmitt, & Binder, 2005)[62].

Moreover, I have also operationalised the individual utility loss function in line with the spatial model literature, that defines the individual utility loss as the quadratic distance

[62] Indeed, even if the party competitions scholarship does not entirely agree on the use of only such dimension, most of the discipline agrees on the fact that the comprehensive left-right dimension represents a valid dimension of electoral competition even today (see, for instance, the discussion in Merrill III and Grofman, 2000; Adams, Merrill III and Grofman, 2005).

between the location of the voter and the positioning of the party according to voters' perspective (Adams, 2001; Grofman, 2004a; Dewan & Shepsle, 2011; Meyer & Müller, 2014). In particular, I have opted for a quadratic function and not for a linear one because although

> there is evidence that linear utility gives a better fit to thermometer scores interpreted as utilities, […] inferring that the utility-scale itself is linear from such evidence is, however, problematic, because both the policy scales from which distance is measured and the thermometer scores are constrained to specified finite intervals […] whereas the utility scale need not be so constrained. On the other hand, quadratic utility is more convenient mathematically for most applications and has frequently been the preferred choice(Adams et al., 2005).

This is in line with previous research by other scholars, who have underlined the appropriateness of the quadratic distance utility function (Erikson & Romero, 1990; Alvarez & Nagler, 1995, 1998). A second issue which is crucial in the literature and strictly related to the operationalisation of the ideological distance is connected to the twofold possibility to operationalise party placement. Shall we consider the positioning attributed by the single voter to each party or the average of each party's location according to the voters? In particular, it is difficult to find a general indication coming from the literature. Indeed, if some major contributions have operationalised the position of candidates by averaging the positions attributed by the entire electorate to them (Adams et al., 2005), others have opted for considering the single voter's perception (see the discussion in Merrill III & Grofman, 2000).

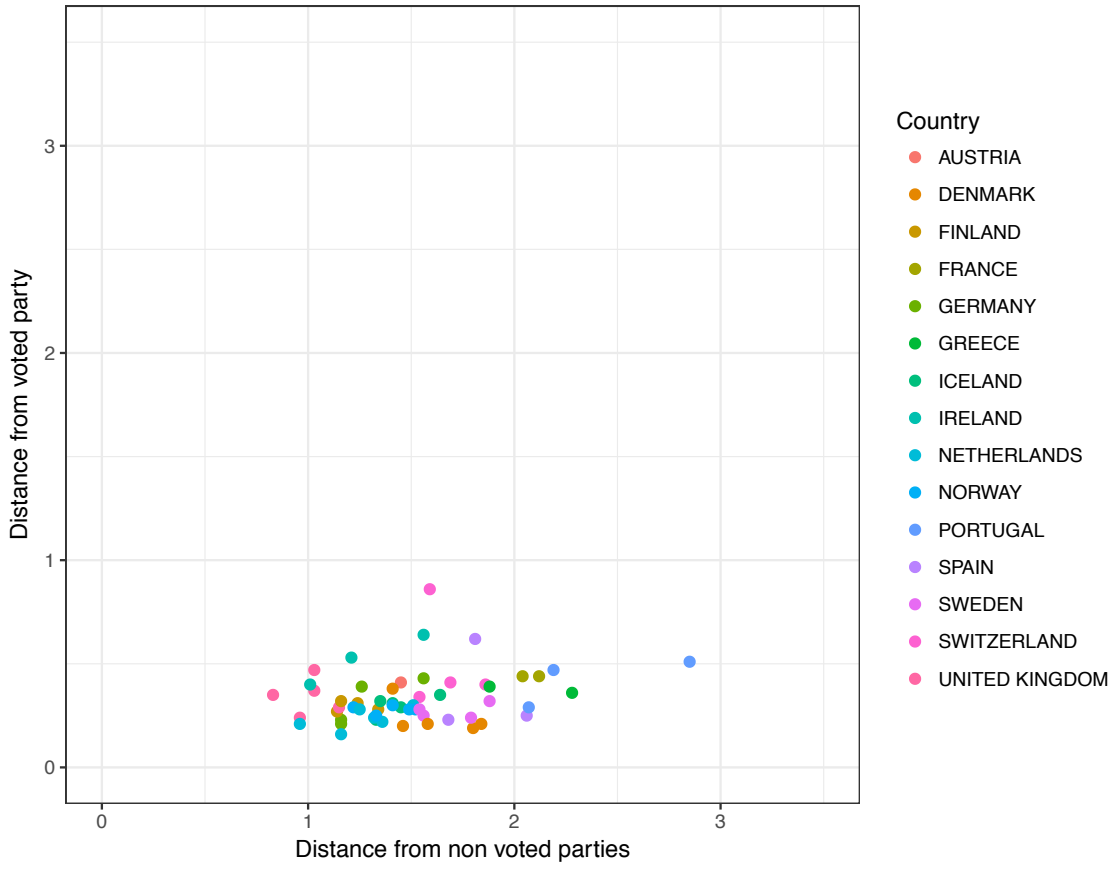
Here, I have considered the distance between a single voter's position and his/her perception of each party's positions. This solution involves some advantages: first of all, it is said to be much more favourable to a proximity model (Merrill III & Grofman, 2000, p. 178) like both the biased voter ones. Moreover, by considering the average positions of voters' party placement, the position of the party would tend to the central position of the left-right dimension due to the consideration of random location put forward by uninformed voters (Powell, 1989). Furthermore, Dow (1999) argues that, in the spatial utility theory, it is fundamental to consider voters' perceptions of party positioning, since the voter computes his/her utility according to his/her perception, and not with the understanding of the entire electorate.

This does not mean that this variable operationalises the real and precise distance

between the voter and the party: indeed, when a voter positions the party, we know that his/her evaluation is biased by the assimilation/contrast effect that makes the voter unable to objectively evaluate the distance between himself/herself and the parties he/she judges. Nevertheless, this element does not represent a weakness for this analysis; conversely, it would even strengthen the argument I am advancing, since it would allow at better observing the impact of individual cognitive bias on voting behaviour.

Figure 3.2 below shows the distribution of voters' ideological proximity by election (according to the voted and non-voted parties for each elector). We first observe that voters' electoral choice conditions the average of the perception of the distance between voters and parties. Indeed, on a 0-10 continuum, the average Euclidean distance between electors and non-voted parties is equal to 3.89, while the Euclidean distance between voters and voted parties voted is, on average, 0.34. It follows that, on the ideological continuum, voters perceive the party they have voted for as closer than the ones they have not supported.

Figure 3.2 *Descriptive statistics on ideological proximity by country and vote*



More into detail, Figure 3.2 shows that in most of the elections (more than 87%), the average perceived distance between voters and supported parties is below the threshold of 0.5 points, while, on average, non-supported parties are perceived between 1 and 2.5 points far. Despite the high concentration of elections in a precise portion of the Cartesian plane represented in Figure 3.2, two main outliers can be identified: Switzerland (2007 general election) and Portugal (2015 general elections).

Indeed, despite an average distance between voters and non-voted parties which is in line with the West European trend, 2007 Swiss voters perceive the voted parties as much more distant with respect to both the overall West European trend and the other elections in Switzerland[63]. This can be connected with the importance of the 2007 election for the fortune of the Swiss People's Party (SVP). Indeed, 2007 represented the election (until 2015) in which the SVP obtained the maximum amount of votes (28.6%) in its history, gaining an additional 2.3% with respect to the previous elections. Moreover, strictly connected to the increasing relevance of the SVP, it has been shown that the 2007 Swiss general election has confirmed that 'Swiss politics in general look likely to be increasingly polarised and confrontational' (Church, 2008, p. 608). Such situation of party system transformation could be at the base of an unusually high Euclidean distance (0.86) between voters and the party they cast the ballot for.

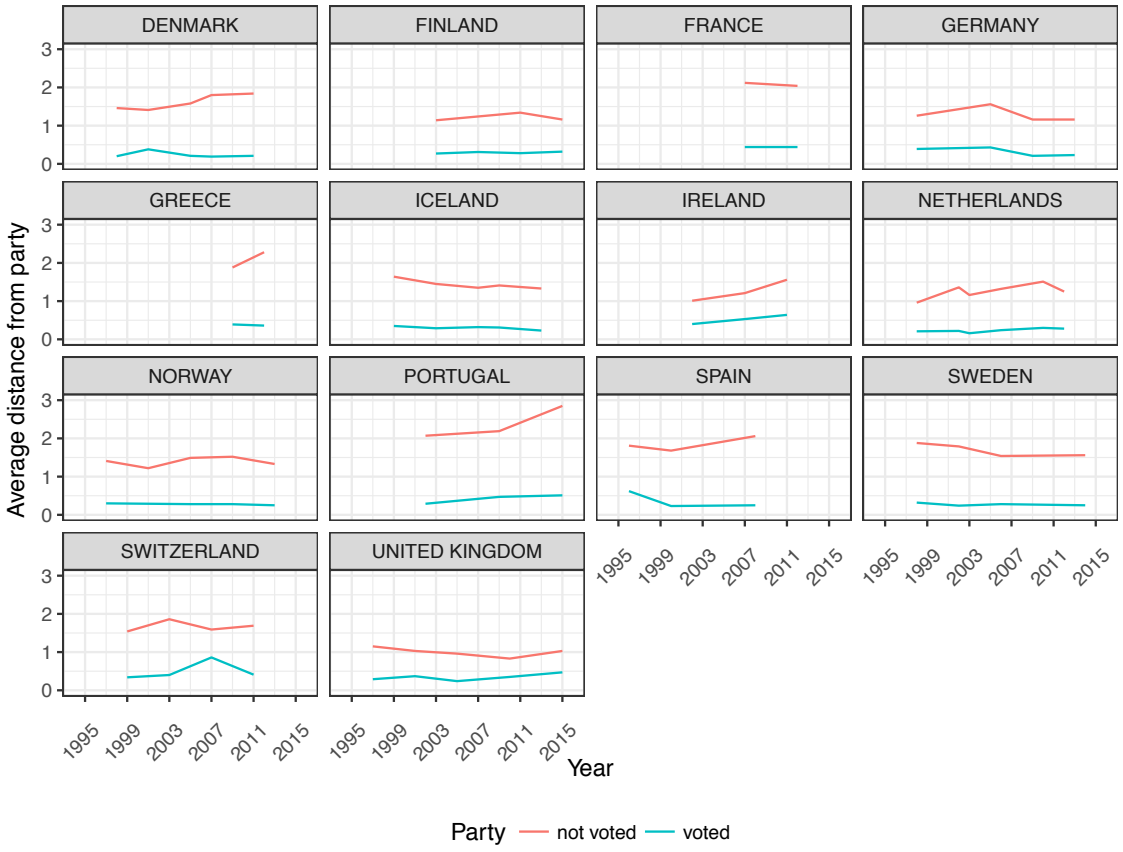
Conversely to the Swiss case, the 2015 Portuguese general election shows an uncommon perceived distance between voters and non-voted parties, while the perceived distance between a voter and the party he/she has supported is in line with the general West European trend. Also in this case, we can identify a possible explanation for this particular value. Indeed, it might be related to the role played by the economic and financial crisis in the legislative elections (De Giorgi & Santana-Pereira, 2016). Indeed, governing in times of crisis might represent a 'blame' for the incumbent leaders and parties (Morlino & Raniolo, 2017), and this could have represented a crucial element in the defeat of the Socialist Party. This seems to be confirmed by the fact that 'in May 2015 89 percent of Portuguese described the economic situation of the country as poor, and 54 percent expressed a similar assessment

63 To observe more into detail, and country by country, voters' perceptions concerning voted and non-voted parties, see Figure B.2 in Appendix B.

of their household's financial situation' (De Giorgi & Santana-Pereira, 2016, p. 7). At the same time, the economic policies put forward by the previous government were judged by half electorate as even worse than the ones approved by the incumbent. It follows that the perception of such high ideological distance between voters and non-voted parties might have been affected by such environmental situation, which might have also allowed more radical parties (such as the Left Bloc, that has increased its consensus by five percentage points) to obtain better election results.

In addition to the information derived from Figure 3.2, to more in-depth evaluate the parties' average proximity, we can also focus on the temporal evolution of the average distance between the electorate and the voted and non-voted parties (Figure 3.3).

Figure 3.3 *Temporal evolution of ideological proximity by country and vote*



The figure clearly shows that, with the exceptions of the UK and Finland in 2015[64], the difference between the average closeness between, on the one hand, voters and voted parties, and, on the other hand, voters and non-voted parties either remains stable or increases as time goes on.

The increase is pretty evident in Portugal, Ireland, Spain, Denmark, Greece, and Finland while a substantial stability can be observed in Sweden, the Netherlands, Iceland, France, Germany and Switzerland. Figure 3.3 not only allows us to detect the variation in the average perceived distance as time pass by, but it also seems to confirm the increasing relevance of ideological dimension as an explanatory factor of voting choices. Indeed, from a speculative viewpoint, we can observe that since voters tend to perceive non-voted parties as increasingly farer with respect to voted ones, it means that the ideological continuum still maintains its role in differentiating among parties[65].

Consequently, as far as the ideological proximity is concerned, we have observed not only a similarity of voters' perceptions, but it has also been possible to identify specific outliers and observe different trends per countries.

3. Individual bias. Individual bias undoubtedly represents the core variable of the first part of this research. Indeed, although the literature on spatial models has recently introduced non-policy factors, these latter have always been operationalised by using party identification – a very well-known concept in behavioural scholarship.

Nevertheless, as I have already argued in section 2.2, such operationalisation cannot be entirely satisfying for those scholars aiming at understanding whether individual bias affects voting decisions. Indeed, since, to decide which party to vote for, voters compare all the political formations under scrutiny, it follows that they will have different non-policy preferences not only with respect to one party but also for all the other parties, even if those are not the one preferred by voters. This means that voters are biased not only toward the party they identify with, but toward and/or against all the parties they evaluate in their decisional process. In particular, voters have specific orders of preferences that allow

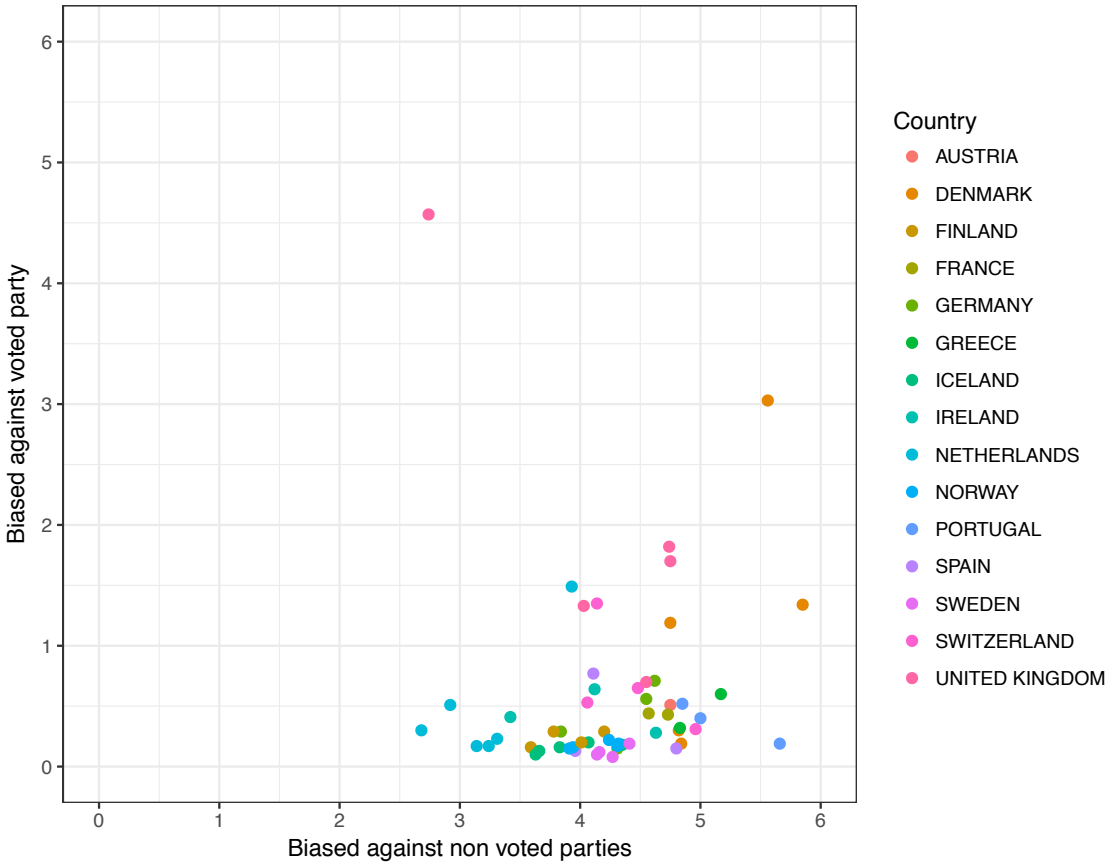
64 Differently from all the other cases, in the British case, the perceived distance of non-voted parties gets smaller while the distance between a voter and the voted party tends, on average, to increase.

65 For a different theoretical perspective, see Kriesi and colleagues (2006).

defining which parties they are more biased toward and which parties, conversely, there are more biased against. However, how much is a voter biased against a party? According to the perspective adopted in this study, this answer is 'it depends on the party'. Meaning, since voters construct their preferences by comparing the alternatives they face, I argue that they compare each alternative with the one they prefer. In other words, voters estimate the amount of bias they would have against a party in light of the evaluation of their preferred one. It is by following this reasoning that, in section 2.2, I have operationalised individuals' through $(|B_{ij} - B_{ij}|)$, that is, the absolute value of the difference between the positive inclination of the electorate toward the party they are evaluating and their preferred one.

In the empirical analysis, I operationalise a voter's individual bias against a party as the absolute difference between his/her evaluation of such party on a 0-10 likeability scale and the evaluation, on the same scale, of his/her preferred one.

Figure 3.4 *Descriptive statistics on individual bias by country and vote*



This means that if a voter i likes J (that is, the party he/she prefers) 9, while he/she likes j (that is, the party he/she is evaluating) 4, the voter i will have a bias against j equal to 5. Obviously, his/her bias against J will be equal to 0. This operationalisation allows us to insert in voters' utility function a comparative factor able to adequately translate voters' bias and allow it to affect the evaluations of each party's proposals and leader[66].

By looking at Figure 3.4, the first element that we could reveal is that there is not a perfect correspondence between the lowest amount of bias against parties and the electoral choice. Indeed, if it had been the case, the individual bias toward the voted parties should have always been equal to 0, while no election shows this value [67]. Indeed, only have the 76% of the voters voted for the party they were not biased against: in the 24% of the cases, individual bias has not represented a sufficient brake to prevent voters from casting their ballot in favour of another party. A second element underlined by Figure 3.4 surely concerns the relation between the different bias towards/against voted and non-voted party. Indeed, voters' bias against not-voted parties is on average more than eight times greater than the one towards the voted parties. In particular, the bias toward the chosen party is on average 0.59 on a 0-10 point scale, while it is equal, on average, to 4.20 concerning the non-voted parties.

Moreover, by looking more carefully at the data, it is possible to observe that, although most elections show an average bias against the voted party smaller than 1, two elections assume highly unusual positions on the Cartesian plane: the UK one in 1997 and the Danish election in 2001. The presence of these two deviant cases can be seen as

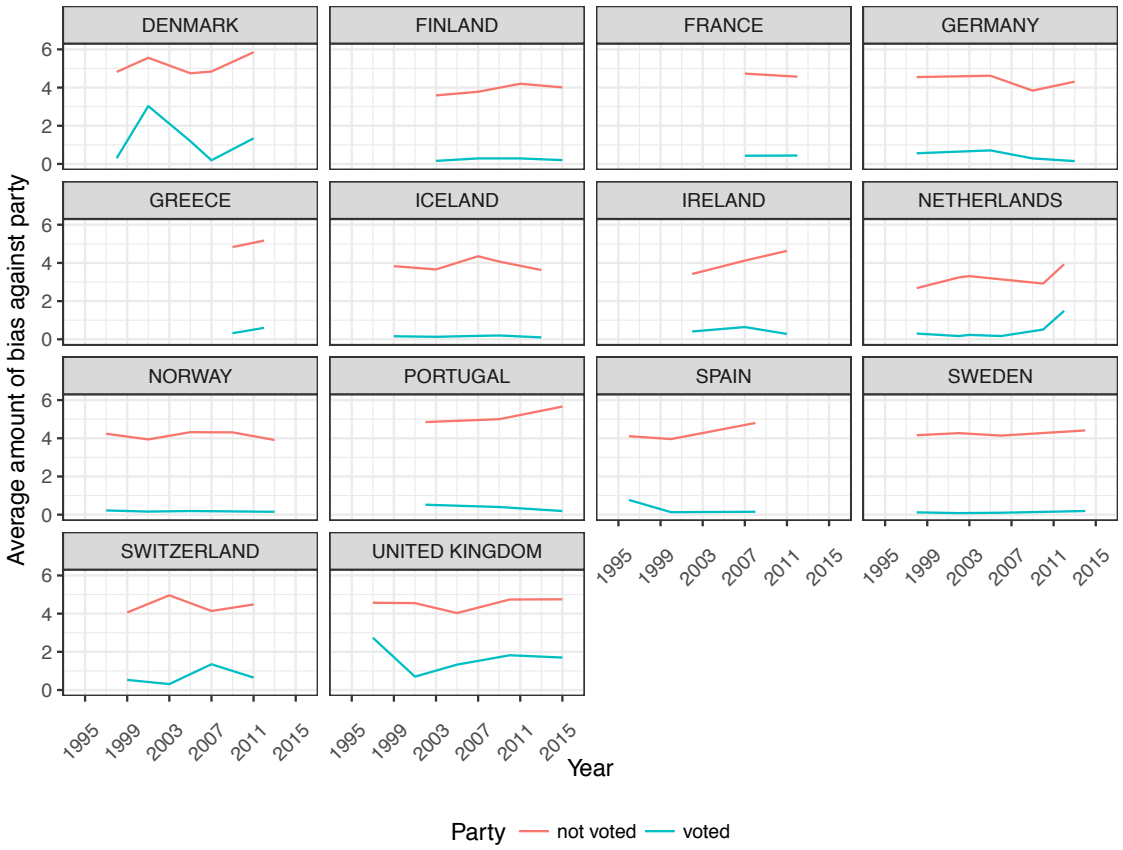
[66] Someone could argue that I could have inserted the degree of likeability of party j according to voter i directly in the model, by following the behavioural approach of several scholars (Holmberg & Oscarsson, 2011; Curtice & Lisi, 2015). This could have surely been a possibility, but the indicating portion of such variable for the concept of individual bias toward and/or against all competing for the elections would be quite modest. Indeed, it would have assessed only the impact of the positive inclination of a voter with respect *to a single party*: it would have not allowed at testing the *comparative nature* of individual biases.

[67] Indeed, if all the voters had voted for their preferred party, the amount of bias against the party voted would have been 0. It follows that if all the voters had showed a bias equal to 0, the average value of bias for voted parties would have been 0.

profoundly connected to the relevance that both the competitions have had in these two countries.

Indeed, the 1997 UK general election represented a turning point for the British politics: after 18 years of conservative domination, the election was won by the Labour Party and by its leader, Tony Blair. This turning point was characterised the presence of 'a relatively cynical electorate, not convinced that politicians always have the public interest uppermost in their minds' (Pattie & Johnston, 2001, p. 196). In such a specific turning point, the effect of the first-past-the-post electoral system, which sets relevant incentives for individual voting behaviour (Cox, 1997), could have conditioned voters' behaviour in an even stronger way. This intuition finds confirmation in first descriptive analyses that highlight: an average bias towards the voted party equal to 4.57 in 1997, towards the Conservatives equal to 5.62, towards the Labour corresponding to 4.46, and towards the Liberal Democrats equal to 3.11.

Figure 3.5 *Descriptive statistics on individual bias by country and vote*



Moreover, if the 1997 British general election was a particular case, the exceptionality of the 2001 Danish election is even more evident. Indeed, in 2001, the Social Democratic Party lost the Danish General Election for the first time since 1929 (Qvortrup, 2002). In such exceptional situation, two elements might have contributed to make Danish voters vote for parties they did not prefer.

A first possible explanation is connected to the tentative of the Social Democrats to adopt an 'anti-immigrant rhetoric that was both unconvincing in light of its policies in government and unseemly within the context of the party's socially liberal ideology' (Skidmore-Hess, 2003). Nevertheless, if this can explain the increase of average bias because some voters might have cast the ballot in favour of the Social Democratic despite their preference for a different party, there is a second element that might have contributed to the presence of such high bias. Indeed, one of the strategies followed by the Liberals during the elections was that of increasing the perception of the party's and leader's governmental competence (Andersen, 2003). This might have surely played a role in shaping voters' preferences and making the saliency of leadership's governmental competence more relevant than voters' bias. The fact that both these outlier cases represent crucial and somehow 'turning-point' elections, can also be seen by looking at Figure 3.5, which highlights the anomalous distribution of British and Danish trends.

Moreover, beyond these two outliers, there is a high difference in the degree of bias against non-voted and voted parties. Indeed, with respect to the difference in the trends of the average proximity observed in Figure 3.3, in Figure 3.5, in each country there is a noticeable distance between the two lines. It follows that individual's bias against/towards parties represents an even more significant variable to distinguish among parties appropriately.

4. Leadership Evaluation. In addition to the ideological proximity and individual's bias against parties, a further crucial factor in the Biased Voter Model is leadership evaluation. This crucial concept will be operationalised in the empirical analysis by using leaders' likeability scale. Indeed, although leaders' likeability is the most used indicator in both spatial models and the behavioural scholarship when leader's effect is considered, it might be questionable whether this represents the most appropriate measure to operationalise individuals' leadership evaluation.

According to the literature (among others, Kinder, 1986; Costa & Ferreira da Silva, 2015), a different solution would have been that of considering leadership traits, that is: competence (being perceived as qualified for the role the leader could get), integrity (being perceived as an honest and moral person), empathy (the ability of leaders to build an emotional relationship with their electorate), and leadership or energy (the ability to be perceived as a person able to take decisions and being an hard-worker). Nevertheless, although operationalising leader evaluation by using leader's traits would not have been erroneous, I have operationalised Biased Voter Model leaders' evaluation via the likeability scale for two different reasons.

The first one is connected to the conditioning role played by individual bias against parties on leader's effect. Indeed, as we have already seen in section 2.3, individual bias does not only affect the evaluation of ideological proximity, but also conditions the impact of voters' evaluation of parties' leaders. Consequently, to disentangle the bias conditioning effect, a non-statistically derived variable (like an index of leaders' traits) and a single-feature-related evaluation should be preferred. Indeed, a concise and general evaluation involves a more affective reasoning, while more analytical reasoning involves a more rational and empirical-based model (Tucker, 1981; Buck, Chaudhuri, Georgson, & Kowta, 1995; Chaudhuri & Holbrook, 2001).

This can be easily observed by giving an example: let us imagine that there is a consumer that has to evaluate a product (for instance, a car). If such consumer is asked to evaluate single characteristics of the product (for instance, the fuel consumption of the car), he/she will focus on the specific characteristics, aiming at accurately estimating the empirical evidence. Naturally, such attention reduces the relevance of the affective relationship of such consumer with more general characteristics of the product (like the brand of the car manufacturer), and consequently decreases the impact of individual bias toward (or against) the product in the consumer's evaluation.

On the contrary, if the consumer is asked to give a concise evaluation of the product, his/her assessment will be likely conditioned by some factors, like his/her positive evaluation of the brand: if the consumer loves the brand Ferrari, this consumer would be highly inclined not to conclude that a Ferrari Spider is 'not a good car'. Nevertheless, he/she could more easily admit (despite the bias toward Ferrari) that Ferrari Spiders consume an incredibly high amount of fuel. Summarising, a concise evaluation of products is way more biased than the

analytical one, since it more profoundly involves consumers' affective orientation toward the product under consideration.

Obviously, such differences in the evaluation process do not hold only during the evaluation of a product, but are also crucial when the object under evaluation is a political party or a political leader. Specifically, when voters evaluate a party leader by using a concise indicator, they will be more conditioned by the amount of bias toward or against leaders' and leaders' parties. On the contrary, if they have to evaluate single traits of leaders' personality, they will be more inclined to focus on empirical evidence.

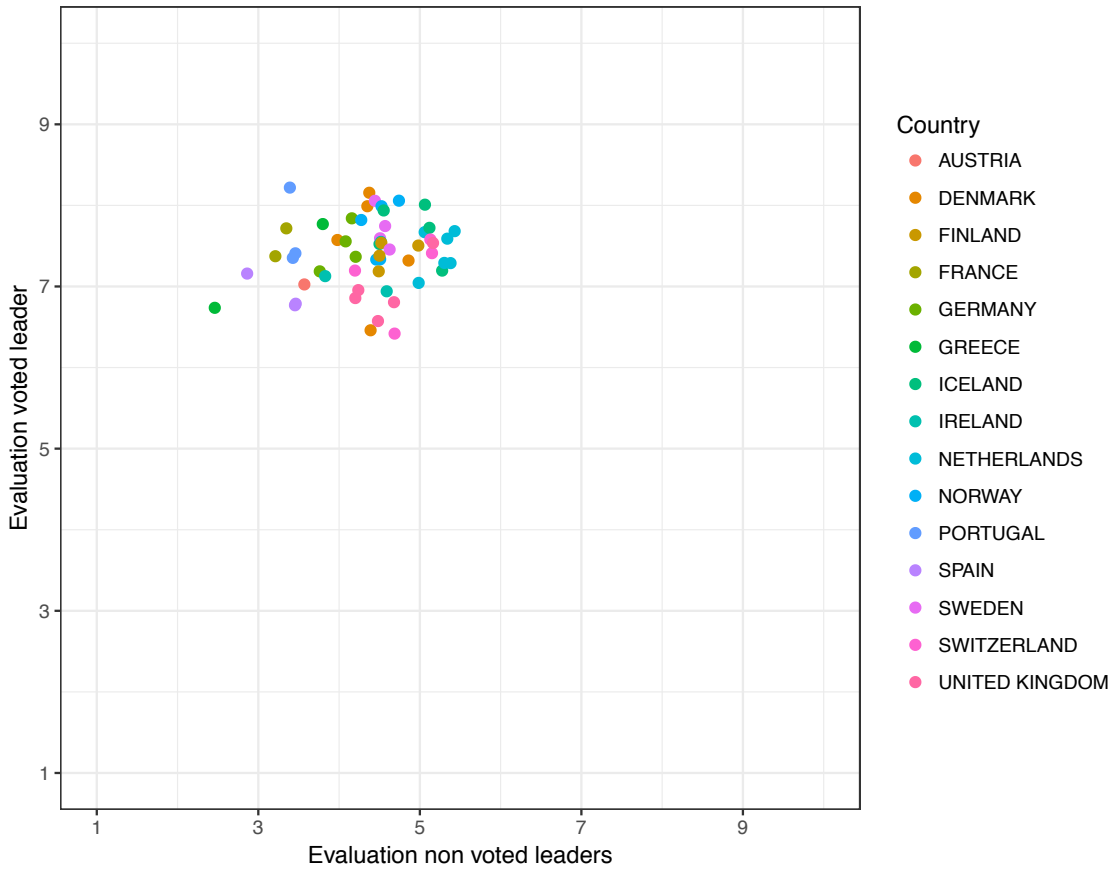
For instance, although a left-wing voter could assign a very high concise evaluation to his/her preferred party leader, he/she could also admit that such leader is not particularly competent because he/she is still a young politician. This means that, in this very last case, the voter would be less biased in the evaluation of the leader. From all this reasoning, we can conclude, in line with the argument we have put forward concerning ideological proximity, that the use of a concise and more-affective evaluation should be preferred.

The second motivation in favour of the use of the likeability scale instead leaders' traits is connected to the fact that only few National Election Studies have introduced in the survey a set of questions concerning the evaluation of leaders' traits, while, on the contrary, almost all surveys have asked respondents the evaluation of leaders on a likeability scale. It follows that, to be able to put forward a generalisable and comparative research, the use of a likeability scale should be preferred.

Differently from the cases of the ideological distance and the individual bias, in Figure 3.6 (see the next page), we do not find the particular location of parties. Indeed, the figure shows a homogeneous distribution of average leaders' evaluations across elections. In particular, voters' average evaluations of non-voted leaders are concentrated between 3 and 5.5. This high concentration of values below the median point of the likeability scale reveals a general tendency to evaluate non-voted leaders negatively. Differently, the average evaluation of voted party's leader is densely concentrated within the 6.4-8.2 interval, showing an average positive (yet not enthusiastic) evaluation of the voted party's leader.

Despite the absence of outliers from the distribution of data and a concentration in a particular portion of the plane, we can detect some interesting indications by comparing the national trends of voted and non-voted party leader average evaluation.

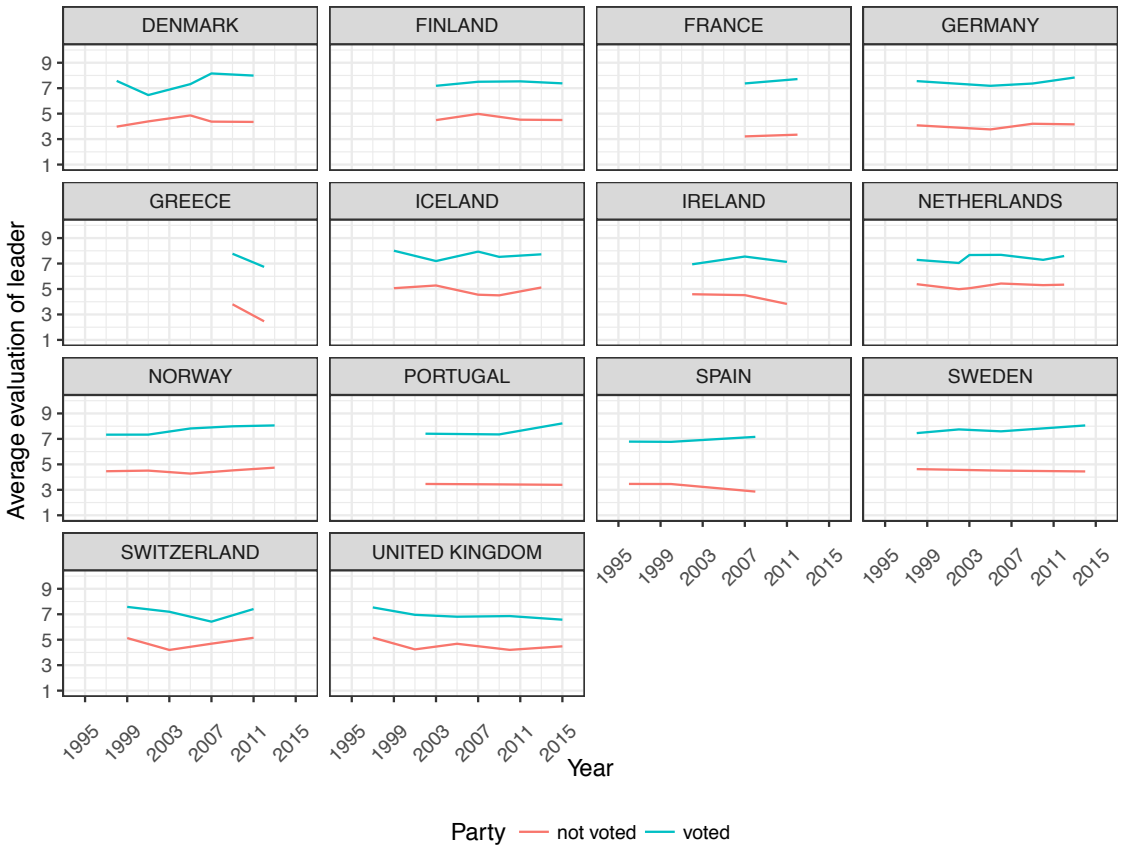
Figure 3.6 *Leadership evaluation by country and vote*



In particular, by looking at Figure 3.7 below, it is possible observing significant differences in the average degree of leader appreciation across countries. In particular, the figure shows that voters tend to evaluate less positively the voted party's leader especially in UK (2001, 2005, 2010, and 2015) and Spain (1996 and 2000), even if low evaluations have been found in Switzerland (2007) Denmark (2001), Ireland (2002), Spain, and Greece (2012). If a not enthusiastic evaluation of voted party's leader is somehow a common trait of countries across Western Europe, low evaluations of non-voted parties' leaders is a characteristic of Southern Europe.

Indeed, with the exception of the French case (2007 and 2012) that also shows on average non-positive evaluations, all the elections in which the average voters' evaluation of non-voted parties' leader is lower than 3.5 are Mediterranean counties: Greece (2012), Spain (1996, 2000, 2008), and Portugal (2002, 2009, 2015).

Figure 3.7 *Descriptive statistics on individual bias by country and vote*



5. Personalisation of politics. All the variables presented above compose the set of individual-related factors considered in the individual utility function of both the biased and the personalised Biased Voter Model. Nevertheless, as we have seen in the previous section, the factor that profoundly distinguishes the two models is a crucial systemic *explanans*: the level of personalisation of a general election.

As we have already discussed in the previous chapter, according to the hypotheses derived from the personalised Biased Voter Model, the impact of party-related-bias and leadership evaluation on voters' choice is profoundly shaped by the variation of the degree of personalisation of general elections.

Despite the intuitiveness of the expectation advanced in section 2.4, the operationalisation of the personalisation of general elections is not an easy task. This inevitably derives from the fact that, until now, political scientists have operationalised the concept of personalisation of politics in different manners, depending on their branch of

research. A general election could be considered as more personalised because leaders' names appear more frequent on newspaper titles, because topics related to the leaders become more salient with respect to issues related to policies, because parties make the selectorate more inclusive, and the like.

The fact that the personalisation of general elections might be measured in such a number of ways shows that: first, all the indicators built by the literature are not able to completely grasp the nature the personalisation of politics, and therefore the indicating portion of the each of these variables is not entirely satisfying (see Marino et al., 2017 for a longer discussion); second, that building an indicator able to encompass the overall personalisation of politics during a general election with an elevate indicating portion is an arduous task.

Since the existing indicators does not allow to account for the overall personalisation of general elections properly, to empirically test the personalised Biased Voter Model I will rely on the results of a novel expert survey that, along with Bruno Marino and Luca Verzichelli, I have devised on all the Western European countries to investigate the personalisation of politics from 1985 onwards (Marino et al., 2017). In particular, this expert survey seems to be one of the most suitable tools to accurately detect the impact of personalisation of politics on the party politics and the electoral spheres. Indeed, in addition to the high versatility of such an instrument, 'the great virtue of an expert survey is that it sets out to summarize the judgments of the consensus of experts on the matters at issue, and moreover to do so in a systematic way' (Benoit & Laver, 2006, p. 9). Within the broader set of questions that national experts have addressed, one question was particularly linked to the degree of personalisation of a given election. In particular, we have asked the expert the following question: 'How would you evaluate the overall impact of the personalisation of politics in each of the following General Elections? Please rate such impact on a 1-10 scale, where 1 means "very low impact" and 10 means "very high impact".

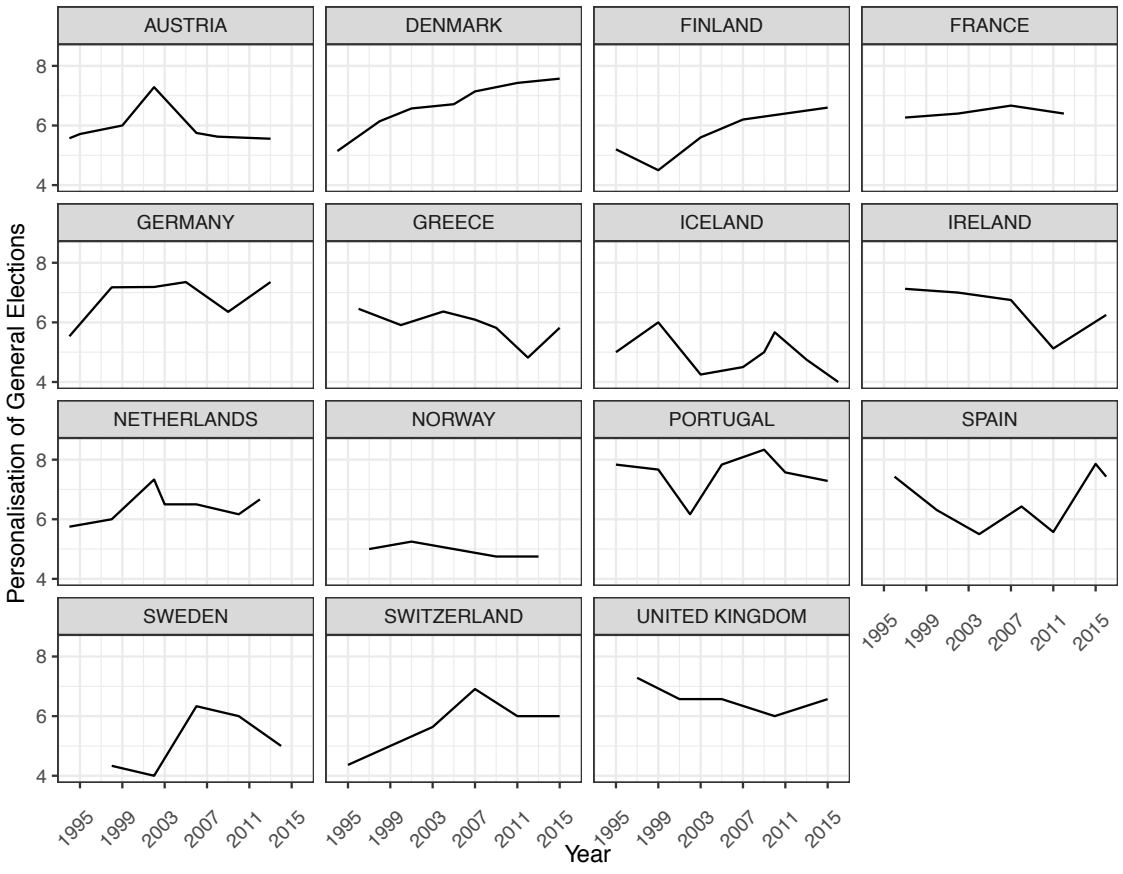
Although someone could argue that this question might be impressionistic, reliability tests confirm its appropriateness. Indeed, standard deviation analysis (Marino et al., 2017) reveals that the experts were not 'judging different objects, on different dimensions, at different points in time' (Steenbergen & Marks, 2007, p. 351). Indeed, the small level of variance within the data collected for each country confirms that the experts have judged the events and in the same manner.

Moreover, we have also performed a number of further statistical tests, such as the variance component analysis (Goldstein, 1995; Steenbergen & Jones, 2002), the inter-expert-correlation, and the reliability of experts' responses through the Spearman-Brown formula (see for a longer discussion in Steenbergen and Marks, 2007). All the results obtained by the variance component analysis and the inter-expert correlation confirm the non-problematic nature given by the experts, while the reliability index has a value of 0.93 on a 0-1 continuum, meaning a very high reliability of the obtained results (Marino et al., 2017, p. 14). This operationalisation of the personalisation of general elections seems also particularly fitting with the aim of the empirical analysis of this research. That is, to verify whether a variation in the level of personalisation conditions the impact on the voting of the individual bias and the leaders' evaluation. In particular, this operationalisation appears particularly appropriate because it empirically translates the more general concept of personalisation of politics in general elections, and not just to particular aspects of the more encompassing and complex phenomenon. It follows that this operationalisation allows us not to incur in validity and measurement errors, that would question the reliability of the empirical analysis itself.

Indeed, let us imagine what could have happened if we had operationalised the personalisation of politics by measuring the presence of leaders in traditional media (see for instance Holtz-Bacha, Langer and Merkle, 2014). In this case, since the effect of personalisation would have been related to the use of traditional media, different media diets would have conditioned the strength of its impact. Indeed, the effect of leaders' presence on traditional media on the individual voting choice is evidently conditioned by the frequency of use of traditional media as information sources. Nevertheless, since I do not condition personalisation's impact on voters' media diet, the effect we would have interpreted would have been spurious and would have led the analysis falling into the Simpson Paradox (Brambor, Clark, & Golder, 2006; Berry, Golder, & Milton, 2012).

Conversely, by operationalising the personalisation of politics in general elections through experts' evaluation, we do not risk incurring in such validity and reliability problems. Indeed, thanks to the nature of the variable itself, the effect of the personalisation of politics on the impact of both leaders' evaluation and individual bias on voting behaviour cannot be considered as spurious. So, it is possible to reliably and systematically consider in the empirical analysis the overall impact of personalisation, without incurring in indicating-portion-related and interpretation-related problems.

Figure 3.8 *Personalisation of politics per election*



By moving to the data and looking at Figure 3.8, we can first notice that, during the last twenty years, West European countries have relevantly variated in their level of personalisation of general elections.

Indeed, the figure shows that only in few cases has the trend been substantially monotonic: in Denmark, where the level of personalisation has been continuously increasing even after the exceptional election of 2001; in France and Norway, where the degree of personalisation of general elections is stable across the entire period; and in the United Kingdom, where, after Tony Blair took office, the elections were less and less personalised, at least until 2010.

Differently, all the other ten countries highlight a significant variation within the considered period. Moreover, if we look at outliers in national distributions, it is possible to identify particular moments in the national political systems and better understand (and model) the dynamics of the electoral campaigns.

For instance, let us consider the Swedish case: here, after two elections showing a shallow level of personalisation (1997 and 2001), in 2006 the level of the personalisation of general elections sharply increased. Then, it decreased again in the 2010 and 2014 elections. If we look at the 2006 unusual value, it certifies a particular moment of the electoral history of Sweden. Indeed 'the Social Democrats suffered their worst score in a parliamentary election since 1920, for the first time in the Social Democrats' long history [..] a leader had resigned after electoral defeat, and, by contrast, the result was a spectacular success for an unprecedented alliance of four opposition, right-of-centre parties, led by the new prime minister, Fredrik Reinfeldt' (Aylott & Bolin, 2007, p. 621). Moreover, these electoral results 'constituted a personal triumph for their leader, Reinfeldt. Over three-quarters of Moderate voters ascribed to him great or fairly great significance in their party choice, easily the biggest proportion among the seven parties' (Aylott & Bolin, 2007, p. 628). This evidence reported by a national election report reflect the data we gathered, that indeed highlight an unusual value for the level of personalisation in Sweden in the aforementioned elections.

The 2009 German election represents another example of the precision of the variable derived from the expert survey on the personalisation of politics. In that case (differently from the 2006 Swedish election), no particular transformation happened in the German politics: the CDU/CSU was confirmed as the first party and Angela Merkel was re-elected chancellor. Nevertheless, differently from the 2005 and the 2013 elections, we can read, on German Politics' report of the 2009 elections, that, during the electoral campaign, Merkel has decided to 'governing instead of campaigning' (Krewel, Schmitt-Beck, & Wolsing, 2011, p. 32), while the candidate of SPD, Steinmeier, maintained a profile 'too unemotional, too stiff and too boring […] [since as] acting vice chancellor of the Grand Coalition he also could not play the card of a more aggressive campaign to sharpen his image' (Krewel et al., 2011, p. 32). All in all, 'the 2009 election campaign can be summarised in one word: boring' (Krewel et al., 2011, p. 29). Also, in this case, there is a profound correspondence between the report of a national election and the value reported in the figure.

As these two examples clearly display, the variable I will consider in the empirical analysis can properly estimate the overall level of party personalisation, and consequently take into account a number of parameters that until now have been accounted separately: the prominence of a leader with respect his/her party, his/her desire and/or inability to be present on the media, his/her relevance in affecting voting decisions, and the like.

Because of the operationalisation of a general concept, the reliability of experts' judgements and the correspondence of experts' judgements with several other sources of information, I argue that this is the most accurate variable to verify whether the variation of the degree of personalisation of general elections affects individual behaviour.

3.3. Empirical Analysis

After having presented the data I will use in the empirical analysis and described the variables at both the individual and the systemic level, it is finally possible approaching the empirical analysis. Before considering the empirical test of both the biased and the personalised Biased Voter Model, I will firstly introduce and justify the method I will use to perform the empirical analysis. Then, after this first subsection, I will test the Biased Voter Model, while in section 3.3.3, I will empirically test the conditioning effect of the personalisation of general elections on individual voting behaviour.

3.3.1. Method

Since the dependent variable of the analysis is a dichotomous one, we will apply a discrete choice model. Among the high number of statistical discrete choice models (Gelman & Hill, 2007, pp. 79–134), it has been shown (Alvarez & Nagler, 1998; Thurner, 2000b) that the optimal model to study individual voting decision in single case studies is the Conditional Logistic regression (see McFadden, 1974 for a more extended discussion). Nevertheless, the assumptions and requirements at the base of Conditional Logistic Regression[68] do not enable their use in comparative research.

Consequently, to study discrete dependent variables comparatively, scholars have followed two different paths (van der Eijk et al., 2006): first, they have adapted their framework of research by using party families instead of parties as dependent variable;

[68] Conditional Logistic models assume the absence of a random term, necessary to distinguish among countries. Moreover, they also require that the number of alternatives to remain fixed for all the decisors (Alvarez & Nagler, 1998), a difficult requirements for electoral choice in Western Europe.

second, they have performed different country-related analyses and, only in a second moment, compared the obtained coefficients across countries. Although both solutions allow overcoming the limitations of Conditional Logistic regressions, they also involve some severe criticisms.

In the first case, to apply a Conditional Logistic regression on a comparative dataset, it is necessary to modify the research question profoundly: indeed, the model does not estimate the probability to vote for a party anymore, but on aggregate of different parties (such as, party families). Consequently, it might be the case that a single party family might label more than one party in the same election, and this involves severe consequences for the interpretation of the results: how could the perceived distance of single voters be evaluated with respect to a party family that includes two different parties? Could it be reliable considering the average position of the two parties? Furthermore, concerning this research, even more serious consequences would be connected to the impact of individual biases. Could we assume that the average bias toward two different parties belonging to the same party family would be the appropriate solution? Alternatively, would it be satisfying to consider the bias toward the most preferred party? All these doubts naturally make the use of party family as the dependent variable particularly problematic in this study. Consequently, according to this first option, we would have applied a proper method, but with a different and less reliable research design.

Passing to the second possible solution, although performing separate analyses for different elections would not cause consequences as dangerous as the ones brought about by modifying the nature of the dependent variable, it would be particularly challenging to interpret the results adequately. Indeed, in front of a high number of coefficients to compare (in this research, 56 different coefficients per variable), it would be highly complicated understanding the real effect of the independent variables. Moreover, it would be very difficult to estimate a general effect of the independent variables for the entire sample[69]. In this second option, again, we would have applied a proper method, but we would have been unable to interpret the results adequately.

[69] In particular, in the case of this research, we would have 56 different coefficients for each variable to be compared and interpreted: not only their comparison would have been tedious for the reader, but also the interpretation of a general impact of the variables would have been difficult to grasp.

A possible solution that does not suffer from all these problems and that allows considering in the same analysis party systems characterised by a different number of parties, and also both decisor-related- and alternative-related variables (Thurner & Eymann, 2000), is to perform a logistic regression on a stacked dataset (among others, see H.-D. Klingemann & Weßels, 2009; Curtice & Lisi, 2015). This solution allows estimating the impact of a number of independent variables on voters' choices, and, in particular, on a dichotomous variable operationalising the vote/not vote for a party.

Indeed, in a stacked dataset, the observation does not stand for the single voter anymore. Conversely, it represents the combination voter/party. It follows that the dataset is $V_e x\ P_e$, where V_e represents the total number of voters in a given election e while P_e is the number of parties competing in the election e. This procedure allows to take into consideration both the variance at the party level and at the country level, and, consequently, to put forward an analysis of individual choices on a comparative dataset, like the one used in this research. Consequently, to find a comprehensive explanation for individual voting behaviour and test on a comparative dataset the Biased Voter Model and the personalised Biased Voter Model, a logistic analysis on a stacked data should be preferred (see also H.-D. Klingemann & Weßels, 2009)

Moreover, a second element that should be addressed before dealing with the empirical results concerns the hierarchical structure of the dataset built for this research. Indeed, in the dataset I will use to perform the empirical analysis, voters are clustered into different elections. Indeed, since the dataset is a comparative cross-sectional dataset and not a panel dataset, each voter considered in the election study a has not been considered in an election study b. Leaving aside this element would profoundly affect the results of the analysis, since it would have not allowed accounting for the variation among different elections. This would have affected the reliability of the coefficients of both first- and second-level variables (see a longer discussion in Gelman and Hill, 2007). Consequently, in order to account for the impact of the hierarchical structure of the dataset, a generalised linear mixed model should be preferred to a simpler logistic regression.

Nevertheless, in order to be sure that performing a multilevel model really increases the reliability and the goodness of fit of the analysis with respect of a logistic regression, I have compared the log-likelihood of a single level logistic null model and a generalised linear

mixed null model where the second-level variable (that is, the election) is considered. The difference between the log-likelihood of the two models is equal to 3147.2[70]. This means that the introduction of a second-level factor (elections) has a significant impact on the goodness of fit of the models. In other words, this confirms that a generalised linear mixed model should be preferred. So, in the empirical analysis, I will put forward a multilevel logistic regression, whose random effect at the group level is accounted by letting the intercept of each election vary.

Moreover, given the numerosity of the second-level variable (that is higher than 30) using a multilevel regression would not risk to bias downward the standard error (Maas & Hox, 2004). Consequently, the analysis respects all the rules of thumb concerning the numerosity of the second-level variable necessary to perform a multilevel analysis (Stegmueller, 2013; Bryan & Jenkins, 2016).

Finally, by performing a multilevel regression, it will also be possible 'accounting for the individual- and group-level variation in estimating group-level regression coefficients and modelling variation among individual-level regression coefficients' (Gelman & Hill, 2007, p. 246, italics added). Indeed, differently from a single-level regression, by taking into consideration the variation of intercepts across the sample considered here, it will be possible to compare the impact of specific factors in each group. This will be the core of the next subsections.

3.3.2. Testing the Biased Voter Model

After having presented the comparative dataset that will be used in this empirical analysis, justified the selection of countries and parties, described the variables included in the analysis and explained the methods used, it is now possible to empirically verify the hypotheses advanced in sections 2.3 and 2.4, and test the empirical goodness of fit of both the biased and the personalised Biased Voter Model.

Before running the model and discussing the results, it is relevant underlining that since the models we are estimating are mixed models (with random intercept) and include

[70] See Appendix C for more details concerning the likelihood ratio test.

interaction terms, I have centred the individual level variables at the group mean by 2 Standard Deviations.

Table 3.2 *Generalised linear mixed regressions – Biased Voter Model*

	Null Model	Model I	Model II
Age		0.041***	0.039**
		(0.012)	(0.012)
Gender		-0.029*	-0.033**
		(0.012)	(0.012)
Education		-0.111***	-0.113***
		(0.012)	(0.012)
Bias against party		-5.401***	-4.746***
		(0.032)	(0.037)
Distance from party		-1.436***	-0.924***
		(0.031)	(0.034)
Evaluation of leader		1.330***	0.203***
		(0.017)	(0.033)
Distance from party | Bias			1.466***
			(0.060)
Evaluation of leader | Bias			-2.367***
			(0.060)
Intercept	-1.605***	-3.980***	-3.787***
	(0.048)	(0.111)	(0.116)
AIC	316046.433	186725.391	184553.668
BIC	316068.109	186812.097	184662.050
Log Likelihood	-158021.216	-93354.696	-92266.834
N	376303	376303	376303
N Elections	56	56	56
Variance at Elections Level	0.172	0.673	0.743

***p < 0.001, **p < 0.01, *p < 0.05; Log-odds reported; Standard Errors in Parentheses

This is crucial not to let the estimated coefficient be affected both by the within-group variation and the between-group variation: indeed, centering on the group mean 'removes all between-cluster variation from the predictor variable and yields a slope coefficient […] that is unambiguously interpreted as the pooled within-cluster […] regression of well-being on workload' (Enders & Tofighi, 2007, p. 127).

Moving to commenting the empirical findings presented in Table 3.2 above, we firstly observe that, with respect to the null model, if the individual vote is regressed on the explanatory and control variables, the goodness of fit of the model significantly increases: indeed, the Bayesian Information Criterion (from now on, BIC) of the null model is more than two times higher than the one of Model I, meaning that Model I have a better goodness

of fit than the Null Model. Moreover, when the conditioning effect is taken into consideration in Model II (that is, when the Biased Voter Model is tested), the goodness of fit further increases relevantly and statistically significantly with respect to both Model I and the Null Model[71].

Let us now move our attention to the fixed effect coefficients. First of all, by looking at Table 3.2, and in particular at Model I, we can safely conclude that both the hypotheses derived from the literature (that is, H 2.1 and H 2.2) find empirical confirmation. Indeed, to an increase in the distance between a voter i and a party j, it corresponds a significant ($p<0.001$) decrease in the probability for voter i to vote for such party j.

More into details, by looking at the odds ratios[72] presented in Table 3.3, to an increase of one unit in the distance utility loss (that is, the squared distance between the position of the voter and the location of j), the probability that an individual vote for *j* becomes 0.73 times smaller.

Table 3.3 *Generalised linear mixed regressions – Odds Ratio*

	Model I Odds Ratio	**Model I Change in the odds**	**Model II Odds Ratio**	**Model II Change in the odds**
Age	1.04	+0.04	1.04	+0.4
Gender	0.97	-0.03	0.98	-0.02
Education	0.89	-0.11	0.88	-0.12
Bias against party	0.01	-0.99	0.01	-0.99
Distance from party	0.24	-0.76	0.38	-0.62
Evaluation of leader	3.78	+2.78	1.50	+0.50
Distance from party | Bias			5.10	+4.10
Evaluation of leader | Bias			0.08	-0.92
N	376303	376303	376303	376303

[71] Moreover, as reported in Appendix C, I have performed tests for multicollinearity. The level of multicollinearity cannot be considered as problematic for the model.

[72] By looking at the odds of the distribution, we comment the exponential value of the log-odds, that is the coefficients reported in Table 3.2. This means that 'For a unit change in x_k, the odds are expected to change by a factor of $exp(\beta_k)$, holding all other variables constant' (Long, 1997, p. 81). Since odds ratio are multiplicative terms, it follows that we can interpret the change in the odds as follow: for a unit change in x_k, the odds are expected to be 1- $exp(\beta_k)$ bigger/smaller.

By looking again at Table 3.2, also the second hypothesis derived from the literature (that is, the positive impact of the party leader's evaluation on the probability to vote for a party) can be considered as confirmed by the empirical analysis. Indeed, to an increase in the positive evaluation of party j's leader, it corresponds a statistically significant ($p<0.001$) increase in the probability for voter i to cast the ballot in favour of j. More specifically, the change in the odds of Model I reported in Table 3.3 shows that in Model I, to an increase of one unit in party j's leader evaluation, the probability that the voter i supports party j gets 2.78 times bigger.

Although both the coefficients of distance from party and leadership evaluation confirm the expected signs, the variable that makes the odds to vote for a party j vary most relevantly is voter' s bias against party j. Indeed, when the voter i's bias against j increases by one unit, the odds for i to vote for j get 0.99 times smaller (Table 3.3). Moreover, Table 3.2 confirms the statistical significance of the relationship ($p<0.001$).

In other words, the results presented in Model I stress the prominence of individual bias with respect to the other variables: the impact of the individual bias (that is the difference between i's evaluation of j and i's evaluation of his/her preferred party J) is the variable that makes the change in the odds vary the most. Furthermore, given the negative sign of individual's bias coefficient, we can conclude that also the hypothesis 2.3 is confirmed by the empirical analysis: the higher the bias of an individual against a party, the lower the probability for this individual to vote for such party

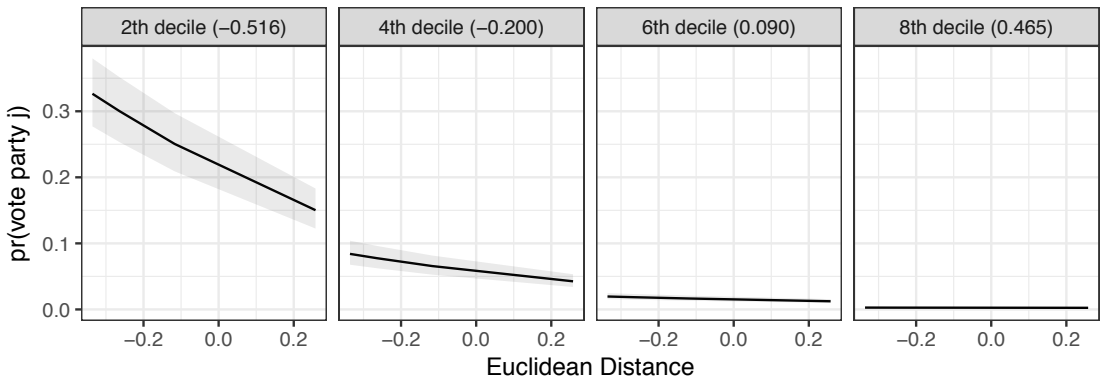
Moreover, if Model I shows the direct effect of the variables, to test the role played by individual bias, we should rely on Model II, which empirically tests the individual Biased Voter Model's utility function. First of all, by introducing in voters' utility function their biasing condition in the evaluation process of both the Euclidean distance and leaders' likeability, the goodness of fit of the model significantly increases. Indeed, by comparing the BIC of Model II and Model I, the Biased Voter Model should be preferred to a model where the individual bias plays only an independent and not conditioning role.

Moving to the empirical results presented in Table 3.2, the impact of individual bias against party j strongly conditions i's evaluation of the Euclidean distance from j. Indeed, even if the effect of Euclidean Distance remains significant ($p<0.001$) and negative in Model II, the direct effect of such variable is much less relevant than the one estimated in Model I.

In particular, in Table 3.3, when the i's centred bias against party j is equal to zero[73], to a one unit increase in the Euclidean distance between voter i and party j, the odds to vote for j get 0.62 times smaller – that is the effect is weaker respect to the effect observed in Model I.

Moreover, to consider the overall effect of Euclidean distance in the Biased Voter Model, we have to also include in the evaluation of the variable's effect the conditional impact of individual bias. In particular, the overall effect of Euclidean Distance (in log-odds coefficients, the ones reported in Table 3.2) is equal to $(-0.924 + 1.466\ Bias)\ Euclidean\ Distance$. In other words (as the coefficients in Table 3.2 show), the impact of individual bias makes the negative impact of the Euclidean Distance on the probability to vote for a party weaker. This result allows us to consider the H 2.4b as confirmed by the empirical analysis: to a higher magnitude of i's bias against j, the magnitude of the negative impact of Euclidean ideological distance on the probability to vote for j decreases. The empirical confirmation of H 2.4b can be also seen by looking at figure 3.9, which clearly shows that to higher values of the individual bias, the decrease of the probability to vote for a party due to an increase of the Euclidean distance gets smaller.

Figure 3.9 *Conditioning effect of individual bias on Euclidean ideological distance*



[73] When a variable is centered, the 0 value in the centred variable corresponds to the average value of the non-centred variable. In this case, consequently, when the centred bias against party is equal to 0, it means that we set the (non-centred) variable at its average value.

Moreover, Figure 3.9 allows also to verify the goodness of H 2.4. By comparing the variations of the probability to vote for a party j when both the individual bias and the Euclidean distance between a voter i and a party j increases, it will be possible to verify whether it is empirically confirmed that a higher the magnitude of i's bias against party j, paired with a higher Euclidean ideological distance between i and j, bring about a lower the probability for i to vote for j.

Figure 3.9 shows the variation in the probability to vote for a party for different values of both the Euclidean distance and the magnitude of voter's bias against such party. In particular, we test the variation in the individual probability to vote for a party when the Euclidean distance increases and at four different values of individual bias: the second, the fourth, the sixth and the eighth deciles of the distribution of the individual bias. By controlling the impact of an increase of the Euclidean distance on the probability to vote for a party when also the degree of individual bias varies, we observe that to higher values of individual bias, the magnitude of the slope of the probability function gets smaller and smaller. Meaning, also hypothesis 2.4 is confirmed by the empirical analysis.

After having tested the conditioning effect of individual bias on the impact of ideological distance, there is a further question that should be answered: what about the conditioning effect of individual bias on leadership evaluation's impact?

First of all, in line with the results observed on Euclidean Distance, we observe that the direct effect of leadership evaluation substantially decreases if the conditioning effect of individual bias is considered – that is passing from Model I to Model II in Table 3.2. In particular, according to Model I, an increase of one unit in leadership evaluation increases the probability for i to vote for j by 2.78 times. On the contrary, the same variation in leadership evaluation in Model II causes an increase in i's probability to vote for j equal to 0.5 times.

Moreover, also in this case, this relationship holds only when the centred individual bias is set at the average value. Indeed, when the individual bias assumes values different from 0, the overall impact of leadership evaluation (measured in log-odds) is equal to $(0.203 - 2.367Bias)\ Leadership\ Evaluation$. If we look at the negative sign of i's bias conditioning effect on the impact of i's evaluation of j's leader, we can conclude that also H 2.5 finds empirical confirmation. Indeed, an increase in the individual bias against party *j*

sharply reduces the positive impact of higher assessment of *j*'s leader on the probability to vote for *j*.

Figure 3.10 *Conditioning effect of individual bias on leadership evaluation*

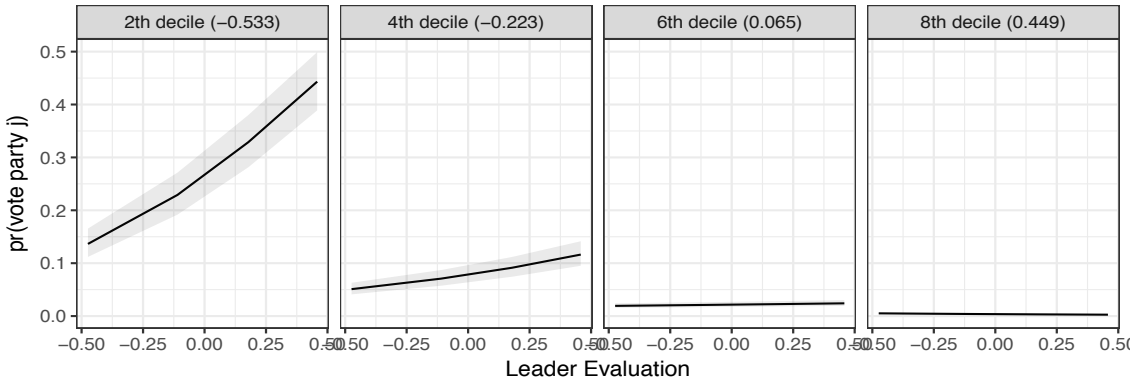


Figure 3.10 highlights these empirical results even more impressively. First of all, Figure 3.10 shows the sharp variation that occurs in the leadership impact if individual bias changes from the second to the fourth decile (that is, from the first to the second plot in Figure 3.10). The evidence put forward in the figure strengthens this relationship by showing that even a small increase of *i*'s bias against party *j* at low levels of such bias strongly affects the capacity of leadership evaluation to condition the individual voting behaviour. More specifically, the delta of the probability for *i* to cast the ballot in favour of *j* determined by the increase in leadership evaluation decreases from 31% when *i*'s bias is settled at the second decile to 6% if *i*'s bias is settled at the fourth decile[74].

The conditioning effect of individual bias becomes even more crucial when this latter is settled at the sixth or at the eighth decile. At these levels of voters' bias, even a relevant increase in the evaluation of a party's leader has no impact on voter's probability to support such party: the positive impact of individual leadership's assessment matters only when *i*'s bias against party *j* is not particularly relevant. In the latter case, then, voters' negative feelings prevail on leadership effect, which conversely loses its capacity to positively

[74] See Appendix D for additional plots on marginal effects and for the predicted probabilities tables used to describe variables' effects.

condition the individual probability to vote for party j. In other words, it seems that higher values of individual bias dissipate the positive effect that a higher party leader evaluation has on the probability to vote for such leader's party[75].

This obviously does not mean that leadership evaluation is not a relevant variable in the individual voting decision, but that it plays a decisive role only when a voter has to compare a restricted pool of alternatives, that is, the set of 'preferred parties': it is indeed when i is not able to decide among two parties that leaders play their role in shaping voting decisions.

3.3.3. Testing the Personalised Biased Voter Model

The results presented in the previous subsection allow us to conclude that the Biased Voter Model finds empirical confirmation. Nevertheless, there is still a question that has been advanced in the second chapter of this research remains unanswered: does the personalisation of politics matter during general elections?

As I have already argued in the previous chapter, despite the growing relevance of the personalisation of politics, whether this latter plays a role in the individual voting behaviour is an issue that has been scarcely addressed in the literature. This is even truer if we look at the personalisation of politics in an encompassing way[76].

Indeed, in the electoral scholarship, scholars have mostly operationalised the impact of the personalisation of politics in general elections by using proxies representing single components of this more extensive phenomenon (Marino et al., 2017). On the contrary, in section 2.4, I have argued that, during general elections, the close relationship between the importance of leader effect and the personalisation of general elections has led the electoral scholarship to misleading conclusions.

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[75] On the contrary, it could also be that higher values of leadership evaluation reduce the negative effect of individual bias against a party. Nevertheless, empirical evidence reported in Appendix C shows that this is not the case: to higher values of leadership evaluation, an increase in individual bias against a party reduces the probability to vote for such party more and more significantly.

[76] See the discussion on personalisation of politics put forward in section 3.2.

Indeed, although the degree of personalisation of politics in general elections has often been estimated via the relevance of the impact of leadership evaluation on the vote, the causal relationship between the two factors is the opposite. It is the level of personalisation of a general election that affects the importance of leadership in individual voting choice during such election, and not the other way around.

Consequently, according to the personalised Biased Voter Model, to accurately estimate the degree of personalisation of politics during general elections, we should consider the shaping effect of the overall context in which the electoral campaign is held. Indeed, it is this overall context that conditions the impact of leader-related factors on the probability to vote for a party. Nevertheless, one of the problems at the base of empirically testing such a proposition is undoubtedly related to the necessity of operationalising the overall impact of personalisation in the general elections. As we have already seen, to overcome this problem, I have considered the data collected via the first Personalisation of Party Politics Expert Survey (Marino et al., 2017). Thanks to such operationalisation, it has been possible to empirically estimate the role of the overall personalisation of general elections and, consequently, test the personalised Biased Voter Model presented in section 2.3 without incurring in a validity-related problems. Consequently, after having centred the variable[77], I have introduced this second-level factor in the multilevel logistic regression. Table 3.4 below presents the results of the empirical analysis.

First of all, the results presented in Table 3.4 confirm that the introduction of the personalisation of the general elections only as an additive and control variable (Model III) does not increase the goodness of fit of the models in a statistically significant manner. Indeed, Model III shows a BIC value higher than Model II (let us recall Model II has been presented in the previous subsection). This means that, by including the personalisation of general elections only as a control variable, the interpretation of the individual voting decision becomes less efficient than the model that does not account for such factor (i.e., Model II). Conversely, when the conditioning effect of the personalisation of general elections affect both leadership evaluation and individual bias (that is, Model IV), the

[77] Differently from the centring of first-level variables, and following the literature on the topic, this second-level variable has been centred on the grand mean and not on the within-cluster mean (Enders & Tofighi, 2007).

goodness of fit of the model significantly increases: the BIC value of Model IV is smaller than both Model III and Model II ones.

Table 3.4 *Generalised linear mixed regressions – Personalised Biased Voter Model testing*

	Model II	Model III	Model IV
Age	0.039**	0.039**	0.037**
	(0.012)	(0.012)	(0.012)
Gender	-0.033**	-0.033*	-0.032*
	(0.012)	(0.012)	(0.012)
Education	-0.113***	-0.113***	-0.111***
	(0.012)	(0.012)	(0.012)
Distance from party	-4.746***	-0.924***	-0.936***
	(0.037)	(0.034)	(0.035)
Bias against party	-0.924***	-4.746***	-5.100***
	(0.034)	(0.032)	(0.036)
Leader evaluation	0.203***	0.203***	0.137***
	(0.033)	(0.033)	(0.037)
Personalisation		0.229	1.528***
		(0.221)	(0.220)
Distance from party | Bias against party	1.466***	1.466***	1.404***
	(0.060)	(0.060)	(0.062)
Leader evaluation | Bias against party	-2.367***	-2.367***	-2.460***
	(0.060)	(0.059)	(0.067)
Leader evaluation | Personalisation			0.737***
			(0.068)
Bias against party | Personalisation			2.628***
			(0.067)
Leader evaluation | Bias against party | Personalisation			1.501***
			(0.121)
Intercept	-3.787***	-3.595***	-3.982***
	(0.116)	(0.111)	(0.113)
AIC	184553.668	18554.621	182468.844
BIC	184662.050	184673.841	182620.578
Log Likelihood	-92266.834	-92266.311	-91220.422
N	376303	376303	376303
N Elections	56	56	56
Variance at Elections	0.743	0.729	0.706

***p < 0.001, **p < 0.01, *p < 0.05; Log-odds reported; Standard Errors in Parentheses

By moving to consider variables' fixed effect, if the conditioning effect of personalisation of the general election is considered, coefficients highlight very impressive

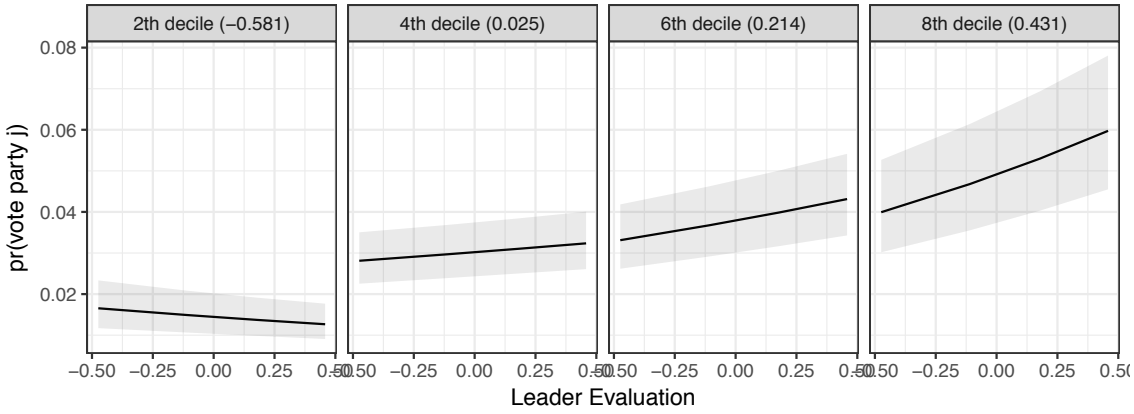
results (Model IV). First of all, the conditioning effect of the personalisation of general elections on the impact of leadership evaluation on voting choices is positive and statistically significant. It follows that, to higher levels of personalisation of general elections, voters tend to consider more the evaluation of party leaders: in more personalised context, voters' evaluation of party leaders becomes more and more significant in voter's choice. For instance, this means that voters are more inclined to make leader evaluation more salient if leaders are more present on the media during the electoral campaign, or if they have been legitimised by a more open selectorate, or if leader-related issues have been more relevant than policy-related issues during an electoral debate, and the like.

Such result is in line with the expectations put forward in H 2.6, which consequently finds confirmation in the empirical analysis. This can be easily observed also by looking at the component of the utility function. Indeed, it is this latter that estimates the impact of leadership evaluation on the probability for a voter i to cast the ballot in favour a party j. By looking at the component of the utility function

$$(0.137 + (0.137 + 1.501Personalisation)Bias + 0.737Personalisation)Leadership\ Evaluation$$

we can indeed conclude that all the entries connected to the personalisation of general elections positively affect the impact of leadership evaluation, meaning that more personalised general elections boost the impact of a higher j's leadership evaluation on the probability that voter i votes for party j.

Figure 3.11 *Conditioning effect of general elections' personalisation on leader's evaluation*



This is also confirmed by Figure 3.11. The figure shows the positive conditioning effect of a higher level of personalisation of general elections on leadership evaluation's impact. Indeed, when elections are not very personalised (that is, at the 2nd decile of the personalisation of general elections), an increase in the leadership evaluation has not a positive impact on voter's behaviour. On the contrary, when the level of personalisation of elections becomes sufficiently elevated (that is, at the 4th decile), to a better evaluation of party j's leader it corresponds a greater and greater increase in the probability to vote for party j. Then, when elections are highly personalised (that is, the variable is settled at the eighth decile), the probability of voting for party *j* changes by 2% when voter i's leadership evaluation changes from the second value to the eighth decile.

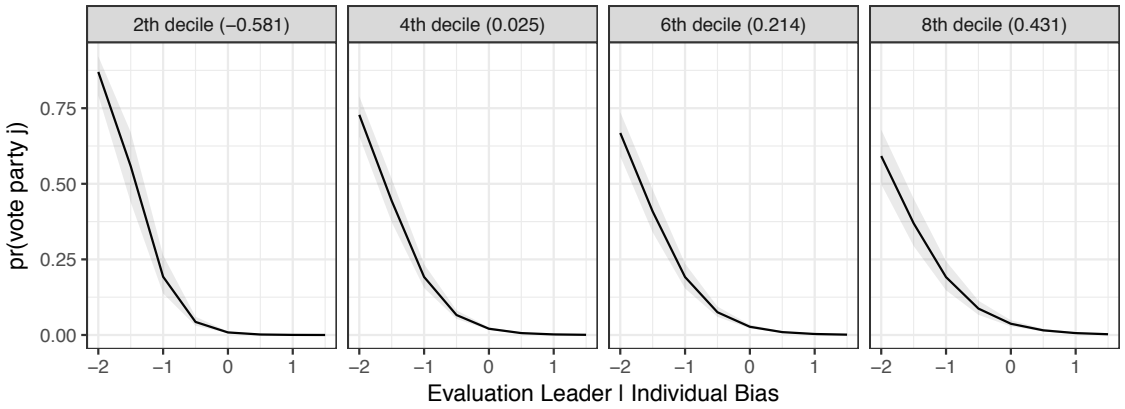
By making a step forward, to empirical test the second hypothesis I have derived from the Personalised Biased Voter Model, H 2.7 expects that a higher personalisation of a general election should reduce the conditional impact of voter i 's bias against party j on the impact of leadership evaluation on the probability that i votes for j. Consequently, by looking at Table 3.4, we can conclude that also H. 2.7 is confirmed by the empirical analysis.

Indeed, let us consider the overall impact of the conditioning effect of individual bias, represented by the following component of the individual utility function.

$$(-5.100 + (-2.460 + 1.501Personalisation)Leadership\ Evaluation + 2.628Personalisation)Bias$$

First of all, the conditioning effect of individual bias against party j remains negative also in Model IV. Nevertheless, the positive sign of the personalisation of general election weakens the negative conditioning effect of individual bias on leaders' effect. It follows that the higher the level of personalisation of general elections, the weaker the conditioning effect of individual bias on leadership evaluation's impact on voting choice.

Figure 3.12 *Conditioning effect of personalisation of general elections on leadership evaluation | individual bias*



This relationship is also graphically confirmed in Figure 3.12 above. Indeed, the figure shows that to higher levels of personalisation of politics, the average slope of the probability function of $Leadership\ Evaluation \mid Bias$ gets smaller. Meaning, the conditioning capacity of individual bias gets weaker and weaker. When general elections are not very personalised (second decile), the delta of probability caused by the impact of individual bias on leadership evaluation is -0.86, while it becomes -0.59 when the level of personalisation of general election is settled at the eighth decile. In other words, the figure confirms that an increase in the personalisation of general elections moves the barycentre of the voting decision process from the evaluation of the parties to the evaluation of the leadership: party-related bias loses its conditioning capacity.

Indeed, although voters' bias against parties still has a say even in personalised contexts, its discounting effect[78] is surely affected by the number of times the voter sees the leaders' faces on televisions, reads the leaders' names on newspapers and by all those other factors that condition the degree of personalisation of general elections.

This means that the individual bias against parties is affected by the fact that the leaders are highly at the centre of the electoral debate and, consequently, the role of leadership evaluation acquires relevance despite party-related bias. In other words, also H. 2.7 is confirmed by the empirical analysis.

[78] The discounting effect of party-related bias is the bias leading voters to decrease the relevance of the leadership evaluation on their voting choice due to voters' attitudes toward parties.

Conclusions

The results presented in this chapter have empirically confirmed the hypotheses put forward in section 2.3 and 2.4, showing that bias plays a central role in individual voting behaviour. Furthermore, these results allow to consider both the Biased Voter Model and the personalised Biased Voter Model as validated by the empirical analysis.

In particular, by testing the Biased Voter Model on 15 West European countries in the last 20 years, it has been shown that there has been a crucial role played by individual party-related bias in shaping either voters' evaluation of major utility sources and also electors' probabilities to vote for a party.

In this respect, the analysis presented in Model I (that is, the model in which neither the conditioning effect of personalisation of politics nor individual bias are considered) has shown that the individual's bias is by far the most relevant factor directly affecting voting behaviour. Indeed, although both the distance on the ideological continuum and leaders' evaluation affect individual voting choices, the individual party-related bias is the factor that most strongly influences the probability that a voter will cast the ballot in favour of a party. At the same time, the analysis has also confirmed the significant conditioning effect that party-related bias has on ideological proximity and leadership evaluation themselves.

In particular, starting from the ideological proximity, the empirical analysis has confirmed that individual bias profoundly shapes the negative impact of an increase in the distance between voters and parties. That is, when a voter is particularly biased against a party, a small increase in the Euclidean distance between him/her and a party does not relevantly affect the probability for him/her to cast the ballot in favour of such party. On the contrary, the Euclidean distance can strongly condition the probability that an individual votes for a party when such voter is not particularly biased against the party he/she is evaluating.

Moreover, the empirical analysis has also confirmed the primary conditioning effect of individual bias on the impact of leadership evaluation. Indeed, to higher values of an individual's bias against a party, the positive impact of such party's leader becomes less shaping for influencing voting behaviour. In particular, Figure 3.10 has shown that when the bias against a party has a value higher than the median one, the positive impact of leadership

evaluation vanishes: in a situation of high bias against a party, whether a voter evaluates more or less positively the leader of such party has not an impact on the individual's voting choice.

These results not only confirm the expectation put forward in the second chapter, but also advance an explanation in the debate concerning the predominance of party-related or of leader-related evaluations in voting behaviour (see the related discussion in Sections 2.2 and 3.2). Indeed, the results have confirmed the idea of a predominance of party-related bias with respect to leader evaluation. Nevertheless, this does not mean that the leaders do not matter in voters' decisions. Indeed, leaders become decisive when voters have to decide within the set of preferred parties. In other words, leaders' role becomes more and more important when voters are less and less biased against such leaders' parties.

If the significant impact of individual bias represents a fundamental innovation introduced by the Biased Voter Model, this chapter has also empirically tested the personalised Biased Voter Model. That is, the model in which, in addition to the conditioning effect of individual party-related bias, also the effect of personalisation of general elections is considered.

In addition to the novelties introduced by the Biased Voter Model, its personalised version allows, for the first time, to analytically distinguish between leaders' effect and the personalisation of politics. Indeed, by testing the hypotheses concerning the conditioning effect of the overall personalisation of general elections on leaders' effect, I have shown that there is a profound difference between the two concepts. That is, the impact of leaders' evaluation on voting behaviour is more or less relevant according to the level of personalisation of a general election.

So, the empirical analysis has shown that leaders' effect influence voting behaviour more and more significantly when the level of personalisation of general elections increases. From the opposite point of view, when such personalisation has not been very high, a higher evaluation of party leaders does not profoundly affect voters' choices.

Moreover, it has also been shown that the personalisation of general elections influences the conditioning effect of individual bias. Indeed, one the one hand, we have seen that voters' party-related bias condition the impact of leaders' effect on voting behaviour. On the other hand, we have also hypothesised that, in front of an increase in the personalisation of a general election, such conditioning effect of party-related bias should decrease. On this respect, the empirical analysis has shown that, if the personalisation of a

general election gets higher, the braking effect of party-related bias on leader effect becomes weaker, and the leader's effect gets stronger.

To conclude, the results we have seen in this chapter not only confirm the goodness of the hypotheses advanced in the previous chapter, but have also shown that individual bias and the overall personalisation of general elections represent two fundamental variables in electoral behaviour. Indeed, the introduction, in a spatial model, of these two variables has allowed, for the first time, to estimate the real impact of these two crucial phenomena on voting behaviour and have allowed to define a new framework for the explanation of voters' electoral choice. Nevertheless, the importance of these results goes beyond the empirical analysis performed in this chapter. Indeed, if individual bias strongly conditions voters' behaviour, it follows, in line with spatial models' perspective, that also party leaders' strategies should be influenced by this factor. This means that not only is individual bias crucial in voting behaviour, but that such bias also shapes party competition.

Indeed, we know that, during general elections, parties aim at maximising their electoral support and that, consequently, they are inclined to take optimal positions, as I extensively show in Chapter 4. Nevertheless, in a competition where voters are strongly biased, like the ones we have analysed in this first part of the dissertation, the preferences of those voters who are (profoundly) biased in favour of a party become fundamental in such party's position-taking. We also know that there is not a *perfect* overlapping between the most preferred party (i.e. the party towards which voters are *most* favourably biased) and the voted party. More specifically, more than 24% of those voters who are biased toward a party do not vote for it (see section 3.3). This can be linked either to the location of the party or an insufficient level of leader evaluation. In any case, a substantial proportion of voters do not vote for their most preferred party.

Consequently, if a party aims at increasing its electoral support, and if the voters strongly biased toward this party are the most likely supporters of such political formation, it follows that this party should specifically care about these voters and their positions. At the same time, since these biased voters somehow feel as 'part of this group' – i.e., 'part of the party' - they might make some pressures on the party to make its leader take specific ideological positions. So, if biased voters' pressures seem to be coherent with the findings of the empirical analysis (that has shown that the ideological proximity is more relevant when

there is a bias toward a party), it is also evident that such pressure (deriving from voters' bias itself) could strongly influence the strategy of parties.

It follows that the conditioning role played by individual bias cannot be limited to the voting behaviour sphere. To adequately understand whether individual bias can represent one of the decisive factors in Western European elections in the last twenty years, we should also investigate its role in the party competition area, the supply side of elections. This argument will be at the centre of the second part of this research, from Chapter 4 to Chapter 6.

From Voting Behaviour to Party Competition

The first part of this research has aimed at advancing and empirically testing a new framework for the analysis of voting behaviour. In particular, in the first three chapters, I have presented two novel spatial models of voting (that is, the Biased Voter Model and its personalised version), explained the innovations brought about in the spatial model and voting behaviour scholarships by these two models, and empirically tested their goodness on a comparative dataset that accounts for 56 elections in Western Europe in the last twenty years.

The results presented in the previous chapter have proved the relevance of individual bias at the voting level. Indeed, not only has the empirical analysis confirmed the hypotheses advanced in section 2.3, but it has also shown that the factor that mostly shapes individual voting behaviour is the individual bias against/toward the party under evaluation.

It follows that the empirical analysis has confirmed the theoretical appropriateness of the spatial models (the Biased Voter Model and the Personalised Voter Model) advanced in the second chapter of this research. Moreover, the relevance of the individual comparative bias means that this factor, that we have introduced in spatial models for the first time via a continuous variable, plays a fundamental role in voting behaviour.

Therefore, if bias has been confirmed to profoundly shape voters' preferences and electors' probabilities to vote for a party, it might be that its effect can be detected not only with respect to individual voting behaviour. On the contrary, in line with the assumptions of spatial models, it might be that also the more general party competition is affected by the impact of individual bias against or toward parties.

After having seen the results of the first part of this research, the last suggestion, at the core of the second part of this dissertation, does not seem particularly eclectic. Indeed, as we have already seen, biased voters represent a crucial and large part of Western European parties' electorate: in section 2.3, it has been shown that, on average, the 76% of the voters cast the ballot in favour to the party they are most biased toward. Easy to say, for the parties competing in elections, this part of electorate represents a fundamental resource. Moreover, given the fact that, during an election, one of the main aims of parties (and their leaders) is to maximise the electoral consensus, the fact that party leaders know that a component of

the electorate is already positively inclined in favour of the party they lead represents a crucial factor to define the electoral strategy to put forward during the campaign.

Nevertheless, the fact that a part of the electorate is biased by pre-existing positive attitudes toward different parties does not mean that such component of the electorate will surely cast the ballot in favour of the parties towards which they are most positively biased. This is confirmed (as we have already shown in section 3.2) by the fact that the 24% of the voters have not cast the ballot in favour of the preferred party. Moreover, pre-existing biases does not prevent voters from considering the evaluative dimensions: the empirical analysis put forward in chapter 3 has shown that are exactly those voters characterised by a particular bias toward a party those who give much more salience to both the ideological proximity and the leadership evaluation.

Both the presence of this $^1/_4$ of electors voting for the non-most-preferred party and also the fact that biased voters toward a party take particularly into consideration leadership evaluation and policy proximity confirm the idea that the voters we are dealing with are not 'unmovable voters'. Conversely, they are strongly conditioned in the evaluation of party features, but are also able to vote for a different party when the amount of utility derived from the leadership evaluation and the ideological proximity is not sufficient.

On the other hand, the fact that they are already biased in favour of a specific party makes them more reticent to vote for another political formation: indeed, before deciding not to vote for the party they are most biased toward, we could expect they will try to make pressure on the party leadership. In particular, given the salience they assign to the ideological dimension, it might be that they will make pressure to obtain the party leader to position the organisation closer to their ideological location. Conversely, if the party leader positioned the party too far and/or would decrease his/her reputation, the biased voter would take the exit strategy and vote for a different party.

Departing from the demand side of the political market and focusing on the supply side, we can first say that when party leaders have to define the electoral strategy, they take into account the biased nature of voters. Indeed, we know that, during elections, parties can be interested both in maximising their consensus and their policy target (Strøm, 1990; Groseclose, 2001; Carter & Patty, 2015).

Nevertheless, since we also know that they cannot follow at the same time and with the same emphasis both the targets, the following question arises: how these two elements influence the party strategy? Let us take first into consideration the ideological dimension: if parties adopt purely vote seeking strategies, they will locate themselves at their optimal position. That is, the one that allows them at maximising the number of voters, be these latter biased or non-biased ones.

However, are really party strategies in the electoral competition so straightforward? Sure not. To maximise their electoral consensus, parties also have to increase at maximum the evaluation of party leaders[79]. Indeed, we know that leader evaluation could strongly condition parties' strategies on the ideological continuum. More into detail, the empirical results put forward in the previous chapter have confirmed that the leader effect becomes decisive when electors have to choose between a smaller number of preferred parties.

Nevertheless, the reputation of party leader is also strongly linked to the role of party bias. As we have seen few lines above, we expect that the voters biased in favour of a party will make some pressure on the party leader to make him/her locate the party closer to their ideological position. If the leader follows the hint put forward by the biased voters (the ones I will define 'attached voters'), his/her reputation will be preserved. On the contrary, if he/she does not care about the pressure of the attached voters, we expect that biased voters will question the reputation of the leader of the party they are biased toward. Indeed, if the leader does not take into account the suggestions of his/her constituency, before deciding not to vote for the party they are biased toward, we expect that attached voters will advance some issues criticising the leader's decisions. It follows that biased voters' complaints strongly affect the leadership image, especially in front of the fact that a number of attached voters would not cast the ballot in favour of his/her party.

Indeed, the decision of attached voters to criticise the leader will make all the non-attached voter asking themselves 'if this leader is not appreciated by his/her constituency, how can be considered as reliable to rule the country?'

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[79] Party leaders should increase their average reputation because, by following the hint given by Clarke and colleagues (Clarke, 2004; Clarke et al., 2009a; Sanders et al., 2011; Whiteley et al., 2016), leader evaluation represents one of the main determinants of parties" 'valence component'.

The reasoning that might lead non-attached voters to ask themselves such question is at the core of the second part of this research. In particular, this second part aims at investigating whether, by affecting attached voters' behaviour, individual biases can also condition party strategies during electoral competitions.

In this second part of this work, I will define a novel game-theory-based model of party competition that departs from the 'affective relationship' existing between attached voters and the parties they are biased toward, and that is able to account for the interaction between biased voters and leaders.

According to this argument, the electoral strategy followed by party leaders during the electoral competition will be strongly conditioned by attached voters' preferences. In such model of party competition, the set of attached voters represents the principal of the leader of the party they are biased toward, while the leader represents the agent of the attached voters[80].

It follows that, during an electoral campaign, party leaders play a twofold contextual game. On the one hand, they have to take position on the ideological continuum by responding to their opponents' strategies to widen their electorate. On the other hand, they have to take into consideration the requests put forward by the attached voters, whose possible complaints will relevantly decrease leader's reputation.

So, to properly analyse the biased party competition, a two-actors game (a party and its opponents) is not sufficient. Indeed, three actors are involved in the process (a party, its attached voters, and its opponents).

The subsequent fourth chapter will then start the second part of this dissertation by reviewing existing models of party competition, and by identifying the pros and cons of the main theorisations. The definition of a three biased actors game of party competition and the identification of the equilibria of the game (that is, parties' optimal positions) will lead us towards the fifth chapter to derive a number of expectations. Such hypotheses will be then tested in the sixth chapter by relying on a comparative dataset accounting for 56 elections in 15 Western European countries in the last 20 years. The empirical analysis will allow us to

[80] The fact that the set of voters that more likely will vote for a party can be considered as the principal of party's leader (or of the party in general) finds support also in the literature (see the discussion on the Downsian model in Katz, 2014)

confirm whether the impact of individual bias is sufficiently relevant in the electoral sphere of politics to condition not only voting behaviour but also party competition. To strengthen the results and control for the changes between countries, we will also account for the role played by the personalisation of politics.

However, it is now time to start the second part of this work and present the Three Biased Actors Model of party competition.

4. Models of party competition: a review

The analysis of party competition has been one of the main concerns in the study of elections, and in particular for the spatial models' scholarship. Indeed, after the pioneering contribution by Anthony Downs (1957a), a number of different approaches to this topic have been put forward by political scientists.

In particular, we can distinguish two principal approaches to the study of party competition: the issue-based models and spatial models. Undoubtedly, these branches of research do not represent mutually exclusive theories: several scholars have adopted contaminated approaches, and new theories taking the best from the existing scholarships have been advanced (see for instance the Issue Yield model advanced by De Sio and Weber, 2014).

In addition to original party competition models (that, especially in the spatial case, are mostly interested in predicting theoretical outcomes of party competitions), a second element particularly relevant in this research is represented by the empirical test of spatial models. This topic has been scarcely accounted by the scholarship that, in most of the cases, does not empirically test models' expectations. Nevertheless, in this research, I aim at empirically verifying the expectation derived from the Three Biased Actors Model and explaining why (and if) leaders do not behave in an entirely rational way (at least according to a vote-maximising reasoning). Therefore, it will also be relevant to account for the small number of studies that have tried to find empirical confirmation to spatial models' expectations.

This chapter is organised as follows: first of all, I will present the theories that put at the core of party competition the use of issues by parties. Then, the second section will deal with the presentation of several spatial models that have accounted for policy, and for both policy-and-non-policy factors. Finally, the third section will present the literature that has tried to connect theoretical results of spatial model's research and the actual positions of parties.

4.1. Issues-based models

Among the models that explain party competition by looking at the issues presented by the competing political organisations, we can find two principal paths of research: the first focusing on issue ownership and the second related to issue saliency. These two approaches, at the base of

a number of new models of party competition (among others, see Bélanger & Meguid, 2008; J. Green & Hobolt, 2008; De Sio & Weber, 2014; Hobolt & De Vries, 2015) are the most developed theories descending from Stokes' theory of spatial competition (1963, 1966, 1992). As partially seen in the first chapter of this work, Stokes' spatial model of party competition represents the first and (probably most) relevant criticism to the positional model of competition.

Indeed, in contraposition to the design put forward by Downs (1957a), among other critiques[81], in 1963 Stokes argued that Downs had failed in understanding the dynamics of the electoral campaign because

> many of the issues that agitate our politics do not involve even a shrivelled set of two alternatives of government action. The corruption issue of 1952 did not find the Democrats taking one position and the Republicans another. And neither were some voters in favour of corruption while others were against it (Stokes, 1963, p. 372).

Indeed, according to Stokes, what matters in the electoral arena is not the positional policy dimension (like the left-right one) but the valence policy one[82] (that is, those policy continua over which all parties agree on, like the fight against corruption). From Stokes' point of view, this is related to the fact that, since the most relevant topics discussed during the electoral campaign are topics on which all the parties and the electors agree, when voters should take the decisions whom to vote for, they will rely mostly on such topics, that is, on valence issues. Consequently, according to Stokes' perspective, the parties that will be recognised by the electorate as the most competent on (or more associated to) such valence topics, will be able to take an electoral advantage by using these issues.

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81 Stokes ha also underlined that the Downsian model suffered of a number of model-related problems such as the uni-dimensionality of the competition, the inelasticity of the system, and the like.

82 This interpretation of valence issue model is quite different from the ones we have adopted in the previous analysis and that we will also refer to in the following chapter. Indeed, as we have already seen in section 1.3.2, both the conceptualisation and the operationalisation of valence issues has profoundly changed nowadays (among others, see Clarke et al., 2009a; Clarke, Reifler, Scotto, Stewart, & Whiteley, 2015; Johns, Mitchell, Denver, & Pattie, 2009; Sanders et al., 2011; McAllister, Sheppard, & Bean, 2015; Calvo, Chang, & Hellwig, 2017): leader evaluation, indeed, represents one of the principal elements of valence issues. Nevertheless, for a recent study using the classical interpretation of valence issues see De Sio and colleagues (De Sio et al., 2017). Despite the fact that, in the following chapters, I will rely on the contemporary interpretation and operationalisation of valence issues, in order to properly introduce issue-related theories of party competition, it has been necessarily to present Stokes' model of spatial competition.

This means that the Stokes' rationale is orthogonal to the one advanced by Downs: if the latter explains the electoral result through party positioning on the left-right scale, the former one hypothesises that, since voters choose the party to vote for according to the connection of such party to a set of issues (on which all the electorate has the same opinion), parties have only to choose a set of different topics underlying their positive capacities and to take an active position on such issues forcefully.

In the remaining pages of this first section, I will present three main theories that depart from such conception of party competition: the issue saliency model, the issue ownership model and the issue yield model.

4.1.1. Issue Salience

The concept behind models of issue salience and emphasis during elections (RePass, 1971; Budge & Farlie, 1983) is strongly connected to Stokes' model of party competition. Indeed, Stokes departs from the hypothesis that 'politicians seem anxious to emphasise certain favourable issue areas and to play down others which are unfavourable' (Budge, 1982, p. 149). Budge and colleagues' perspective is in line with Stokes' idea according to which parties compete by selecting a set of positive arguments to strengthen during the electoral campaign, to increase the voters' positive evaluation.

Consequently, according to this interpretation of issue competition, parties' decision concerning the issues to emphasise represents a crucial strategic decision. Indeed, by making a comparison, the portfolio of issues used by parties in salience models can be compared to the decision to take a particular position on the ideological continuum in the Downsian one (Meguid, 2005; Bélanger & Meguid, 2008; Meyer & Wagner, 2013; Wagner & Meyer, 2014). Moreover, the more the issue is relevant from the electorate point of view, the more the party will receive a benefit by handling this issue. According to Budge's perspective, during an electoral competition, parties increase the salience of their positions on the issues that the electorate recognises as most relevant.

An example of Budge's argument is represented by the classical topic of the economic growth. Since all the parties that are competing during elections are in favour of the country's higher economic growth, to take advantage of the economic growth issue, a party should be incentivised to emphasise its attachment to this issue. This would allow the party to appear as more competent and linked to this issue, and this effect is stronger if the party is perceived as the political

organisation mostly connected with this issue. Indeed, parties obtain an electoral advantage from an issue if the electorate perceives the party as 'the party that is most able to solve the problem'.

It follows that, according to the theory of issue salience of party competition, parties tend to differentiate their policy proposal from the opponents' ones and increase their consensus by varying the degree of emphasis given to different issues.

Strictly connected to this last point, a crucial point is the selection of the issues parties should emphasise. If this is not difficult in the American system (A. F. Simon, 2002; Sigelman & Emmett, 2004), identifying the issues used by parties in a multiparty Western European system is more complicated (Wagner, 2012; Dolezal, Ennser-Jedenastik, Müller, & Winkler, 2014; Meyer & Wagner, 2016). Indeed, in a two-party competition, parties tend to converge (as in the Downsian model) on the set of issues that are more salient thanks to the variation in public opinion's preferences (Petrocik, Benoit, & Hansen, 2003; Damore, 2005). Conversely, due to the different logic of competition, in multiparty systems, parties might follow different strategies: they could adopt either a 'ride the wave' strategy (Ansolabehere & Iyengar, 1994) or emphasise particularly issues not considered by other competing parties, and thus avoid the competition on salient issues (Wagner, 2012).

Obviously, in the logic of issue salience competition, not all the parties have the same incentives to insert in their issue portfolio the most salient issues. On this very last point, it has been shown that niche and mainstream parties select issues following two very different rationales during party competition (Meguid, 2005; Adams, Clark, Ezrow, & Glasgow, 2006; Adams, Ezrow, & Somer-Topcu, 2011). On the one hand, mainstream parties are freer than niche ones to take position strategically. In particular mainstream parties can 'influence the salience that citizens attach to different policy dimensions' (Adams, Ezrow, & Leiter, 2012, p. 1288) more than niche parties. Consequently, the former have incentives to stress the relevance of salient issues on their agenda by following the interests of public opinion.

On the other hand, for smaller and niche parties, it is both difficult and particularly costly from an electoral point of view to change the set of policies to emphasise by following mainstream political organisations' examples (Meguid, 2005; Adams et al., 2006; Spoon, Hobolt, & De Vries, 2014). As a consequence, they tend to stress the policy issues that are preferred by their activists and supporters and that are not shared by most of the other parties (Ezrow, 2008; Wagner, 2012; Wagner & Meyer, 2014). In turn, the empirical evidence in multiparty systems (such as the Western European ones) confirms the idea that mainstream parties are those political organisations with a relevant amount of resources that play a 'ride the wave' strategy. Indeed, it is 'by advertising on the major issues of the day, [that] candidates are more likely to be seen as concerned, responsive,

and informed' (Ansolabehere & Iyengar, 1994, p. 337) and this could represent a valence advantage with respect to their competitors.

However, why do parties decide to assign different amounts of salience to different issues during a political campaign? This represents one of the most useful communication tools that allows parties to present more efficiently their ideological preferences and stances that do not often vary. On the contrary, the theory we will see in the next section departs from the opposite assumption.

4.1.2. Issue ownership

Strictly connected to the theory of issue salience and Stokes' spatial model of party competition is surely issue ownership (Petrocik, 1996; van der Brug, 2004; J. Green & Hobolt, 2008; Stubager & Slothuus, 2013). At the base of such theory, and oppositely to the issue salience approach, there is the idea that parties have long-term, static, and well-recognised reputation on specific policies, according to which they build their consensus during the electoral period.

Following the issue ownership theory, voters decide the party to cast the ballot for thanks to a distribution of issue-related competencies among parties. Specifically, 'individuals make their voting decision by evaluating the competence that each party has in handling specific issues. Voters, the theory argues, can identify the party (or candidate) that they feel is the most competent, or the most credible, proponent of a particular issue' (Bélanger & Meguid, 2008, p. 478).

Since different topic-related competences represent the motivation at the base of individual voting choice, during the electoral campaign, parties will tend to emphasise the issues on which they are considered as most competent (on the impact of single-issue ownership on party competition, see Smith, 2010; Odmalm, 2012; Spoon et al., 2014). Moreover, since such issue-related competence has to be 'regularly tested and reinforced' (Petrocik, 1996, p. 828), during the legislature period (especially if the party is in government), a political formation cannot use the ownership of specific issues only as a communicative tool, but it must confirm its competence in the selected issues in every situation.

Like in the issue salience theory, also in the in case of issue ownership models, there is a deep connection between the model under consideration and Stokes' valence issue theory. Indeed, in the original Petrocik's study (1996), the issues owned by the parties are valence issues. Nevertheless, despite this link in Petrocik's research, it might be that the issues that parties show to possess during elections are not only valence ones, but they might also be positional ones. Indeed, as Lachat underlines, '[immigration, EU integration, or nuclear energy] are just some

examples of political issues [of issues own by parties] on which parties and voters may hold very different preferences' (Lachat, 2014, p. 729).

Despite the choice between the kind of issues owned by parties (positional or valence ones), according to the issues ownership framework (and differently from the issue salience one), parties are mostly interested in differentiating each other their issues portfolio. This can also be seen in the empirical research, where scholars conventionally attribute each policy only to one 'owner' party (J. Green & Hobolt, 2008). Indeed, only can the party whose competence and reputation on an issue is maxima be said to own the issue. Moreover, this unique relationship between an issue and the party that own it is what mostly differentiates the research on issue ownership from the research on Stokes' valence issue and issue salience. Indeed, if issue salience theory and Stokes' spatial models argue that (mainstream) parties should 'ride the wave' (Ansolabehere & Iyengar, 1994) and contextually compete on the issues that are relevant for a specific election, issue ownership theory stresses the fact that parties usually hold policy issues where their long-run competence is highly recognized.

By giving an example, if, in an election, the public opinion is mostly concerned with the problem of corruption, according to the 'ride the wave' strategy, all the (mainstream) parties will likely emphasise their position on such issue. On the contrary, according to the issue ownership theory, only will the party that is highly recognised by the electorate as the party that 'has always fought against the corruption' emphasise it. All the other parties will tend to focus on other topics (the immigration, the environment, and the like).

Since there are contradictory empirical findings on the direct impact of issue ownership on individual voting behaviour (see for different results Clarke, 2004; van der Brug, 2004; Bellucci, 2006), some scholars have investigated whether the impact of party's issue ownership on individual vote is conditioned by additional factors.

In particular, Meguid and Bélanger (2008) argue that, to correctly understand the impact of issue ownership in individual voting behaviour and party electoral strategies, it is not sufficient considering whether a party is perceived as the most competent on a given issue. What is missing in this approach is tackling the importance of the issue according to the public opinion. In other words, to accurately measure the impact of issue ownership on the vote, and then define a strategy for the political campaign, in addition to party ownership, parties should take into account also the salience of the issues.

More specifically, Meguid and Bélanger show that 'the influence of issue ownership on vote choice is strongly conditioned by the perceived salience of the issue. A party's issue competence will affect a voter's behaviour only if the issue in question is considered salient'

(Bélanger & Meguid, 2008, p. 489). However, this holds especially for mainstream parties, as we have previously seen. On the other side, 'while past work on issue ownership may have suggested that party reputation, as distinct from party issue positions, is critical for vote choice, [Meguid and Bélanger] demonstrate that reputation alone is insufficient. Parties need to be more concerned about conveying the significance of "their" issues to the public' (Bélanger & Meguid, 2008, p. 489).

This argument leads us to a second relevant issue connected to party ownership: is issue ownership just a matter of caring most of an issue or is a matter of having the best solution (from voters' perspective)? This question is at the centre of Lachat's research (2014) that, by using Swiss data, aims at explaining whether issue ownership is characterised only by an associative dimension or whether there is a competence ownership of the party.

Indeed, by departing from the analysis by Bellucci (2006), Lachat argues that if the issues owned by parties are not valence ones, then the associative and competence dimensions might strongly differ from one another. Indeed, 'many voters are likely to agree that the Greens care most about environmental issues and they will tend to associate the party and the issue. But if they disagree with the party's aims on their central issue, they certainly will not consider that party to be most competent' (Lachat, 2014, p. 729). Following the reasoning of the author, when the objectives of several parties concerning a certain policy proposal differ, then voters' perceptions of competence vary according to voters' preferences on different parties' proposals. Lachat's analysis shows that the impact of party ownership on the individual probability to vote for a party is conditioned to the ideological proximity between the party owing the issues and the voters. By following the more classical spatial model's perspective, Lachat shows that if the distance between a voter and a party increases, the probability that such voter attributes an ownership competence to the party under evaluation is lower. Consequently, it is also less likely that the party's issue ownership might have a significant impact on the probability that a voter cast the ballot in favour of the party.

From the evidence shown until now, it descends a follow-up question: how do parties compete if they account for the relevance of partisan agreement on a specific issue, the salience of the issue considered for all the electorate, and also the degree of ownership of the issue? The next subsection will be devoted to the presentation of the 'Issue Yield' model, one of the theories that have connected previous research and advanced a novel model of issue-based party competition.

4.1.3. Issue Yield

Weber and De Sio's issue yield model (2014) represents one of the possible solutions to the request for integration among issue ownership, issue salience and partisan agreement. To make a step forward in the issue-based competition approach, the two authors have defined a model of strategic issue selection that takes into consideration both the necessity for parties not to lose part of the established electorate and also to increase the opinion-related component of their voting bloc. Indeed, 'issue yield can be defined as the degree to which an issue allows a party to overcome the conflict between protection and expansion of electoral support' (De Sio & Weber, 2014, p. 871).

According to the two authors, parties, by properly assessing the risks and opportunities for the electoral competition connected to the proposal of all the possible issues, tend to select those issues that are minimally divisive for their voters and highly salient for the electorate in general. Indeed, by selecting not-internal-divisive issues, parties minimise the probability of losing their standing electorate while, by selecting widely supported issues, they aim at increasing the electoral support deriving from the rest of the electorate. In particular, Weber and De Sio have called those issues that are simultaneously minimally divisive and highly salient for the electorate as 'bridge issues'. According to the issue yield model, these are the issues that parties prefer and that, consequently, will receive the highest salience during the electoral competition.

Differently from the salience issue theory (according to which parties will tend to compete on the same and highly salient issues), the issue yield model in a two-party system predicts that the two competitors will differentiate their political supply by choosing different issues as they own different sets of topics. The mechanism is more sophisticated in a multiparty system, where the probability that more than one party has a high issue yield for the same topic is greater. Nevertheless, even if 'we would expect each of them to emphasize it; in practice, however, each of them will carefully assess whether to use the issue or not, to avoid the risk that bringing the issue to the attention of voters might, in the end, favour the other party' (De Sio, De Angelis, & Emanuele, 2017, p. 8).

Since this could be a weakness of the explanatory capacity of the model, De Sio, De Angelis and Emanuele (2017) have introduced in the classical issue yield model two different novelties: the level of issue yield differentiation among parties on the same argument and the relative position of a competitor with respect to the others regarding its yield on a particular issue. The introduction of issue yield differentiation affects the predictions of the model by decreasing the probability for a party to emphasise issues on which parties do not have a very different issue yield (for instance,

in 2017 French case, the issue 'immigration' and the PSF). This is given by the fact that a party faces the risk not to get any benefit by competing over an issue whose yield differentiation is not relevant. Conversely, the authors show that when there is a high issue yield differentiation on a given issue, there is also a very high impact of the issue yield on the competition.

Moreover, De Sio, De Angelis and Emanuele also show that the relative yield on an issue has a decisive impact on party strategies. Indeed, when the probability that a party's opponent has a higher yield on a particular issue, 'the issue yield mechanism might be dampened, as the party would avoid emphasizing the issue, given that such emphasis might result in an electoral benefit for another party' (De Sio et al., 2017, p. 8). On this respect, the authors argue that parties will play according to the issue yield model only concerning the number of issues that 'guarantee' them with an electoral advantage, that is, those issues where such party has the highest-ranking yield.

To conclude, the issue yield model represents one of the newer models of issue-based party competition. Nevertheless, beside the growing relevance of the issues in the scholarship of party competition, and especially of the 'issues of the day' (Aardal & van Wijnen, 2005), the relevance of the left-right dimension (Cox, 1990; Budge & McDonald, 2005) and of the positional competition has not vanished, as we will see in the next section.

4.2. Spatial Models

In addition to the theories introduced in the previous sections that take inspiration from Stokes' (1963) intuition, the impact of the Downsian model in the scholarship of party competition has been crucial since the publication of *an economic theory of Democracy*.

Indeed, from the Downsian proximity model, a relevant research agenda aiming at explaining party competition by adopting a spatial-model-perspective has descended. These studies have mostly been concerned with the prediction of parties' optimal positioning during elections both in a two-party (among others, see Ansolabehere & Snyder, 2000; Groseclose, 2001) or in a multiparty (among others, see Schofield, 1993; Thurner, 2000a; Schofield & Sened, 2006) competition.

In addition to the identification of optimal positioning, a relevant number of studies have also investigated the exogenous conditions under which party competitions can end in equilibrium, both in a single and in a multidimensional space (Ansolabehere & Snyder, 2000; Schofield & Sened, 2006; Schofield, 2007). Others have focused on the impact of party (and party candidate's) valence advantages (Groseclose, 2001; Adams, Merrill III, et al., 2011; Adams & Merrill III, 2013; Carter

& Patty, 2015; Nyhuis, 2016), or of non-policy factors (Merrill III & Grofman, 2000; Adams, 2001; Merrill III & Adams, 2001; Merrill III et al., 2001; Jessee, 2010; Adams et al., 2017), or on party competition and optimal position-taking.

However, how spatial models study party competition? From a spatial perspective, during an electoral campaign, parties compete and take positions on a positional or ideological dimension in response to their opponents' positions, so as to increase their consensus and have more chances of winning the election. Moreover, when the model is in equilibrium, it is possible predicting the optimal choice of the actors. In other words, once the Nash equilibria[83] are estimated, it is possible predicting the strategies that rational parties adopt in party competition.

Differently from the set of theories presented in the previous section, and in line with Downs' model, spatial modellers argue that parties would not compete by defining a portfolio of different issues and deciding which issue to emphasise. On the contrary, parties would compete by taking different locations on a positional continuum. Indeed, according to the spatial model perspective[84] not only do parties take position on a continuum, but also voters are distributed on such positional dimension, and cast the ballot in favour to the party that provides them with the highest amount of utility. So, parties, as rational actors, aim at increasing the utility of the largest possible set of voters during an electoral competition. This will allow them to increase the probabilities of these voters to cast the ballot in their favour, and therefore increase the expected consensus.

In other words, defining the target of parties in the spatial framework according to Strøm's definition (2000), political organisations can be seen as vote-seeking actors[85]. That is, political parties do not have long-term static positions, but they

> react to the locations of all the other candidates. In other words, all candidates move in a minuet, each seeking his or her own best position in relation to all the others. In this context, the key concept in specifying jointly optimal party strategies to which the parties may settle down is that

83 The Nash equilibrium is the stable state of an interaction among different actors. In the Nash equilibrium no actor has incentives to unilaterally adopt a different strategy.

84 Evidently, these theories are strictly linked to the ones presented in chapter 1, where spatial models of voting have been discussed.

85 This assumption is at the base of most the spatial models (among dfferent contribution dealing with this issue see Ansolabehere and Snyder, 2000; Berger, Munger and Potthoff, 2000; Schofield, 2004; Dewan and Shepsle, 2011; Carroll *et al.*, 2013). Moreover, even when models assume that parties case about policies, the vote-seeking assumption is not leaved beside (see as instance Groseclose, 2001).

> of a Nash equilibrium – that is, a configuration of party locations such that no candidate can improve his or her vote share by further movement (Adams et al., 2005, pp. 28–29).

Obviously, Downs himself has underlined that the possibility to take the optimal position does not mean, for rational parties, to variate their location on the ideological/positional continuum frequently and significantly. Moreover, it does not even mean to leapfrog each other to increase their expected share of votes[86]. These assumptions are also connected to the fact that the time-span of a spatial model research is limited to a single electoral campaign. Indeed, spatial modellers are not interested in explaining the long-term variation of party positioning or electoral strategies[87]:

> the general quest is for a policy equilibrium during a single election period – i.e., a set of party platforms such that no party can improve its position by changing its policies, given the policies of its rivals (Adams 2001:122)

This means that, after having formalised voters' utility functions, spatial models derive those parties' positions that maximise the expected number of votes for all the parties competing for elections. In other words, the primary objective is to find those locations according to which no party has the incentive to take a different position. Indeed, a move from these predicted placements would involve an electoral loss: when all the parties are in such situation, it means that the system has reached the so-called Nash equilibrium.

From the pioneering research of Downs (1957) and Black (1958), the spatial model scholarship has profoundly evolved. In particular, two different research agendas have been followed: first, the definition of more statistical complex and reliable spatial models; second, the inclusion in spatial models of non-policy factors.

Let us start with the first agenda. Even if most of the spatial models have been formalised by relying on classical ones[88], several scholars have put forward more complex and statistically sophisticated models of party competition able to account also for the features of multiparty

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86 According to the original Downsian model, the fact that parties do not radically change position and do not leapfrog each other is a theoretical assumption (despite being derived from the empirical reality) that it has never been formalised.

87 This question is conversely particularly addressed by behavioural research on party competition.

88 This means, they have been based on the median voter theorem (Hotelling, 1929; Downs, 1957a; Black, 1958; Riker & Ordeshook, 1973), and have applied models to two-party political systems with a first-past-the-post electoral formula.

systems. Comparative research on the spatial model of voting has been put forward by Schofield and Sened (2006), who have applied stochastic models of elections on different systems (Britain, Germany, the Netherlands, Israel, Italy, and the United States). As recognised by the authors, the simulation of these models has led to different results: indeed, in certain competitions, parties converged toward the electoral mean (Netherlands and Britain), while, in other cases, parties used to take more polarised and sometimes divergent positions (Israel and Italy).

Comparative research on different party systems has also been done by Adams and Somer-Topcu (2009). In particular, the two scholars have tested whether the classical prediction advanced by spatial models' research concerning the centripetal nature of party competition holds in empirical reality. In particular, they have looked for an answer to the following questions: do parties adjust their policy position in response to variations in public opinion preferences? Moreover, do parties adjust their policy positions in response to their opponents' policy shifts? By building a dataset accounting for 193 parties in 25 post-Second-World-War democracies, the two authors 'conclude that the political parties in these democracies did indeed adjust their policies in response to rival parties' policy' (Adams & Somer-Topcu, 2009, p. 826). The results put forward by the two authors are quite relevant: indeed, they empirically and comparatively confirm the expectations derived from the spatial model's scholarship. More into detail, Adams and Somer-Topcu show that one of the core assumption of spatial models that makes scholar focusing on the quest for a Nash equilibrium (that is, parties respond to opponents' policy shifts) holds. Moreover, they also show that the degree to which parties condition each other's position-taking is undoubtedly reasonable. It follows that the expectations put forward by theoretical prediction of spatial models can be considered as confirmed by comparative empirical analysis.

In addition to the definition of more analytically sophisticated models of party competition, a second research agenda developed in the last decades has been concerned with the introduction of a number of behavioural variables in the utility functions. Indeed, the introduction of non-policy variables into spatial models are crucial elements for the definition of models' expectations, since both voters' and candidates' non-policy characteristics can profoundly condition the predictions of optimal party positions.

In particular, candidate-related valence advantages[89] (among others, see Ansolabehere & Snyder, 2000; Groseclose, 2001; Schofield, 2004; Ashworth & Bueno de Mesquita, 2009; Stone & Simas, 2010a, 2010b; Adams, Merrill III, et al., 2011; Abney et al., 2013) and non-policy factors,

[89] Notice that the spatial model literature considers as 'valence advantage' not only leaders' characteristics, but also other factors, like a higher amount of spending in political communication and advertisement.

such as party identification (among others, see Adams, 2001; Adams et al., 2005; Zakharov, 2009) have been included in formal models of party competition. The inclusion of non-policy factors has, on the one hand, allowed predicting optimal positions closer to the actual ones, while, on the other hand, has also proved that these factors not only affect individual voting behaviour but can also influence the way in which parties decide to behave during electoral competitions (see the discussion in Adams et al., 2005).

Due to the relevance of the topic for this dissertation, the remaining part of this section will be dedicated to the presentation of recent spatial models of party competition accounting for candidate-related valence advantages[90] (subsection 4.2.1) and individual-related non-policy factors (subsection 4.2.2).

4.2.1. Spatial Models accounting for valence issues

Let us start from those models that account for candidates' valence advantages. Since the last decades of the 20th century, more and more scholars have been including into spatial utility models a factor representing several candidate valence advantages. In particular, scholars have included in the concept of candidates' valence advantages elements like their ability to obtain resources, the capacity in representing and serving constituencies, the ability of using strategies of negative campaigning against the opponents ,and the like (Enelow & Hinich, 1982; Enelow & Munger, 1993; Harrington & Hess, 1996; Ansolabehere & Snyder, 2000; Aragones & Palfrey, 2002; Schofield, 2003, 2004; Woojin, 2004).

Despite the varieties of valence advantages considered and modelled, the predictions advanced by all these studies can be substantially aggregated in two main propositions:

1. if a candidate i has a valence advantage with respect to the candidate j, the former will take more centre-leaning positions, while his/her opponent will take position on a more peripheral side of the political continuum.

[90] In this case, the concept of 'valence' differ substantially from Stokes' one and to the one we have considered when we were approaching issue-based theories of party competition. Indeed, spatial model scholars interpret the concept of 'valence' much more similar to voting behaviour contemporary scholars (see as instance Clarke *et al.*, 2011). Indeed, according to spatial model perspective, what constitute the valence advantage of a party is an overall-judged-positive characteristic of the candidate or the party leader (such as, his/her honesty, capacity to raise found, incumbency, and the like) and not the recognisability of the party leader with issues over which there is a substantial agreement.

For instance, this means that if the candidate i is believed to be more competent that candidate j, he/she will take advantage of this this resource by adopting a more centre-leaning position. Indeed, voters will receive a surplus of utility by voting for the party with the valence advantage. By taking more centre-leaning positions, i expects to maximise his/her consensus by obtaining also the preferences from those centre-leaning voters who would not have voted him/her if he/she had not had a valence advantage. Given i's position and valence advantage, the only strategy j can follow to increase his/her consensus is enlarging the distance between i's and j's positions. In such case, indeed, j would have the opportunity to get votes from all those segments of voters whose utility is not conditioned by i's valence advantage.

2. If i's valence advantage on j is particularly small, both i and j will tend to converge toward the median position. Indeed, in this case, j does not face a loss in his/her consensus so much so that he/she faces an incentive to move towards more extreme positions. Indeed, his/her best strategy in a two-party competition remains moving toward the median voter.

If most of the studies on this topic have highlighted these two propositions, two models deserve more attention: the Groseclose's (2001) one and the Carter and Patty's (2015) ones. Indeed, compared to studies that I have quoted so far, these two models have introduced several innovations in the scholarship that brought about more precise (but, at the same time, divergent) results.

Let us start from Groseclose's model, which is considered as one of the main innovative models accounting for candidates' valence issues. The results found by Groseclose (2001) allow obtaining a deeper picture of the dynamics underlying candidates' (parties') positioning. In particular, Groseclose has extended the classical Calvert – Wittman model (Wittman, 1983; Calvert, 1985) by adding a non-policy factor representing candidates' valence advantage[91]. Differently from other models that have accounted for valence issues (among others, see Enelow & Hinich, 1982; Ansolabehere & Snyder, 2000; Schofield, 2003), Groseclose has gone beyond a classical assumption of spatial models of party competition (that is, the exclusive office-seeking nature of the candidates).

Indeed, while modelling candidates' preferences, he has not only accounted for the vote-

[91] In particular, the valence advantage considered by Groseclose might represent several factors, 'such as incumbency, greater campaign funds, better name recognition, superior charisma, superior intelligence, and so on.' (Groseclose, 2001, p. 826)

seeking nature of party competition, but he has also taken into consideration candidates' policy incentives. From the model put forward by Groseclose (2001, p. 867) six different predictions can be drawn:

1. The divergence among candidates is monotonically related to the valence parameter. Namely, the greater the valence advantage is, the more the candidates diverge.
2. As the i's valence advantage changes from zero to a small value, i moves toward the expected median voter.
3. However, as i's valence advantage becomes bigger, the slope of his/her policy-location function changes sign. That is, at some point, an increase in i's advantage brings him/her to adopt more extreme positions and to move towards the direction of his/her ideal point.
4. As the valence advantage for i changes from zero to a small value, j moves away from the expected median position.
5. Moreover, j's equilibrium location varies monotonically with the level of i's advantage. As i's valence advantage increases, j continues to move away from the expected median position.
6. At each level of i's valence advantage, i adopts a more moderate position than j.

The predictions derived from Groseclose's (2001) spatial model of party competition have been confirmed by a number of empirical studies on the legislative and electoral arenas (Fiorina, 1978; Ansolabehere, Snyder, & Stewart, 2001; Stone & Simas, 2010b). In particular, an empirical finding highly relevant for Groseclose's expectations is related to the conditioning relationship between leaders' character advantage and policy position: by studying 2006 American midterm elections, Stone and Simas find 'that the character and policy dimensions usually reinforce each other and contribute to electoral victory' (Stone & Simas, 2010a, p. 382). Consequently, it seems that the Groseclose's intuition of a relationship between valence advantage and policy position finds confirmation in reality.

Moreover, Stone and Simas also show that 'the candidates stronger in character tend to be closer to district ideological preferences' (Stone & Simas, 2010a, p. 382). Again, empirical results seem to confirm the impact of candidate valence's advantages on the overall dynamics of party competition, even if this result seems to confirm only Groseclose's prediction number 2. Nevertheless, Stone and Simas' analysis also makes evident that 'candidates with character advantages over their opposition do not shirk by adopting more extreme views that are presumably more in line with their preferences' (Stone & Simas, 2010a, p. 382). These findings evidently differ

from Groseclose's prediction number 3, leaving still opened the discussion on the impact of valence issues on party competition.

More than ten years after the study put forward by Groseclose, another research that represents the state of the art in the field is certainly the model put forward by Carter and Patty (2015). In particular, these two scholars have formalised a model of party competition by using a sequential game: in this game, candidate enters in the competition separately and change positions on an ideological continuum by making public announcements.

Moreover, the model differentiates the candidates i and j not only by their ideological positioning and a single valence advantage, but by relying on two more precise issues. First, candidates' valence advantage might be divided into an individual-related valence advantage and a more campaign-related valence one. Secondly, in Carter and Patty's model, candidates can decide whether to campaign or not. This means that in, front of opponents' ideological move, candidates might also not update their positioning, and this represent a relevant innovation with respect to all the pre-existing models of party competition[92].

The innovation advanced by Carter and Patty has made their model lead to different results with respect to previous studies. Nevertheless, the predictions advanced by the two authors' model do not completely differ from Groseclose's model even if only partially overlap with this latter. In particular, Carter and Patty's model support Groseclose's predictions n. 2, 3, 6[93] while the former arrives at different conclusions than Groseclose's predictions n. 1, 4, 5[94].

More specifically, Carter and Patty's (2015) model predicts that an increase in the valence advantage of candidate i does not affect the ideological divergence between the two candidates if

[92] Indeed, according to all the previous models, after a candidate updates his/her position, its opponent candidates are always supposed to update their positions.

[93] That is, they agree on the following expectations: 2) as the i's valence advantage changes from zero to a small value, i moves toward the expected median voter; 3) however, as i's valence advantage becomes bigger, the slope of his/her policy-location function changes sign. That is, at some point, an increase in i's advantage brings him/her to adopt more extreme positions and to move towards the direction of his/her ideal point; 6) for all levels of i's valence advantage, i adopts a more moderate position than j.

[94] That is, Carter and Patty expectations differ from the following Groseclose's predictions: 1) the divergence among candidates is monotonically related to the valence parameter. Namely, the greater the valence advantage is, the more the candidates diverge; 4) as the valence advantage for i changes from zero to a small value, j moves away from the expected median position; 5) j's equilibrium location varies monotonically with the level of i's advantage. As i's valence advantage increases, j continues to move away from the expected median position.

candidate j has an opportunity to declare his/her position. This finding substantially differs from Groseclose's prediction 1. The second crucial finding by Carter and Patty is the following: when the valence advantage of candidate i increases by a small value, he/she takes more median positions: this second prediction is in line with Groseclose's one. Furthermore, the two authors also find that to an increase in the value of i's valence advantage, it corresponds a j's positioning closer to the median voter. Moreover, the positioning of both i and j becomes more and more centre-leaning as the valence advantage of i increases: this means that the distance between the two parties gets smaller and smaller as the valence advantage of a candidate increases. Also in this case, these findings differ from Groseclose's ones.

The different predictions of Groseclose and Carter and Patty have shown the presence of a relevant debate, which since, the last decades of the 20th century, has characterised the spatial model scholarship.

At the same time, until now, we have only considered models accounting for candidates' valence issue, while the role played by voters' individual bias in a spatial model of party competition has not been tackled yet. We will deal with this second non-policy factor in the following subsection.

4.2.2. Spatial Models accounting for non-policy issues

In addition to the spatial models accounting for candidates' valence issue, another evolution of classical spatial models has been represented by those frameworks that introduce voters-related-non-policy factors. In particular, by studying party competition in both two-party and multiparty systems, several scholars have introduced individual non-policy factors, like party identification (Adams, 2001; Merrill III & Adams, 2001; Adams & Merrill III, 2005; Schofield & Sened, 2006).

The implication of considering voters' party identification instead of candidate's valence advantage is not marginal. Indeed, the introduction of a valence advantage leads to a differentiation only among candidates. On the contrary, considering party identification's incentives allows us to position candidates not only according to other parties' positions or candidates' valence advantages, but also according to voters' non-policy preferences.

After having observed that the consideration of voters' non-policy-related preferences substantially affects party competition, we could also observe that the introduction of such factors in the utility functions has allowed to introduce a number of novelties in the spatial model scholarship of party competition. First of all, when non-policy factors are considered, spatial

models predict that parties tend to differentiate their policy locations instead of converging toward the median voter position (Adams, 2001). Along with this result, Adams also shows that, despite parties tend to vary their positions over time, the fact that they change location on an ideologically delimited area of the policy continuum makes the probability of leapfrogging very rare[95].

A second relevant innovation for spatial models of party competition scholarship favoured by the introduction of non-policy factors in voters' utility function is the use of a new algorithm (Merrill III & Adams, 2001) to detect Nash equilibria in multiparty systems. In particular, by defining a probabilistic probability utility function, it has been possible to

> derive conditions that guarantee a unique Nash equilibrium and that guarantee that the algorithm will converge to this equilibrium, and we show that these conditions are plausible given the empirically estimated parameters behaviourists report for fully specified models of the vote in historical elections (Merrill III & Adams, 2001, p. 349).

Moreover, the introduction of such algorithm[96] has allowed deriving parties' optimal positions also by considering individual biased utility function of voters.

A first application is represented by Adams, Grofman and Merrill III's study on the unified model of party competition (2005). Let us recall that, in the first chapter, we have considered Adams and colleagues' study because of the innovation introduced at the voting level. Conversely, in this second part, their research is particularly relevant because of the consequences, on party competition, of the introduction of non-policy factors in individual's utility function.

Indeed, individual non-policy preferences (like party identification) have a relevant impact on candidates' strategies thanks to the fact that they correlate with voters' positions. Let us suppose that no candidate has a valence advantage. According to classical spatial models, if, in such situation, different parties take position on the same location, these parties would obtain the same consensus.

Conversely, if voters decide for which party to vote not only according to the ideological proximity but also according to non-policy preferences, taking the same position does not lead different parties to obtain the same share of votes. In other words, the intuition of Adams and

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[95] This result represents a relevant empirical finding, since it confirms the Downsian theoretical assumption on the non-leapfrogging strategies of parties. Indeed, despite Downs' theoretical argument, many empirical applications of the original proximity model shows that the number of leapfrogs and party positioning outside the delimited area around the party ideological position is quite high (Adams, 2001, pp. 152–154).

[96] Since this algorithm will be used in the empirical analysis, it will be more profoundly explained in the next chapter.

colleagues (2005) is the following[97]: let us suppose that left-wing voters have a non-policy preference for candidate i instead of candidate j[98]. In this case, party i has an incentive to move toward the position of left-wing voters, given that the marginal utility that derives from this position-taking is higher than the one that party j would have received by taking the same position. On the other hand, the marginal utility for party i to move toward left-wing voters is higher than a move toward the right-wing voter: indeed, the marginal utility of this position-taking would not exclusively depend on candidate j's position, but also on the possible non-policy preferences of right wing voters with respect to party j.

From this reasoning, it descends that parties have the incentives to take positions closer to their partisans' mean position, precisely thanks to non-policy factors (Merrill III & Adams, 2001). Moreover, as Adams and colleagues (2005, p. 29) have argued, 'this intuition is important not only for understanding party strategies, but also for what it implies about representation: namely, that parties have electoral incentives to faithfully represent the policy beliefs of their partisan constituencies, the mass-elite linkage that underlies the responsible party model of representation'. Consequently, by accounting for the presence of differences within the electorate non-policy preferences, Adams and colleagues (2005) have hypothesised that, in a situation of equilibrium, parties will take position between the median voter's and the party partisan's mean positions.

Indeed, since office-seeking parties are not only interested in gathering their own partisans' votes, candidates will tend to moderate their positions. Such a position will allow them to 'appeal jointly to their partisan constituency and to neighbouring constituencies that constitute targets of opportunity' (Adams et al., 2005, p. 38). The empirical findings of Adams (2001) and Adamsand colleagues (2005) have confirmed such intuitions.

These results have opened a new path of research in the spatial model's scholarship that, as we have seen in the previous part of this research, is increasingly refining its explanations of voting choice and party competition.

At the end of this journey in the party competition literature (and, in particular, in the spatial models' one) a question naturally arises: do theoretical and formally-derived expectations hold in reality? The answer is not an easy one, since, despite the increasing statistical complexity

[97] See also Curini (2014) for a longer and detailed explanation of Adams and colleagues' (2005) reasoning.

[98] This means, in the case of Adams and colleagues' research, that the left-wing voters identify with the left-wing candidate and not with the right-wing one.

and empirical reliability of the spatial models put forward by the literature, parties' optimal positions often differ from the ones that they take during elections (Curini, 2015b).

4.3. From parties' optimal positions to actual ones

Despite the increasing statistical complexity and empirical reliability of the spatial models put forward by the literature, party competition models often do not predict party positioning reliably. Moreover, since the Nash equilibrium would predict the optimal strategy for each party, there should be something at work able to explain why party leaders and candidates take position on sub-optimal locations.

Nevertheless, since, in most of the cases, theoretical and empirical research have been separately conducted, only have a few studies dealt with the incapacity of spatial models to predict parties' strategies correctly. In the next two sections, I will review the main works that have tried to answer such question, that is predicting parties' strategies correctly. Before describing the explanations of parties' sub-optimal locations, there is more general question that should be preliminary accounted: what drives actual party positioning? Why, for instance, does a left-wing party take a more (or less) centrist position?

The next subsections will be devoted to the presentation of the main theories dealing with the explanation of actual party positioning and the presentation of the few contributions that have aimed at motivating party sub-optimal location during electoral campaigns.

4.3.1. Parties' actual position: possible explanations

Why parties take specific positions on the ideological continuum is a matter that has been accounted by a large number of scholars since the middle of the XX century. Nevertheless, given the aims of this research, an overall discussion on the evolution of this branch of research goes far beyond the scope of this section. At the same time, there are a number of studies that, accounting for the explanation of party positioning, have put forward several issues that will be useful in the argument we advance in the next chapter[99].

According to the analyses aiming at explaining parties' positioning during electoral competitions, parties might take specific positions because of a number of reasons. First of all, in

[99] That is, the explanation of parties' sub-optimal location.

line with spatial models' expectations, their locations might be strictly related to the position of the median voter (Burden, 2004; Adams & Merrill III, 2005; Adams et al., 2006; Adams, Haupt, & Stoll, 2009; Ezrow, De Vries, Steenbergen, & Edwards, 2011; Gallego & Schofield, 2016), of the partisan voters (Aldrich, 1983; McGann, 2002; G. J. Miller & Schofield, 2003), and of the opponent parties (Adams & Somer-Topcu, 2009; Adams, 2012; Williams & Spoon, 2015)[100].

Nevertheless, it has been shown that all these factors do not influence parties' strategies in the same way: more extreme parties are indeed less sensitive to the positioning of the median voter with respect to mainstream parties (Ezrow et al., 2011). Moreover, niche parties do not have any incentives to take moderate positions, since a shift toward the centre of the policy continuum would cost them an electoral loss (Adams et al., 2006). Conversely, they have incentives to strengthen the saliency of the issues they own (Bélanger & Meguid, 2008).

In addition to all these policy-related factors, scholars have also investigated whether more institutional-related factors can have a say in affecting the position-taking of parties. Among such factors, it is useful to underline the (expected) role of the party system, and in particular of the electoral law. Indeed, Ezrow (2008) has shown how the electoral law (and in particular a proportional system) has no impact on more extreme parties' position-taking, both directly and indirectly.

Also more intra-party and organisational factors can affect parties' positions: existing studies have shown that parties' policy positions are affected by the preferences of activists, factions, or members (Aldrich, 1983; Harmel & Tan, 2003; Levy, 2004; Ceron, 2012). In particular, it has been shown that the bargaining among intra-party factions is crucial in affecting party positioning, and that 'due to the pressure exerted by factions, the party seems to work as a "bounded oligarchy"' (Ceron, 2012, p. 700). This effect might be mediated by other intra-party factors, such as party leader selection rules or the membership structure (Katz & Mair, 1994a; G. J. Miller & Schofield, 2003). When the selectorate is wider, leaders have more autonomy in deciding their position-taking (Poguntke & Webb, 2005; Lisi, 2010, 2015; Sandri & Seddone, 2015). The role of the leader in the process of position-taking has been a crucial concern also in Schumacher and colleagues' study (Schumacher, De Vries, & Vis, 2013), that has also focused on the impact of organisational party features on parties' position shifts. Indeed, departing from the intuition that leaders' or activists' influence profoundly affects parties' policy position-taking (Panebianco, 1988), Schumacher and colleagues have shown that, when the party is activist-dominated, the position-

[100] Other environmental factors that affect party positioning are connected to the relevance of specific socioeconomic groups during the competition or to the changes in the economic conditions (Pennings, 1998; Adams & Somer-Topcu, 2009).

taking depends mostly on the position of partisan voters. On the contrary, when the party is leader-dominated, it is more sensible to the median voter's position shifts. Moreover, Schumacher and colleadues' conclusions are very similar to the ones reached by Katz (2014), who has compared the incentives descending by different party organisational configurations.

Despite the many studies that have aimed at explaining why parties have taken specific positions in the political space, and despite the fact that accounting for all that literature goes beyond the scope of this research, many of the elements presented in this subsection will be central in the subsequent chapters.

4.3.2. Accounting for the distance between actual and optimal positions

After having accounted for some of the possible explanations of parties' actual positions during elections, a second, and for this study even more relevant, question arises: why do not parties take the optimal position during elections?

From this research's perspective, this question represents the turning point. Indeed, answering to this question would allow to finally link what we have seen in the previous subsection (that is, the determinants of actual party positioning) and what has been presented in section 4.2 (that is, the parties optimal position). Moreover, by linking these two arguments, it is possible explaining why parties do not often take an optimal position.

Despite the crucial relevance of this issue in the understanding of parties' position-taking during the electoral competition, this topic has been largely neglected by the literature. In particular, to the best of my knowledge, the only study that has aimed at answering these questions has been put forward in recent years by Curini (2015b). This limited interest of the scholarship is difficult to understand, as many pieces of empirical research have shown that most of the parties' actual position do not coincide with their optimal one, in both multiparty and two-party systems (Adams & Merrill III, 2005; Adams et al., 2006). Moreover, this becomes even more difficult to explain if we think that explaining what drives parties not to take an optimal position during elections represents not only an empirical piece of research, but it might also be a possible way to refine existing spatial models. Indeed, such empirical results would underline those strategic factors influencing party strategies during the electoral campaign and conditioning parties' position-taking.

To explain the existence of a distance between parties' actual positions and their optimal ones, Curini firstly tested several hypotheses derived from the literature. In particular, he focused on the arguments put forward by Adams and colleagues (2005) on the relative distance between the optimal position of parties from the centre of the political space. Indeed, the relative

extremeness of the optimal position has a significant impact on the relative distance between the actual and the optimal positions of parties: the more the optimal location is far from the median voter and closer to partisans' average positions, the lower will be the distance of the party from the optimal position. In particular, Curini shows that the extremeness of an optimal party position is positively affected by a number of factors: a higher weight of both ideological or policy-related stances and party identification in the utility function of voters; a greater relevance of a party; a higher polarisation of partisans' average positions; a higher polarisation of the electorate; and a greater number of parties competing in the elections. On the contrary, Curini has found that both a higher number of independent voters (those who do not identify with a party) and a higher number of partisans negatively affect the degree of extremeness. That is, to an increase in such factors, parties' optimal positions get closer and closer to the median voter one.

After having detected the determinants of more or less extreme parties' optimal positions, Curini has tested some other hypotheses concerning the determinants of parties' sub-optimal positions. According to the author, this suboptimal behaviour might be explained by taking into consideration all those factors that might affect parties' vote-maximising aims. These factors can be drawn from two different sets of variables: post-electoral incentives and party characteristics. In particular, Curini considers the following variables: membership to a pre-electoral coalition; the probability of belonging to a future government; the party family; the party age; the parties' candidate selection rules; the electoral system's average district magnitude; and whether the country is an established democracy.

The results of the empirical analyses show that many explanatory factors do not have a significant impact on the relative distance between parties' actual position and the optimal one. In particular, the electoral system (that is, the average district magnitude and being a stable democracy) does not have an impact on party sub-optimal positioning. Among the party-related variables, only do a few variables highlight a significant impact: for instance, an increase in the expected cabinet membership has a significant impact, by negatively affecting suboptimal position taking. Another variable that positively affects the optimality of parties' actual is surely party age: the more a party has a long history, the closer its actual position to the optimal one. Finally, also an increase in the openness of party's candidate selectorate has an adverse impact on the distance between parties' actual position and their optimal one.

The results put forward by Curini represent a first important attempt to deal with one of the most interesting questions that our research aims at addressing: why parties do not take optimal positions. Despite the novelty of the research question, the empirical explanation put forward by the author confirms that the existing literature does not allow to comprehend the actual

mechanisms adopted by the parties profoundly. Indeed, as we have already seen, among the hypotheses derived from the literature that Curini has tested, only have a few of them resulted as having a significant impact in the empirical analysis.

Conclusions

This chapter has aimed at presenting a number of theories of party competition advanced by the literature. In particular, after having dealt with the most relevant issue-based theories of party competition, we have approached the spatial models. These latter are particularly relevant in this research since the model we will advance in the next chapter will rely on this scholarship. Among the spatial models of party competition derived from the classical Downsian one, we have discussed the most relevant models that have introduced non-policy factors in parties' utility functions. In particular, we have discussed the optimal positional strategies that, according to spatial models of party competitions, parties should follow to increase their expected consensus.

The discussion of these spatial models of party competition has allowed to observe that different model specifications lead to very different results. This means not only that there is an ample space of manoeuvre to advance a new model of party competition, but also that, in the spatial model scholarship, there is a relevant discussion aimed at increasing both the statistical sophistication and the empirical reliability of the models advanced.

Nevertheless, in front of such theoretical discussion, a question naturally descends: how much are the predictions put forward by spatial models empirically reliable? How much do these theories predict correct parties' location?

Despite the theoretical and empirical relevance of the questions, they have been scarcely addressed by the scholarship. Moreover, the studies that have aimed at empirically explain the motivation of parties' sub-optimal positioning have shown that the explanations put forward by the formal models presented in the scholarship do not significantly explain the greater level of sub-optimality parties' positioning.

This unsolved theoretical issue leaves a vast panorama of questions still unanswered and, in particular, the necessity of a more systematic formalisation of the reasoning at the base of parties' sub-optimal strategy. In other words, not only is a novel model of spatial competition needed, but, more precisely, it is important to advance a spatial model of party competition able to explain what makes parties not behave in a entirely rational and vote-seeking manner during elections. It follows that accounting for such topic in a formal model of spatial competition would

allow to derive precise and empirically testable hypotheses on the motivations at the base of parties' sub-optimal strategies. This will be the aim of the next two chapters.

5. A novel model of party competition

What has been presented in the previous chapter represents the bulk of most relevant contributions in the party competition scholarship. Given the relevant and open debate concerning the definition of novel and more sophisticated spatial models, and given that a profound and reliable explanation of why parties take sub-optimal positions is still a largely neglected, it is now possible making a step forward and presenting the central innovation of the second part of this research.

More specifically, I will advance a novel game-theoretic-based model of party competition. Among the several novelties that this model of party competition aims at introducing, the most important ones are going beyond classical party competition predictions and being able to explain parties' sub-optimal position taking.

Indeed, in the fourth chapter, we have seen that, despite the question 'why do parties not take optimal positions during electoral campaign?' represents a particularly relevant one in political science, it is still an understudied research topic. Indeed, the few studies which have dealt with it argue that parties' suboptimal behaviour could be explained by challenging candidates' and parties' pure vote-maximising behaviour. Moreover, other possible explanations are connected to post-electoral and governmental incentives and parties' family membership.

Although it might be possible that similar characteristics affect the strategies followed by parties during the electoral period, I argue that parties' location more or less distant from their optimal one is profoundly connected to a number of factors strictly related to the ongoing dynamics of party competition. In particular, a key factor influencing parties' strategies is expected to be voters' cognitive bias toward or against the parties competing for the elections. Indeed, as we have seen in the first part of this research (and, in particular in the third chapter), when voters are positively inclined toward a party, their utility is much more sensitive to variations in ideological proximity and leadership evaluation[101].

[101] For more detailed explanation concerning individual cognitive bias, see section 2.2; moreover, for a longer discussion on the empirical relevance of leader evaluation and ideological proximity, see section 3.3.

Obviously, such predisposition cannot affect only voters' behaviour, but, as we will see in this chapter, it could also affect parties' competition. This can be possible because, at the base of the model I will present in this chapter, there is the idea that not all the voters take part to the electoral competition in a passive way, as sustained by more classical spatial models. On the contrary, all the voters who are biased toward a party have several incentives to take part actively in the electoral campaign, especially aiming at condition party leaders' position taking[102].

However, how can biased voters affect party leaders' strategies? According to the model I will advance in this chapter, attached voters can condition their preferred parties' location by affecting a second important dimension of individual vote: party leader reputation. Indeed, as we have already seen in section 3.3, a lower party leader's evaluation significantly affects the probability for such party to be voted. It follows that being able to affect leader' reputation enables attached voters to decrease the capacity of a leader to increase the consensus for his/her party because of his/her reputation, and consequently party leaders' expected consensus at the elections.

Therefore, if this interaction is taken into consideration, the suboptimal positioning of political parties does not necessarily represent a consequence of an irrational behaviour. On the contrary, it could be seen as the rational response of party leaders to the attempt of attached voters' to influence leaders and the decision to locate the party in the optimal position.

To go beyond the limitations of existing and classical spatial models and advance a novel model of party competition also able to account for the attached voters' requests and active behaviour, in this chapter, I will advance a novel model of party competition. This will aim at that redefining parties' incentives behind the structure of party competition, and also at advancing a novel framework for analysing electoral competition.

The model I will advance in this section makes it possible formally explaining the sub-optimal behaviour of parties. This descends from the intuition that, during the electoral campaign, a party does not compete only against its opponent(s), but also plays a strategic

[102] Indeed, as we have already seen in the introduction and in previous chapters, the framework advanced in this dissertation is line with the literature on the topic (Ceron, 2012) and expect that party's positioning is decided by the party leader.

game with the set of its attached voters. Indeed, because of their bias toward the party, these latter will aim at influencing party's leader strategy. It is for this reason that I have denominated the model that will be presented in the next section 'the biased Three Biased Actors Model'.

The chapter is organised as follows: in the next section, I will introduce the logic at the base of the Three Biased Actors Model; in the second chapter, once having formalised the structure of the competition and presented the payoffs corresponding to each outcome, I will describe the expectations that can be derived from the Three Biased Actors Model in equilibrium. Afterwards, I will present a number of hypotheses to be tested in the next chapter: I will divide them between micro-factor-related expectations (that is, party-related expectations) and hypotheses connected to more macro-related factors (such as systemic ones). Conclusions will follow.

5.1. The biased Three Biased Actors Model

As I have already said, the departure point for the reasoning developed in this second part of the research is strictly connected to the core concept of the Biased Voter Model advanced in the previous section: that is, individual biases.

Indeed, as the empirical analysis presented the third chapter has confirmed, individual biases condition voters' evaluations of parties in several manners. More into detail, a generalised mixed linear model on fifty-six Western European elections in the last twenty years has confirmed that the lower the amount of bias a voter has against a party, the more salient is the ideological proximity between the voter and the party in the individual voting behaviour. In addition, voters' bias also conditions the positive effect of leadership evaluation on their vote probabilities for a party. So, the more significant the amount of individual bias against a party, the lower the impact of leader evaluation on the probability for this voter to cast the ballot in favour of such party.

From this reasoning, it descends that the impact of such variables does not condition only the individual voting behaviour, but might also affect the dynamics of party competition. Indeed, in line with the spatial model scholarship, since individual biases are conditioning factors of voters' utility function, parties' optimal positions will also depend on

individual biases[103]. At the same time, according to the literature, voters are passive actors during the electoral campaign: they can only cast their ballot on the election day.

On the contrary, we could imagine that individual bias might also affect the behaviour of biased voters who, by actively participating in the electoral competition, condition parties' strategies and position-taking. This solution strongly differs from the classical spatial model approach: here, indeed, voters not only condition the location of optimal positioning, but they also affect parties' capacity to take position in the optimal one. Summarising, according to this approach, voters actively take part in the electoral competition and condition parties' strategies. To develop the Three Biased Actors Model, I will rely on this perspective.

Furthermore, before formally presenting the thee biased actors model it is necessary, to profoundly understand why such a novel model is particularly relevant, to make a step back and starting from some pieces of empirical evidence.

Let us start from the relevance of leaders for political parties. Indeed, in the era of party decay[104], scholars have been increasingly investigated the degree of autonomy of leaders in position-taking during elections. In particular, recent studies have shown that even if the role of sub-party groups is particularly relevant in affecting parties' position-taking (Aldrich, 1983; Harmel & Tan, 2003; Levy, 2004), more legitimised leaders (for instance thanks to more open leadership selection rules) can reach a considerably high level of liberty in the placement of the political organisations they are in charge to lead (Rahat, Hazan, & Katz, 2008; Ceron, 2012). Indeed, when leaders are more legitimised, they have greater possibilities of defanging the party base and decreasing the capacity of the party's dominant coalition to influence their behaviour (Katz & Mair, 1994b; Poguntke & Webb, 2005; Rahat et al., 2008).

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[103] Indeed, as we will see in the following chapter and as we have already (and partially) seen in chapter 3, by computing parties' optimal positioning via the 'iterative algorithm' (Merrill III & Adams, 2001), all those non-policy factors that affect voters' behaviour will be accounted in each party's optimal positioning.

[104] The argument of the party decay is a very debated and relevant topic. In addition to more encompassing analyses (Mair, 2013; Tormey, 2015), party decay is connected to several issues, such as: the increasing relevance of party professionals (Katz & Mair, 1994b, 1995; Farrell & Webb, 2000), the decreasing participation of members (Dalton & Wattenberg, 2002; Van Biezen, Mair, & Poguntke, 2012; Van Biezen & Poguntke, 2014), the shrinking of party branches and local activism (Kölln, 2015), and the like.

If this empirical evidence shows that, in the last decades, parties' leaders have been affecting party position-taking with an increasing autonomy from parties' dominant coalition, it could be that voters, the direct stakeholders of party leaders in a spatial model of party competition (Katz, 2014), brake party leader's autonomy in position taking. Indeed, from the spatial models' point of view, during party competitions, leaders place their political formations in response both to the distribution of the electorate on policy dimensions and to their opponents' optimal positioning. Moreover, spatial models also underline that such a behaviour aims at increasing parties' expected utility, and in particular the expected share of votes. In other words, we can consider party competition as 'a minuet in which each seeking his or her own best position in relation to all the others' (Adams et al., 2005, p. 28).

Nevertheless, according to the classical conception of party competition, the electorate is only a sum of single voters who take decisions by comparing parties' positions (see Laver & Sergenti, 2011 for a longer discussion on this topic). This means that voters can behave only as recipients of political proposals, without any possibility to affect leaders' decisions regarding the location of the party. It follows that, during the electoral period, voters are seen as passive actors that can only decide whether to vote and, in case they vote, for which party to cast the ballot.

Conversely, this chapter departs from a very different perspective. Indeed, if party leaders are more autonomous from party cadres in positioning the parties and if they face electoral incentives to locate the parties they lead on optimal positions, it might be that the actors that aim at conditioning party leaders in order not to locate the organisation according to a pure vote-maximising perspective are the attached voters[105]. Indeed, according to the perspective adopted in this research, attached voters could make pressure on the leader of their favourite party to advance, during the electoral campaign, policy proposals that are closer to their ideological positions.

This is connected to the fact that, within the larger set of voters, the attached ones mostly respond to ideological desires and incentives. This means that, conversely to party leaders, whose target also encompasses vote- and office-related targets, the objectives of the attached voters are mostly connected to identity-related and ideological factors. Furthermore, this is confirmed by the results put forward in the third chapter: with respect

[105] That is, attached voters are those voters characterised by a strong bias toward the party.

to non-attached voters, attached voters' preferences are particularly shaped by an increase in the ideological distance from the parties they prefer. Consequently, since the attached voters are particularly sensitive to ideological proximity, if a leader places the party (very) far away from the their location, the attached voters latter will face a relevant utility loss that may cause, to certain extent, a reaction and the request for a re-positioning of the party.

Nonetheless, a crucial point is still missing. How could attached voters' request for a closer party location be taken into account by leaders? Are party leaders so accommodative to voters' request? Surely not. My argument is not built on party leaders' willingness to easily give away position-taking power. On the contrary, it is strictly linked to a strategic-interaction- and utility-related reasoning.

More into details, if leaders position their parties far from the attached voters' average location, these latter will complain about the leaders' decisions. After all, in this latter case, they would suffer from a decrease in their utility, given by a farer party positioning. Moreover, if attached voters complain about leader's party position-taking, the leader would have to deal with several public criticisms, and this will affect his/her reputation. Indeed, in front of attached voters' criticisms, he/she will be perceived by the entire electorate as a leader that is not able to adequately represent the preferences of his/her attached electorate. These complaints not only will reduce the positive impact of in-group feelings on leader's effect, but they will also affect the level of leader's evaluation of all the electorate – such leader will be perceived as unable to satisfy even his/her electorate.

From this reasoning, a novel model of electoral campaign and leaders' competition can be derived. Indeed, as we have already seen, until now, scholars have explained parties' electoral campaign as a game between two or more opponents, and considered the information on voters' preferences as given. On the contrary, in the model we are going to present, leaders do not only take into consideration the characteristics and the positioning of their opponents, but also focalise their attention on the requests of their electorate, in order not to compromise the electoral campaign and not to decrease the probability to win the competition.

To formalise such intuition and profoundly explain the mechanism behind this general expectation, the next subsection will be devoted to the presentation of a formal game theory that takes into account also attached voters' behaviour.

5.1.1. The structure of the competition

As we have already seen, at the base of the Three Biased Actors Model of party competition there is the intuition that party leaders not only play against the other candidates, but they have also to play a side-game with their party's attached voters. These latter, indeed, aim at conditioning leaders' party positioning and strongly affecting the capacity of the leader to increase the consensus of the party.

The interaction, on the one hand, between a leader and his/her party's attached voters and, on the other hand, between a leader and his/her opponents (i.e., leaders of other parties) can be formalised by using a game-theoretic approach. This solution allows us to specify players' source of utility in a more detailed way, and then to derive several hypotheses to be tested via an empirical analysis. However, let us start with players' structure of interaction.

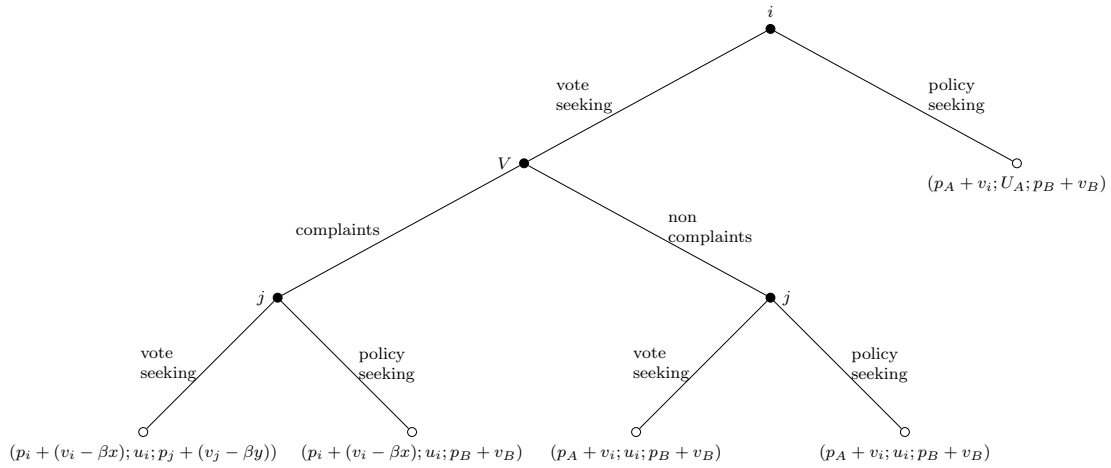
Imagine a leader i who has to locate the party he/she leads on an ideological continuum during an electoral competition. First of all, he/she knows that both party's location on the ideological continuum and his/her own reputation have a significant impact on voters' behaviour, and in particular on attached voters' one. Moreover, he/she is also aware about a number of additional pieces of information, such as: that the attached voters V of his/her political formation are located at position A, that the optimal position for his/her party is located at N_i and that his/her opponent j_n is located at a specific position on the ideological continuum.

Knowing all these elements, during an electoral competition, i aims at implementing the strategy that mostly increases party votes. Nevertheless, he/she also knows that to every decision he/she adopts, the other players (that is, his/her party's attached voters and his/her opponents) will take consequent decisions. The interactions among the three actors involved in the party competition are represented in Figure 5.1 below, which shows leaders' payoffs and represents the electoral game in an extensive form.

According to the Three Biased Actors Model, if i follows a policy seeking strategy (that is, he/she takes a position close to the attached voters' position A), the leader will get an utility that depends on the location of the party and (V_A) and on the non-damaged leader's

reputation[106]. In such case, not only will the ideological location have a say in the estimation of leaders' utility, but also the leader's reputation will play a decisive role. Indeed, we have seen in the chapter 3 that leader evaluation represents a relevant factor in voting decisions, especially for those who are biased *toward* a party (while it does not affect the behaviour of those who are biased *against* the party). That is, if the party is positioned close to attached voters' location, the leader expects to maximise the amount of votes from those voters who are positively inclined toward the party.

Figure 5.1 *A game theory three biased actors party competition*



On the contrary, if leader i locates the party on a different position with respect to A, it would mean that the leader is not satisfied from the expected share of votes he/she would get from attached voters, and consequently aims at increasing the probability that not attached voters will cast the ballot in favour of his/her party. This means increasing the utility of non-attached voters by reducing the negative impact of the distance utility loss component on such voters' utility function.

[106] Since, during electoral competition, we expect party leaders to adopt vote-seeking strategies, the leaders' utility reported in the payoffs represents the expected parties' consensus given by a specific party positioning and leader's evaluation.

So, if a party leader locates the organisation more distant from the average position of the attached voters, he/she is following a more vote-seeking strategy. Consequently, to increase the expected share of votes, he/she aims at reducing the sub-optimality condition of P_A and locating his/her party's position toward the Nash equilibrium position N. Indeed, the party leader knows that this latter position would be the best choice he/she could get from a pure vote seeking strategy and if his/her party's attached voters adopted a passive role in the electoral competition.

Nevertheless, in front of i's decision to locate the party far away from A, it corresponds a decrement of attached voters' utility. Indeed, in this case, the utility of i's party attached voters will be lower, because of an increase in the ideological distance between their average location and the party position. Moreover, this utility decrement is even more salient in the overall utility function for the attached voters than for the other voters. Therefore, in front of a similar utility loss, we expect that the attached voters would not adopt a passive behaviour, since it would lead the party leader to locate the party at N.

Conversely, according to the three biased actors game, the attached voters might decide to react to the leader's decision and behave as if they were the representatives of the segment of the electorate that should be represented by leader i (see the discussion in Katz, 2014). This means, by adopting a more game-theoretical language, that the attached voters are the principal of the party leader.

On the other hand, if the attached voters can be considered as the principals, then the party leader will represent the agent of the relationship. It follows that this latter (the leader) will be delegated by the former (the attached voters) to represent their preferences. Therefore, following this reasoning, the attached voters aim at holding the leader accountable and at conditioning his/her strategies. In particular, the ones connected to the position-taking of the party.

This is a crucial point for this chapter: indeed, differently from all the other models of party competition[107], the Three Biased Actors Model advances the idea that attached voters might affect the strategies put forward by party leaders, and that, in particular, their capacity is strictly connected to their bias toward the party. Indeed, it is precisely attached

[107] That, as we have already seen, assume a passive behaviour respect to the dynamics of party competition.

voters' bias that makes these latter particularly interested either in the ideological position of the party and leader's evaluation, and that makes them perceive themselves as party leaders' principal.

Because of these reasons, if the party is located far away from the attached voters' average position, these latter will have incentives to contest the vote-seeking strategy adopted by the leader, and, in this way, to condition leader's party positioning.

Indeed, by underlining their disappointment on the party's positioning, attached voters will show that there is not an ideological agreement between themselves and the party leadership, and that they question the reputation and the reliability of the leader i. It follows that the disappointment of the attached voters of i's party makes the following question arise for all voters: 'if i is not able to properly represent the position of his/her partisans, how can he/she be able to reliably represent us after the election?'

So, attached voters can highly affect the degree of positive evaluation of i, and then decrease the impact of leader evaluation on the probability to vote for i's party. Moreover, attached voters' behaviour has an impact not only on attached voters' preferences, but also conditions the utility provided by leaders' evaluation to each single voter. Consequently, a more distant location of i's party with respect to the attached voters' location A, makes V able to decrease the general likeability of leader i. In turn, this affects i's ability to get a surplus of votes thanks to the impact of his/her general evaluation[108]. It follows that attached voters' complaints represent a strong incentive for party leaders to locate the party closer to attached voters' position.

At the same time, when i has to take a decision on the positioning of his/her party, he/she cannot take into account only attached voters' preferences, but has to also take into consideration his/her opponent j's strategy. Indeed, as leader's i, also j has to take position considering his/her party's attached voters' location and preferences. Consequently, by reacting at the same structure of incentives that conditions i, also will j take positions by being aware of the possibility that j's attached voters could affect the impact of his/her

[108] Indeed, we have seen, in chapter 3, that to lower levels of a party leader's evaluation, the probability to vote for a party decreases, especially for those voters who have not a high bias against the party.

reputation on the individual vote, and therefore negatively affect the expected share of votes as well.

It follows that in addition to the interaction between i and j, it is the interaction with their respective attached voters the element that contributes to determine the position of parties when attached voters are not considered as passive electors.

The extensive form of the game presented in Figure 5.1 and the discussion we have done so far largely explain the dynamics predicted by my model of party competition. Nevertheless, it should be noticed that even if the figure presents the competition among two parties, the model that we are putting forward can be applied also in multi-party competitions [109]. In such a context, each party will have to consider the strategies of all the other parties competing for the election. Not only have I made this specification because a party effectively does not compete only with the closest one[110], but also because the model we will use to compute the positions predicted by the game does not assume such limitation[111].

However, let us make a step forward and consider the payoffs that parties should expect according to the Three Biased Actors Model of party competition.

5.1.2. Three Biased Actors Model's payoffs

After having described the structure of the competition as formalised in the Three Biased Actors Model, to better understand the incentives that condition party leaders' choices it is necessary to take into account the expected payoffs of all the actors involved in

[109] As I have already underlined, I will rely on Merrill III and Adams' (Merrill III & Adams, 2001) iterative algorithm in order to estimate the Nash equilibria predicted by the Three Biased Actors Model. On the applicability of this algorithm to multiparty competition, see Adams and Merrill III (2001), Adams and colleagues (2001; 2005), Curini (2014), Curini and Iacus (forthcoming).

[110] For different perspectives, see Meguid, 2005 for empirical results; Adams *et al.*, 2006.

[111] This does not mean that the expected votes for a party are not connected to the position of the closest parties on its left and right sides, but simply that the overall set of competitors for a party is not restricted to the two closest parties.

the competition game at each possible outcome. Table 5.1 summarises players' payoffs for the simultaneous and continuous game extensively represented in Figure 5.1.

Table 5.1 *Three actors party competition payoff*

***i*'s position**	***j*'s position**	**Attached voters' Complaints (*i*)**	**Attached voters' Complaints (*j*)**	**Payoff**
P_A	P_B	No need	No need	$i = U(P_A, v_i)$ $V = u_A$ $j = U(P_B, v_j)$
P_i	P_B	Not	No need	$i = U(P_i, v_i)$ $V = u_A$ $j = U(P_B, v_j)$ $V = u_i$
P_A	P_j	No need	Not	$i = U(P_A, v_i)$ $V = u_A$ $j = U(P_j, v_j)$
P_i	P_j	Not	Not	$i = U(P_A, v_i)$ $V = u_i$ $j = U(P_j, v_j)$
P_i	P_j	Intervene	Not	$i = U(P_i, v_i - \beta x)$ $V = u_i$ $j = U(P_j, v_j)$
P_i	P_j	Not	Intervene	$i = U(P_i, v_i)$ $V = u_i$ $j = U(P_j, v_j - \beta y)$
P_A	P_j	No need	Intervene	$i = U(P_A, v_i)$ $V = u_A$ $j = U(P_j, v_j - \beta y)$
P_i	P_B	Intervene	No need	$i = U(P_i, v_i - \beta x)$ $V = u_i$ $j = U(P_B, v_j)$

When leader *i* positions his/her party close to A (that is, his/her party's attached voters' location), he/she expects a payoff of $U(P_A, V_i)$, where P_A represents the component of utility that derives from ideological positioning and V_i the component of utility that derives from leader's positive evaluation. In such a condition, no more factors affect the amount of utility i expects: it depends exclusively on voters' distribution on the ideological continuum and on voters' evaluation of leader i. Indeed, as we have seen in the previous

section, if leader i positions the party on the attached voters' location, attached voters will be particularly satisfied: in such case, attached voters get the highest amount of utility they can expect, and have no incentives to criticise i. This means that the leader will compete with his/her party's opponents without any further difficulty. Consequently, the utility for leader i, which corresponds to his/her expected consensus, depends only on i's positive evaluation and i's party location

Differently, i may also decide to locate the party on more vote-seeking positions on the ideological continuum. This means that i might position his/her party closer to the predicted Nash position. In such case, given party positioning, attached voters would get an utility $u_i - \gamma_1(P_A - P_i)^2$ smaller with respect to the one they would have gotten if party had taken position on A. That is, an utility smaller of the squared distance between partisans' position and leader i's location[112].

By facing such utility loss, attached voters might decide to complain about leader i's choice, thus reducing the impact of his/her positive evaluation. Indeed, by decreasing the reputation of leader i, attached voters aim at discouraging i from locating the party too far from their average positioning. If attached voters complain about i's choice not to locate the party at A and reduce the impact of his/her positive evaluation on individual voting behaviour, also i's utility will decrease. In such case, i's payoff will be equal to $U(P_i, V_i - \beta x)$, where P_i is the amount of utility that derives from i's party position while $V_i - \beta x$ represents i's expected utility that derives from his/her positive reputation.

In this case, the impact of party leader' positive evaluation is weakened by the presence of attached voters' criticisms. In particular, the impact of attached voters' criticisms is equal to βx, where x is the distance between party's P_i position and the average location of the attached voters (P_A). Moreover, β represents the relevance of attached voters respect to the electorate of i's party. In this situation, i's payoff clearly underlines the disincentives to take more vote-seeking positions derived from attached voters' behaviour. Indeed, if, on the one hand, i would have an increase in the expected utility given by a more convenient

[112] For more details, see the argument put forward in subsection 2.2.1, where the distance utility loss component of the Biased Voter Model has been advanced.

position, on the other hand, he would also suffer a lower leader effect caused by attached voter reaction.

On the contrary, if attached voters decide not to affect i's reputation although he/she has positioned the party far from their average position, i will expect a payoff equal to $U(P_i, V_i)$. In such case, the utility expected by i will be bigger than the one he/she would have expected by taking position on P_A and than the one he/she would expected in case of attached voters complaints. Indeed, in this very last case, he/she would have had an increase in the utility deriving from the better position P_i, but no decrease in the utility deriving from partisans' actions.

Given the positions of j, this is surely the best possible i's positioning. Indeed, in addition to the surplus of utility derived from the better positioning, i has maintained unaltered his/her reputation, meaning the leader effect on voters' choice is not weakened. At the same time, it also represents the worse option for the attached voters of i, since, thanks to the fact that they do not put forward any disincentive, the leader i will surely locate the party on the optimal location, that is, a position far from the average location of attached voters[113].

As the reader could see in Table 5.1, given the choice of i (who can propend for a more vote-seeking or policy-seeking strategy), the structure of opportunities and the expected utility for leader j are the same of i's. Indeed, also has j to decide whether to locate his/her party on the average position of party j's attached voters or, conversely, to take position on a more convenient location, knowing that the attached voters supporting his/her party have the possibility to behave so as to decrease his/her valence advantage.

Since the payoffs of j are specular to i's ones, it is not necessarily to comment also j's payoffs. Conversely, what is particularly relevant after having commented the payoffs of

[113] As we have already seen, the model I have been put forward in this section is a continuous game. Meaning, leaders and the parties' attached voters can adopt all the possible positions between the two extreme points. Moreover, since, as we have seen in the first chapter, the definition of a game requires the output to be exhaustive, also irrational but possible strategies have to be defined, as the decision of attached voters not to complain about a leaders' party positioning which is far away from their average location.

the three actors is estimating the equilibria predicted by the model at different values of the variables affecting the actors' utility functions.

5.2. The Three Biased Actors Model's Equilibria

After having presented the structure of the competition and the payoffs of the actors taken into consideration, we can estimate the equilibria of the game for different values of the factors at the base of actors' utility. From these results, a number of hypotheses to be tested in the empirical analysis will be derived. These hypotheses, if empirically supported, will allow us to confirm the precision of the model advanced in this chapter and to have a more precise understanding of the dynamics of party position-taking during electoral campaigns.

Before describing the different outcomes of the model, we should recall that, during the process of position taking, a leader faces a sort of 'reservation price'. That is, leader i knows the amount of utility he/she would obtain by locating the party exactly on i's attached voters' average positions. In particular, as we have seen in the previous section, in such case, leader i would obtain an utility equal to $U(P_A, V_i)$. This represents the minimum expected utility that each leader would reach at the end of the competition. In this case, the leader does not enlarge the expected utility thanks to a better positioning (that is, a location closer to the Nash one), but he/she surely does not suffer from a utility loss deriving from the attached voters' complaints concerning the party's position-taking decided by the leader. Conversely, by taking a position closer to the Nash one, i will increase his/her expected utility derived by the positional dimension, while, due to partisans' reaction to i's farer position, he/she will have a decrement of the valence-related surplus of votes.

To estimate the model's equilibria when these factors vary, in line with the literature (Groseclose, 2001; Adams et al., 2005), I will put forward a simulation to estimate optimal party positioning and derive a number of hypotheses on parties' sub-optimal location.

To compute equilibria for the Three Biased Actors Model, I will rely on a dataset accounting for three parties and a population of 750 individuals randomly located on a 7-

point left/right dimension[114]. The attached voters of the three parties are, on average, located at 1 (attached voters of leader 1's party), 4 (attached voters of leader 2's party), and 5 (attached voters of leader 3's party). This procedure allows us to estimate the equilibria of party competition and derive the hypotheses without any loss of generality (Groseclose, 2001).

Appendix E shows the exact points of equilibria of the party competition when several factors considered in the utility function vary: the reputation of candidate 2 (V_i), the distance between the position of party 2 and the attached voters' average location (x), and the impact of their criticism on the evaluation of leader 2 (β) vary. Conversely, these characteristics remain fixed in both the cases of leader 1 and leader 3, to observe how parties modify the strategy depending on the variation of an opponent's characteristics.

Moreover, to estimate the impact of attached voters' active behaviour on party competition, and in particular on parties' positioning on the ideological continuum, I have computed parties' Nash equilibria according to the prescription put forward by Adams and Merrill III[115] (Merrill III & Adams, 2001; see also Adams et al., 2005), both when attached voters' adopt a passive behaviour and when they complain about leaders' decisions.

First of all, I have computed the Nash equilibria without taking into consideration the active role of the attached voters. In this case, since there are no negative consequences for party leaders if they locate the parties following a pure vote-seeking strategy, leaders are expected to take position on the optimal locations.

On the contrary, if the optimal positions for the three parties are estimated when the attached voters could play an active role during the party competition, leaders' strategies are influenced by attached voters' complaining if far away from their average position.

The results put forward in Figure 5.2 below show that attached voters' behaviour substantially affects leaders' strategies and leaders' party positioning. More in particular, let

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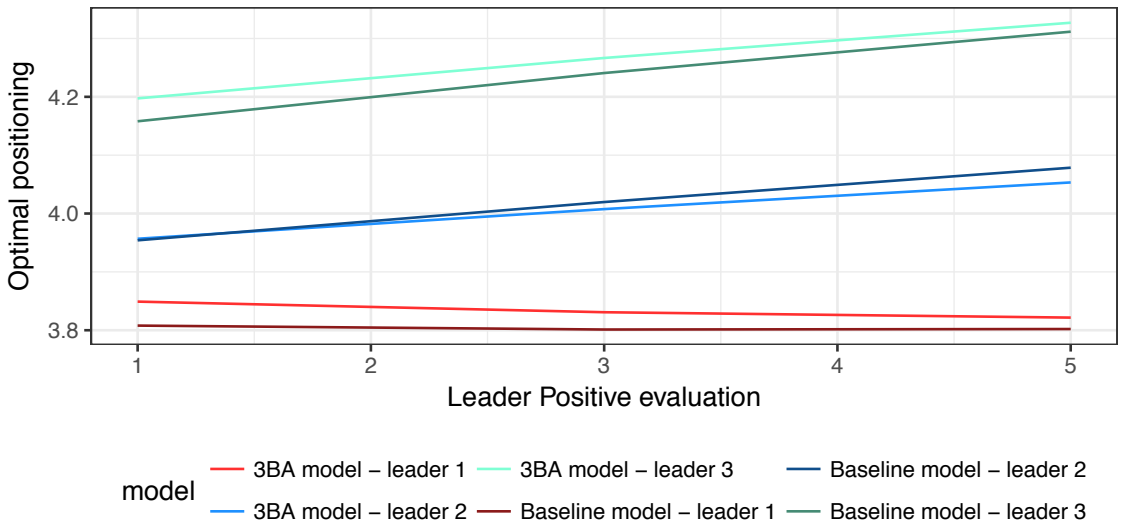
[114] Each voter has a utility function that is defined in line with the Biased Voter Model's function put forward in the previous chapter.

[115] In addition to the details presented in the appendix of the quoted pieces of research, I have also accounted for the editable programs for computing Nash equilibria developed by Merrill III available at http://course.wilkes.edu/Merrill/stories/storyReader$16. In other words, the estimated equilibria have been double checked by using also the programs put forward by Merrill III, the author of the iterative algorithm used in this analysis.

take into account leader 2 situation (that is, the two blue lines). When leader 2's reputation is higher than leaders 1 and 3's one, the differences between party *i*'s optimal location in the baseline model and in the Three Biased Actors Model increases in a more than proportional way. In particular, when leaders' evaluation increases, leaders tend to locate their parties closer to the average position of the attached voters and farer from the optimal location predicted by the baseline model. It seems that when the leader can increase his/her utility relevantly by taking advantage of his/her high reputation, the possibility that attached voters criticise leaders' position taking seems to have an impact. Indeed, in such situation, the most positively evaluated leader can increase his/her party's consensus without following a positional strategy. Conversely, if he/she is not particularly more appreciated by the voters, it is highly difficult for him/her not to follow a positional strategy to increase the party's expected consensus: in such case, the expected party's position will be closer to the optimal one.

Figure 5.2 *Impact of leaders' reputation on optimal positioning*

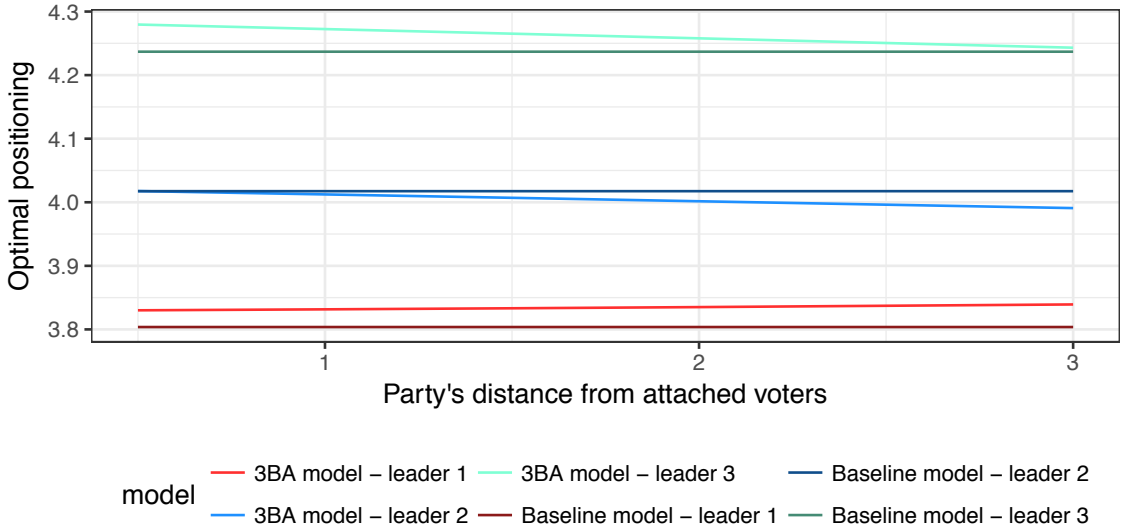


This means that, according to the Three Biased Actors Model, when a leader has not a reputation much higher than his/her competitors', he/she will tend to take a position which

is closer to his/her optimal one[116] and farer from the party's attached voters' one. On the contrary, when a leader is particularly highly evaluated from the voters, he/she will tend to locate the party more distant from the optimal position and closer to the attached voters' location: in such case his/her valence advantage allows him/her to increase the expected share of votes without the need to follow also a vote-seeking strategy.

More analytically, we can conclude that, in the Three Biased Actors Model, to a higher value of V_i, the optimal positioning for leader 2 gets closer to party 2's average attached voters' position and farer from the one predicted by the baseline model. Moreover, when the reputation of candidate 2 increases, both candidate 1 and candidate 3 move away from candidate 2's location, and take positions closer to their Nash ones when partisans are not taken into consideration.

Figure 5.3 *Impact of distance from attached voters on optimal positioning*



A second factor that, according to the three Biased Voter Model, affects the degree of parties' suboptimal position-taking is surely the distance between the party and the average location of attached voters (x). In particular, we see from figure 5.3 below that, when x

[116] That is, the Nash position predicted by the baseline model, where the active behaviour of the attached voters is not considered.

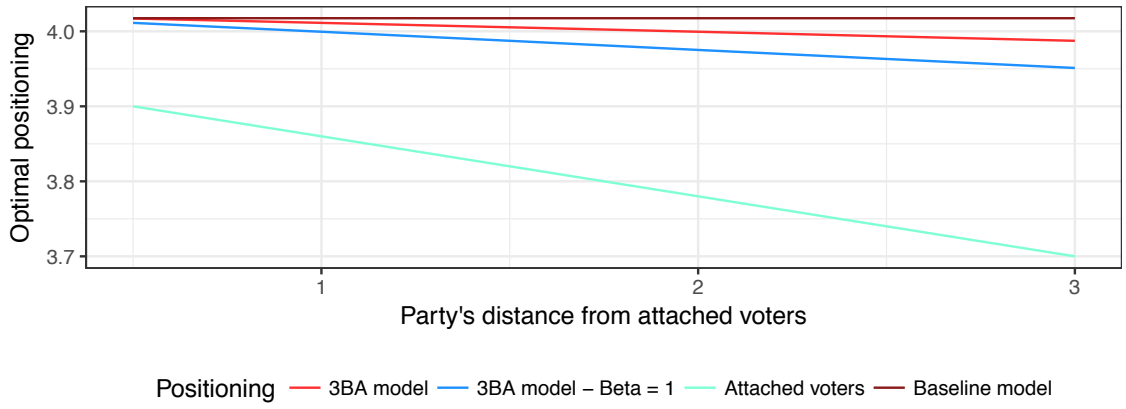
increases, the impact of attached voters' complaints on the strategy of parties' leaders increases as well.

In particular, the higher the distance between a possible location of a party and the positioning of its attached voters, the higher the difference between the optimal positioning predicted by the Three Biased Actors Model and the one predicted by the baseline model. The results, presented in Figure 5.3 above, seem to suggest that when attached voters are particularly distant from party positioning, the leader has to locate the party farer from the optimal position. Only will this choice allow the leader not to suffer for a too much negative effect of attached voters' complaints.

If this reasoning might seem obscure at this point, it becomes more evident if we consider Figure 5.3a below, where two different party's optimal positioning and attached voters' average locations are displayed.

Indeed, let us consider the '3BA model' and the 'attached voters' line in Figure 5.3a. The graphs shows that when the attached voters take more a radical position, the optimal position predicted by the Three Biased Actors Model somehow follows the shifts of the attached voter and such party's position is more and more distant from the optimal position predicted by the baseline model.

Figure 5.3a *Impact of distance from attached voters on optimal positioning – focus*



By looking more into details, the shift of the party from its optimal position is much less evident than the one of the attached voters. This can be connected to the vote-seeking nature of party competition: indeed, despite the negative effect of attached voters'

complaints, when the party is located particularly far from their positioning, party leaders still have incentives to position the party on more convenient locations. Nevertheless, in order not to suffer the utility loss caused by attached voters' complaints, party leader somehow 'follow' attached voters' positioning.

By making a step forward, when party 2 suffers the presence of a greater distance between the party and its attached voters (x), its opponents' optimal position gets closer to the party 2's one. Consequently, since the opponents' parties converge toward party 2's position, it means that a section of the possible voters supporting party 2 can be contested by the other competitors. This is confirmed by the data presented in Appendix E, which shows that the higher the distance between the position of party 2 and the average position of its attached voters, the lower the expected share of votes predicted for party 2.

Summarising, the second insight derived from the analysis of equilibria of the Three Biased Actors Model concerns the effect of an increase in the distance between a party's position in light of the average location of its the attached voters. Indeed, in such case, the Three Biased Actors Model predicts that a party will have a location farer away from the optimal one (predicted by the baseline model) when the distance between the party and the attached voters' positioning is greater.

Finally, let us move to the last key factor of the Three Biased Actors Model: the relevance of attached voters (β). In this case, we see that, when the value of β increases[117], the optimal position predicted by the Three Biased Actors Model for party 2 becomes more and more distant from the Nash equilibrium predicted by the baseline model, and closer to the position of the attached voters' average one. Indeed, as shown in Figure 5.4 below, the higher the possible impact of the attached voters' complaints on leader's reputation, the higher the incentives for the leader to avoid such possibility.

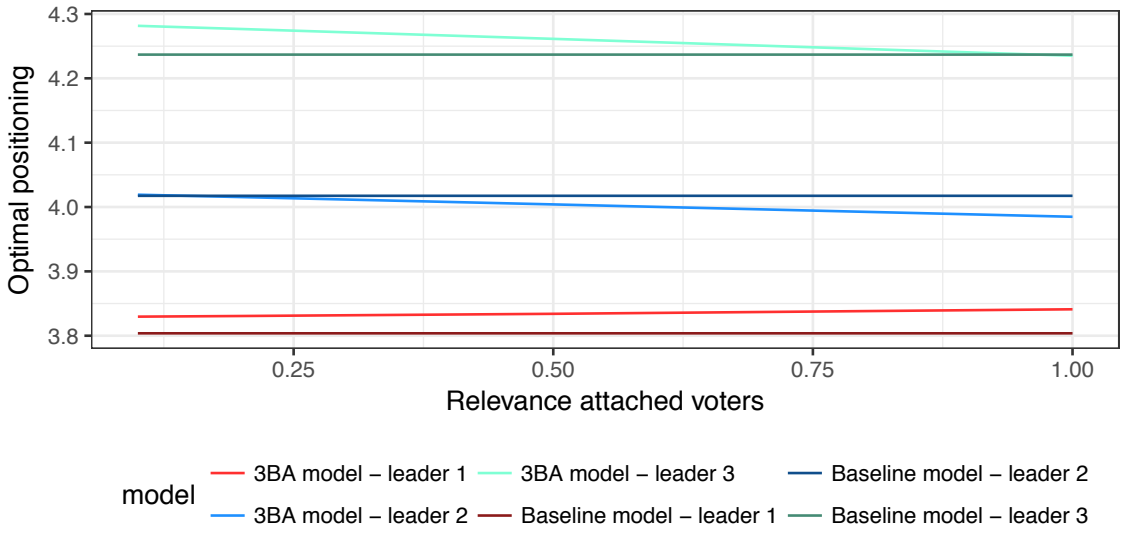
But what about the impact of a growing β for party 2 on the strategies of part 1 and party 3? In line with the impact of x, to a higher value of β for party 2, both party 1 and party 3 take a position which is less distant from the location of party 2. More into details, if we compare the distance of party 2 from party 1 and 3 predicted by the Three Biased Actors

[117] That is, when the importance of the attached voters in the electorate for a party gets more and more relevant.

Model and the one predicted by the baseline model, it is greater in the case of the party closer to party 2 (that is, party 1 in Table 5.2) and smaller in the case of party 3.

Summarising, we can derive that when the attached voters are more relevant with respect to the overall electorate of a party, such party is inclined to take a position which is more distant from the optimal one predicted by the baseline model and closer to the one of attached voters' themselves.

Figure 5.4 *Impact of the relevance of the attached electorate on optimal positioning*



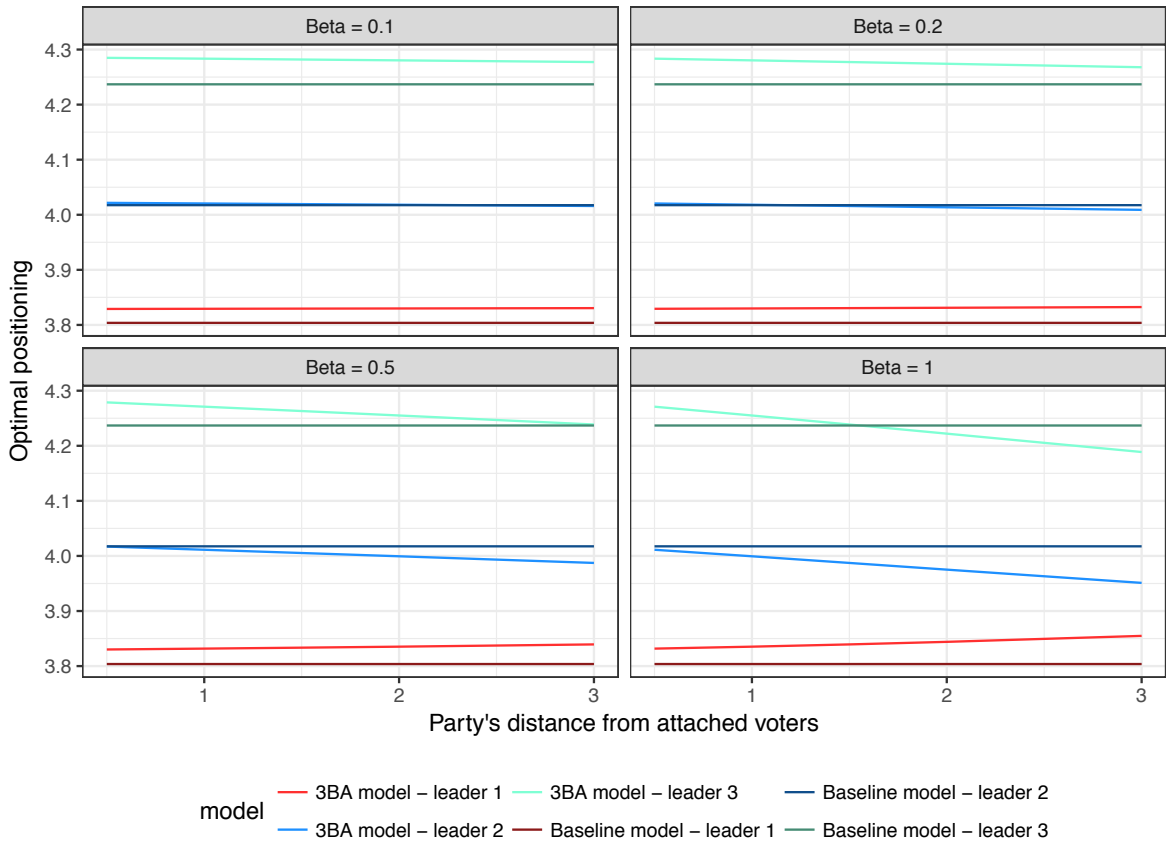
To conclude, the third insight coming from the Three Biased Actors Model is the possibility to account for a further effect: that is, the conditioning effect of the relevance of the attached voters with respect to the overall electorate of a party on the impact of the distance between the party position and the attached voters' average one.

Indeed, according to the parties' utility functions defined by the Three Biased Actors Model, when the importance of attached voters (β) is greater, the negative impact of an increase of x (that is, the distance between the party positioning and the average location of attached voter) on a party's more optimal position-taking should increase. This, in turn, should let the leader take a position closer to the average location of attached voters in an even stronger way.

In order to properly understand whether such a relationship is predicted by the Three Biased Actors Model in equilibria and make the understanding of the relationship easily

understandable, let us consider Figure 5.5 below. The combined increment of both x and β makes the leader of party 2 forced to position the party more and more distant from the optimal position (predicted by the model that does not account for the active role of voters) and to make the party positioned closer and closer to the position of attached voters (positioned at 3).

Figure 5.5 β *impact on party positioning at growing distance between party and average location of attached voters*



This result makes evident the intrinsic relationship between x and β in the Three Biased Actors Model presented above, and clearly displays the relevant conditioning effect of β on the impact of the distance between parties and their attached voters.

The impact of x and β is indeed evident: to higher levels of attached voters' relevance, when the attached voters are located particularly distant from the party, the

negative impact of attached voters makes the leader somehow forced to take a position closer to the average location of the attached voters. This effect is further confirmed also in Figure 5.3a: when the relevance of attached voters is higher, a party's shift toward attached voters gets more and more relevant.

At the same time, party 2's decision to take a position which is closer to attached voters' one makes party 1 and party 3 able to take positions more distant from the optimal locations predicted by the baseline model. If party 2 takes a position closer to the average location of its attached voters, party 1 and party 3 are located increasingly more distant both from their optimal position predicted by the baseline model and from the position of their own attached voters (for party 1, positioned at 1, and for party 3, positioned at 5). Indeed, when x and β are maxima, both party 1 and party 3's positions converge toward the location of party 2, highlighting a centripetal structure of the competition. Also in this case, the additive effect of the two variables is evident: the general dynamics involved by the growing impact of x, given certain values of β, are already evident from smaller distances between the average position of attached voters and the actual position of their party. Nevertheless, it is with the increase of β that the effect becomes more and more evident.

After having presented the Three Biased Actors Model and having described its predictions, it is now possible to derive the hypotheses to be tested in the empirical analysis

5.3. The hypotheses from the Three Biased Actors Model

The optimal positions predicted by the Three Biased Actors Model and the differences between these latter and the ones put forward by the baseline model allow us to go beyond the prediction of parties' optimal positioning and focus on their sub-optimal locations[118]. Indeed, differently from the most pieces of research on party competition, the Three Biased Actors Model aims at predicting the location of parties when their attached voters will actively take part to the electoral campaign.

[118] Indeed, the positions predicted by the Three Biased Actors Model represent, with respect to the positions predicted by the baseline model, sub-optimal locations caused by attached voters' active behaviour.

Moreover, the discussion on the equilibria of the Three Biased Actors Model has shown that, when the interaction between party's attached voters and the party's leader is taken into account[119], also parties' optimal positions substantially vary from the ones predicted by a classical spatial model.

This change in the framework of analysis (that is, considering attached voters as active during the electoral campaign) is strictly connected to the central aim of this research, that is, explaining the impact of individual bias in voting behaviour and party competition. Indeed, in this second part, I have defined a model of party competition that aims at explaining sub-optimal party locations. From the results predicted by this model and put forward in the previous section, I will derive a number of hypotheses to be empirically verified in the sixth chapter.

Before presenting the expectations concerning the effect of the parameters included in the Three Biased Actors Model, there are two preliminary hypotheses derived from the literature that could be advanced. These two hypotheses concern, in the first case, the impact of the vote-seeking strategies and, in the second case, the role of party radicalism[120].

1 Electoral gain. The first hypothesis derived from the literature is connected to one of the classical assumptions of the spatial models of party competition: the vote-seeking nature of parties. This comes from the pioneering work by Downs (1957a, p. 30), who argued that politicians

> are motivated by the desires of power, prestige and income […] their primary objective is to be elected. This in turn implies that each party seeks to receive more votes than any other.

[119] In other words, we could say 'when the consequences of the individual bias toward parties is taken into account'. For a more detailed reasoning, see section 2.1.

[120] Not only do these hypotheses allow to test the impact of two classical factors on the degree of sub-optimal party positioning, but will also allow to verify whether some of the classical assumptions of the literature on spatial models of party competition really hold empirically.

Since the publication of Downs' seminal contribution, a number of amendments have been done to the vote-seeking strategies. For instance, Riker and Ordershook (1973) argue that, in a plurality system, parties aim at maximising pluralities. Nevertheless, the core of the vote-seeking strategy, that is, the aim of conquering office, holds in most of the models in the literature we have presented in the previous part of this dissertation (for a longer discussion on this topic, see Strøm & Müller, 1999).

Indeed, despite recent party competition models have introduced also parties' secondary targets (see for instance the introduction of policy objectives in Groseclose, 2001), the scholarship agrees on the fact that, during electoral campaigns, parties are usually concerned about getting the office (see, among others, Enelow & Hinich, 1984; Strøm & Müller, 1999; Ansolabehere & Snyder, 2000; Adams, 2001; Groseclose, 2001; Strøm, Müller, & Bergman, 2003). As a consequence, according to the scholarship, parties might sacrifice some advantages if this would allow them to increase the electoral consensus and, then, the probability to win the elections.

Among these factors, as discussed in the previous section, I have included the full support of party's attached voters. Indeed, following the literature, it might be hypothesised that, if the electoral gain for a party is particularly relevant, its leader should be incentivised to follow more vote-seeking strategies and to locate the party closer to the optimal position predicted by the baseline model. Indeed, when the expected increment of consensus is relevant, attached voters' complaints might not be determinant. It follows that, since the incentives to take position closer to the average location of the attached voters are not sufficient, party leaders' will locate the party in the most convenient position.

In other words, when leaders expect a high increment of electoral consensus due to their position-taking, they have more incentives to follow rational strategies and consequently position the party closer to the optimal location. It follows that:

H 5.1 The higher the expected increment of electoral consensus in taking optimal positioning, the lower the degree of sub-optimality of a party's actual position.

In other words, we expect that when optimal positions might lead to a relevant increase of expected consensus, party's location will be proportionally more distant from the average position of the attached voters, but proportionally closer to the optimal party

positioning. After all, winning the elections remains one of the fundamental objectives of a political party.

2 Radical positioning. The second hypothesis concerns the impact of more radical party positioning on the degree of party sub-optimal locations. Indeed, as we have seen in the fourth chapter, the literature on both issue-based modelling and spatial competition argues that not all parties respond in the same way to the same incentives.

In particular, concerning issues' emphasis, scholars have shown that niche parties have more difficulties to 'wire the waves' of trend topics (Ansolabehere & Iyengar, 1994; Adams et al., 2006) than mainstream parties. These latter, in turn, are more inclined to change position or change the composition of their issue portfolio to appear as more interesting for the public opinion. Conversely, niche parties are more inclined to have a high issue ownership on a small number of issues (Meguid, 2005; Bélanger & Meguid, 2008).

Moreover, also studies of party competition from a spatial perspective have underlined that polarised and niche parties play a very different strategy with respect to mainstream parties (Adams et al., 2006; Adams, 2012): the former change position with a lower frequency and magnitude, since following vote seeking position might be particularly risky.

Nevertheless, since we are dealing with a spatial model of party competition and the concept of niche party is mostly connected to the issue-based interpretation of party competition (Meguid, 2005; Meyer & Miller, 2015), I will rely on the definition by Adams and colleagues of niche parties (2006, p. 513), according to which parties can be considered as niche 'either [if they have] an extreme ideology (such as Communist and extreme nationalist parties) or [if they have] a not centrist "niche" ideology (i.e. the Greens)'. According to these authors, a determinant of different parties' behaviour during the electoral competition could be their degree of radicalism. Indeed, Adams and colleagues (2006) show that more extreme parties adopt different strategies from the ones adopted by mainstream parties during party competitions. Indeed, for the former, the cost of a policy switch is quite more relevant than for latter.

It follows that we could expect a relationship between the degree of ideological parties' radicalism and the strategy followed by the parties during the position taking. Meaning, we could expect that:

H 5.2 The more ideologically radical the party's actual position, the higher the degree of a party's actual position' sub-optimality.

This means that, departing from the findings of the literature, I expect that radical parties will not follow a classical rational approach to electoral competition, and consequently will show more eclectic positions, particularly distant from the optimal ones.

After having advanced these two hypotheses derived from the literature, it is possible to focus on the expected impact of the factors that characterise the Three Biased Actors Model: the party distance from attached voters' positioning, the relevance of attached voters, and the leader's reputation.

3 Party distance from attached voters' positioning. The first element of the biased actors model that we take into consideration is the distance between the party's position and the attached voters' average one.

This factor is fundamental in the argument advanced by the model I have presented: when the leader locates the party far from the attached voters, these latter will complain about the leader's choice. Moreover, to an increase in attached voters' complaints, it corresponds a decrease in the party leader's reputation and, as we have seen in section 3.3, a decrease in voters' probability to cast the ballot in favour of such party.

Consequently, in such a situation, party leaders' will face different incentives: indeed, a position closer to the optimal location will increase the expected share of party's votes, while a position farer from attached voters' location will decrease the positive impact of leaders' effect on the party's consensus.

As we have seen in the previous section, it follows that, when attached voters are located particularly far from the party's location, the party's leader will tend to position the party closer to the attached voters' location. This means that, despite the incentives to take more convenient placements, party leaders will be more inclined to position the party closer to the attached voters and, consequently, farer from the optimal location. More formally, we can expect that:

H.5.3 The higher the distance between a party's actual location and its attached voters' positioning, the higher the degree of the party's actual position' sub-optimality.

The results of the Three Biased Actors Model in a situation of equilibrium confirm the idea that there is a sort of 'bound of the leader's autonomy', over which the leader faces serious disincentives to locate the party following a positional strategy.

Indeed, according to the evidence of the Three Biased Actors Model in a situation of equilibrium, when the complaints of the attached voters are taken into account during party positioning, leaders' decisions are expected to be influenced by their behaviour dramatically. Indeed, because of the possible criticisms of the attached voters, the impact of leader evaluation on the consensus of the party is expected to decrease.

Consequently, we could expect that, to an increase in the distance between the actual party positioning and the average position of the attached voters, it would correspond an increment of the sub-optimality of party positioning.

4 Attached voters' relevance. In addition to the distance between attached voters' location and party's positioning, there is a further element particularly relevant in the Three Biased Actors Model: the relevance of a party's attached voters in the party's electorate. Indeed, as we have seen in the previous chapter, attached voters can deeply condition the decision of the party leader on where to locate the party. In particular, they can make pressure on the leader to let him/her locate the party closer to their average positioning. This is because attached voters assign particular salience to the ideological distance, which represents a relevant detractor of utility[121].

As a consequence, we can expect that the more relevant is the presence of the attached voters in the overall set of party's electorate, the higher will be the impact of their

[121] If the voters who are relevantly biased *against* a party are not highly shaped in their decisional process by an increase in the utility loss derived from the ideological distance, the same decrement represents an issue for all those voters that are biased *toward* the party. Indeed, an important amount of the utility they perceive in voting for a party derives from the distance utility loss, according to which the closer the location of the party, the higher the amount of utility.

complaints on the leader's position-taking strategy. It follows that, in order not to suffer such high decrement of utility (that is, the expected consensus), a party leader will tend to position the party closer to the attached voters' location and more distant from the optimal one.

Nevertheless, according to the Three Biased Actors Model, the relevance of attached voters does not affect party positioning directly. On the contrary, according to parties' utility functions presented in the previous section, the relevance of the attached voters' with respect to party's electorate (β) conditions the impact of x (that is, the distance between the party and the average location of attached voters) on the degree of party's sub-optimal position taking. This means that when there is an increase in β, taking a position closer to the optimal one might be counter-rational for party leaders, since the negative effect of attached voters' complaints gets more and more determinant. Then, following the evidence put forward in the previous section, a fourth hypothesis can be derived:

H 5.4 The higher the relevance of attached voters on a party's electorate, the higher the impact of a higher distance between the party's actual location and attached voters' positioning on the party's actual position' sub-optimality.

5 Leader's reputation. The last determinant factor introduced in the three Biased Voter Model that we take into consideration here is the party leader's reputation. Indeed, as we have seen in the previous section, a high level of leaders' evaluation represents a great incentive for leaders not to follow a pure vote-seeking strategy but to locate the party closer to attached voters' placement.

Indeed, in such a situation, due to the impact of his/her leader effect, he/she can increase the party's share of votes without the necessity to take ideological positions strictly following a rational positional strategy. More specifically, as we have seen in the third chapter of this research, leadership evaluation represents an additive source of utility for voters who get the overall amount of utility provided by the party to voters increased.

When leaders have a high reputation, they know that the positive evaluation of their personalities could be a relevant factor to increase their parties' share of votes. Consequently, in order not to let attached voters complain and thus reduce leaders' positive evaluation, these latter will have incentives to follow attached voters' pressures. Following this reasoning,

and in line with the evidence derived from the Three Biased Actors Model in equilibrium, we can expect that:

H 5.5 The higher the leader evaluation, the higher the degree of his/her party's actual position' sub-optimality.

This means that when leaders are highly positively evaluated, they are more concerned about the decrease in attached voters' complaints, since this would, in turn, protect their reputation. So, having a position particularly close to the Nash equilibria is not a leader's priority in such situation: defending his/her reputation might represent a more relevant objective.

6 Personalisation of general elections. Finally, the last element we take into consideration here is the personalisation of general elections. Indeed, if the level of personalisation of politics relevantly affects the impact of leaders' evaluation on the individual voting behaviour (as shown in the first part of this dissertation), we could hypothesise that this factor also affects the party competition.

Nevertheless, a question immediately arises: which kind of effect would an increment of the personalisation of general elections have on the way in which parties try to maximise their consensus? Here, the literature comes to our help. Indeed, we can assume that, in the era of personalised politics, leaders have been acquiring not only a high amount of autonomy from their parties (Katz & Mair, 1994b; Webb et al., 2012; Musella & Webb, 2015), but also a higher prominence in the electoral arena (Barisione, 2009b; Garzia, 2014; Curtice & Lisi, 2015). Several scholars have shown that 'voters tend increasingly to vote for a person and no longer for a party or platform' (Manin, 1997, p. 219) and that 'leaders personify the policy platforms of the respective parties' (Garzia, 2014, p. 40).

On the other side, in the previous section, we have seen that attached voters still play a relevant role in conditioning party leaders' position-taking. Indeed, the impact of attached

voters' complaints on leaders' reputation represents a crucial brake for party leaders' autonomy[122].

It follows that we are in front of two forces pushing towards different directions: on the one hand, the attached voters aim at conditioning party positioning because of their bias toward the party; on the other hand, the personalisation of general elections pushes the autonomy of leaders in taking party positioning more freely.

By connecting these two elements, it would be possible to expect that, when the role of leaders is more and more central (that is, in the level of personalisation of general election is higher), the attached voters' capacity to affect leaders' reputation (and consequently weaken the leader's effect) would be less and less impacting[123]. This is connected to the fact that, when the personalisation of general elections is particularly high (that is, when leaders are pretty often on media, leader-related issues are central in the political debate, and the like), we expect the overall electorate not to give so much attention to the arguments put forward by the attached voters, while the electorate would be more focused on leaders' declarations, actions, and so forth. Consequently, the blackmail potential played by the attached voters on leaders' position taking is reduced. This means that, when the level of personalisation of general elections is higher, leaders with a greater reputation are not particularly concerned in preserving the positive evaluation from attached voters' complaints. On the contrary, being aware of the weaker impact of attached voters' complaints, they aim at maximising the electoral benefit that derives from either a better position and a high reputation. That is, we could expect that:

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122 It should be recalled that the impact of attached voters on party leaders' position-taking is strictly connected with attached voters' bias toward the party. Indeed, it is this latter force that makes attached voters give high salience to the ideological distance from the party, the factor at the base of their requests for a closer party positioning.

123 Moreover, this argument is confirmed, from a different perspective, also by the results of the analysis we have put forward in the third chapter. Indeed, we have seen that, when the personalisation of general election increases, the negative conditioning effect of individual bias on the leaders' effect gets weaker, and that, conversely, the positive impact of leader evaluation increases.

H 5.6 The higher the personalisation of a general election, the lower the impact of leaders' higher reputation on party actual position sub-optimality.

In other words, this means that, when the degree of personalisation of general elections increases, the leader will use his/her high reputation to try to increase the support for his/her party, without caring so much about attached voters' complaints, therefore positioning the party in less and less sub-optimal positions.

Conclusions

This chapter has represented the second milestone of this research. Indeed, after having advanced a model aiming at explaining the impact of both the individual bias toward parties and the personalisation of politics with respect to voting behaviour in the second chapter, here, we have dealt with the impact of individual bias and personalisation on party competition. Indeed, in the model devised in this chapter, a crucial actor is represented by the party's attached electorate, that is, the set of voters characterised by a particularly strong and positive inclination toward a party.

The Three Biased Actors Model represents a novel and eclectic spatial model of party competition. Indeed, differently from the existing models, it expects that the not all the voters adopt a passive behaviour during the electoral campaign. Conversely, the attached voters might have an active and determinant behaviour in affecting party's position-taking. During the electoral competition, the attached voters of a party might complain about leader's decision to place the party following a vote-seeking strategy, and consequently taking a location far from attached voters' average position. This comes from the fact that attached voters particularly care about ideological proximity. Consequently, in the case of a pure vote-seeking positioning, attached voters would face a relevant loss of utility. Moreover, the decision of the attached voters to complain about party leader's placement has important consequences on the expected performance of the party. Indeed, this would relevantly weaken the reputation of the party leader and its impact on the increase in the party's expected consensus. It follows that, when the leader has to locate the party in front of his/her opponents, he/she should also take into account their attached voters' preferences.

The novel element introduced in the Three Biased Actors Model makes this latter able to profoundly innovate the structure of the existing spatial models: indeed, due to the possibility to complain about leader's choice, voter are not passive actors anymore.

Moreover, the active role played by attached voters in the structure of competition has allowed to estimate parties' positions that strongly differ from the optimal ones predicted when the active role of attached voters is not considered. By comparing the positions of equilibria in the Three Biased Actors Model with the one predicted by a classical model of party competition I have derived, a number of hypotheses concerning parties' sub-optimal locations have been put forward.

In such sense, the comparison between the positions predicted by the two models (and the consequent estimation of the degree of sub-optimality of the prediction of the Three Biased Actors Model) represents a fundamental step. Indeed, the explanation of parties' sub-optimal positioning is one of the central aims at the base of having devised the Three Biased Actors Model.

Although scholars have rarely dealt with the suboptimal party position-taking issue, the fact that the actual positions of parties are often distant from their optimal locations represents a crucial challenge for spatial models' reliability. By aiming at dealing with this largely neglected issue, I have argued that a rational explanation for parties' sub-optimal position taking exists: it is the impact of individual bias and the following active role of attached voters during the electoral campaign. From the positioning predicted by the Three Biased Actors Model, six hypotheses that aim at explaining parties' sub-optimal locations have been derived.

Within the set of hypotheses I have included two hypotheses testing more classical expectation coming from the literature (the increase in consensus and the radicalism of a party' location), three hypotheses related to the factors introduced in the Three Biased Actors Model (the distance between the party's position and the average location of its attached voters, the relevance of the attached voters in a party's electorate, the party's leader reputation), and a final hypothesis connected to the role played by the personalisation of general elections.

At least from a theoretical point of view, the number of factors introduced in the party competition and the active role of the attached voters might really explain why parties do not take optimal positioning. Positive results would be able to open a new framework of

research able to better connect formal model of spatial competition and the empirical reality. The next chapter will show whether the model presented in section 5.2 empirically holds, and consequently whether the framework of analysis proposed in this chapter can be validated or not.

6. Testing the Three Biased Actors Model

After having presented the Three Biased Actors Model, which aims at explaining party competition during elections from a novel viewpoint and finally address the issue of parties' sub-optimal position-taking, the theoretical framework presented in the previous chapter can now be tested. Indeed, to understand whether the framework put forward in the previous chapter can explain the empirical reality adequately, I will test the hypotheses of the fifth chapter on fifty-six elections in Western Europe during the last twenty years.

The results of the empirical analysis will allow to verify whether the effects of specific factors confirm the prediction of the Three Biased Actors Model, and also to what extent such impact is significant in affecting the positioning of parties during the electoral campaign.

In other words, the empirical analysis mostly aims at explaining the more general concept of parties' sub-optimal positioning. Indeed, although this latter remains an understudied research question, being able to explain why parties do not follow pure vote-seeking strategies during electoral competition and whether their sub-optimal positioning is the outcome of the interaction among different actors would represent both an empirical and theoretical innovation. Finally, the analysis I will perform in this chapter will allow to empirically verify whether individual bias toward or against parties not only significantly affect the individual voting behaviour, but also conditions parties' strategies during electoral competition.

This chapter is organised as follows. In the first section, I will present the data used in the empirical analysis. Then, I will move to the description of the dependent and the independent variables. The third section will be devoted to the empirical analysis: I will first discuss the method implemented, and then I will present the results of the empirical analysis. Conclusions will follow.

6.1. Fifty-six party competitions in Western Europe

In order to be consistent with the empirical analysis put forward in the third chapter, the test of the Three Biased Actors Model of party competition will be put forward by relying on the same data-structure used in the third chapter of this research[124].

Before looking more in-depth and describing the variables used in the empirical analysis, it is useful to underline that the dataset I will rely on includes information on 103 parties in 56 different electoral competitions, for an overall set of parties per elections equal to 312. Moreover, it should be underlined that the dataset that will be used for the empirical analysis includes details on 102 unique and different political organisations. Let us start looking at the data we will use in the empirical analysis.

Table 6.1 *Descriptive statistics on parties*

country	*n party - min*	*n party - max*	*n party - mean*	*n party - SD*	*average enep*	*n elections*
AUSTRIA	7	7	7.00	//	5.15	1
DENMARK	5	8	7.20	1.30	5.15	5
FINLAND	7	8	7.50	0.58	6.14	4
FRANCE	6	6	6.00	0.00	4.80	2
GERMANY	5	6	5.25	0.50	4.66	4
GREECE	5	7	6.00	1.41	6.06	2
ICELAND	4	6	5.00	1.00	4.39	5
IRLAND	5	6	5.33	0.58	4.22	3
NETHERLAND	4	9	7.50	1.87	5.80	6
NORWAY	5	8	6.80	1.30	5.13	5
PORTUGAL	4	5	4.67	0.58	3.48	3
SPAIN	3	4	3.33	0.58	3.04	3
SWEDEN	5	9	6.50	1.91	4.78	4
SWITZERLAND	3	4	3.75	0.50	5.82	4
UNITED KINGDOM	3	3	3.00	0.00	3.56	5

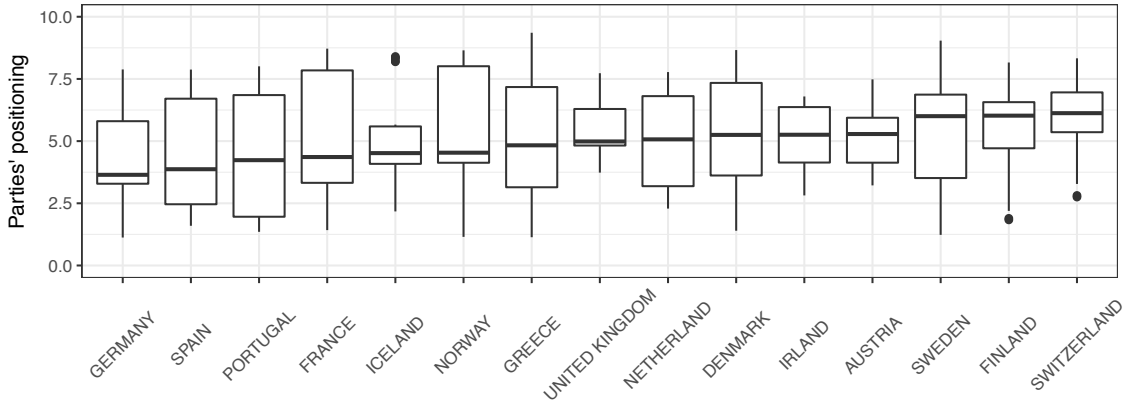
By looking at Table 6.1, which shows the distribution of parties among elections and countries, we can firstly observe a high variation in the number of parties per countries. In particular, the elections with the lowest average number of parties are the Spanish and the

[124] For a detailed description of the case and party selection, see section 3.1.

British ones (where the average number of parties is 3), while the highest number of parties can be found in the Netherlands and in Finland (where the average numerosity of parties considered in the dataset goes above 7). More in general, we can observe that most of the countries show an average number of parties per elections between 4 and 6. Then, in addition to the variation in the number of parties across countries, in Table 6.1, we also find a high difference in the variation in the number of parties considered within countries. There are countries in which the number of parties considered does not vary over time (for instance, the United Kingdom and France), while there are countries in which the number of parties varies relevantly passing from an election to another one (e.g. Sweden, where the SD is closer to 2).

Naturally, the number of parties considered in the dataset and its variation does not correspond to the number of parties effectively competing for the elections. Nevertheless, as we have already seen in section 3.1, the selection of cases allows us to consider the analysis as reliable for all the elections considered and highly generalizable.

Figure 6.1 *Positioning of parties on left/right by country*

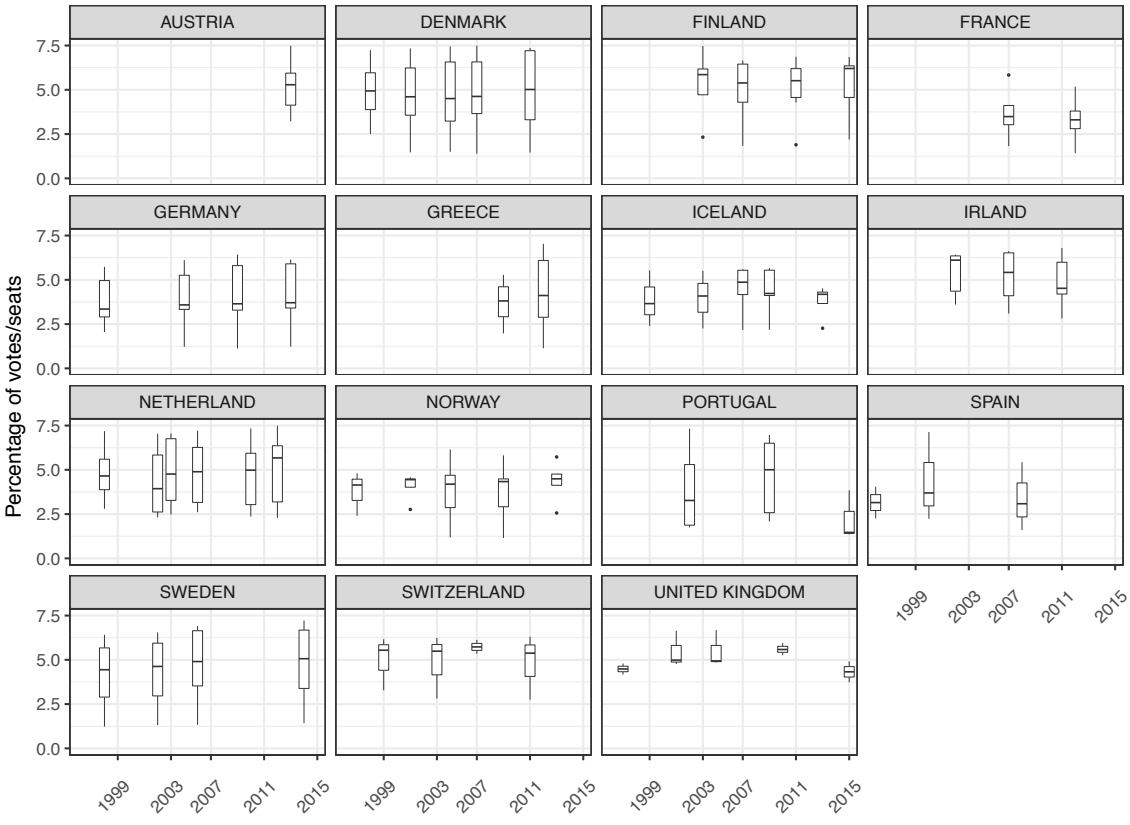


In addition to the information of the electoral and institutional representativeness of the data used in the empirical analysis, what makes the data particularly appropriate for investigating the party competition is the political representativeness of the selected parties and, in particular, their vast distribution over all the ideological continuum. Indeed, as we can see from Figure 6.1, the parties considered in the analysis are, in most of the countries, highly distributed on the overall continuum. Nevertheless, it is not difficult detecting the

presence of a high variation among countries concerning the ideological polarisation of the parties.

First of all, the average location of parties is between 4 and 6. More into detail, the party system with the most left-wing average position of the parties is the German one, where the average position of the parties is at 4.14. On the contrary, the most right-wing parties' average position is found in the Swiss case: here, the average position of parties is located at 5.85. This is also confirmed by Figure 6.2 below, which show parties' positioning in each considered election. Indeed, except for the 2015 Portuguese election (that is, the election in which the barycentre of the political supply is most to the left), the German elections are among the most left-wing elections.

Figure 6.2 *Positioning of parties on left/right by country and election*



The figure also shows that the Swiss elections are the ones in which political parties are most positioned to the right: indeed, in addition to the Swiss cases, the only election

underling an average parties' positioning closer to 6 (on a 1-10 left/right scale) is the 1998 Danish election.

In addition to the central point of parties' ideological distribution, a second relevant element that we should take into consideration (Figure 6.2) is undoubtedly the degree of concentration of political organisations in the centre-leaning part of the continuum. In this respect, such parties are particularly concentrated in the Anglo-Saxon countries, that is, in Ireland and the United Kingdom. On the contrary both Greece and Sweden highlight a very dispersed party system: indeed, these are the only two countries that show a distribution of parties on more than the 70% of the ideological continuum. Furthermore, in most of the countries, parties are, on average, distributed on more than the 50% of the political continuum: in addition to the UK and Ireland, only in the Austrian and Swiss cases do political parties tend to be concentrated in less than half of the continuum.

Finally, by looking at Figure 6.2, within countries, there is not a particularly high variation in the level of concentration of parties on the ideological continuum. Indeed, only a few cases (Greece, Germany, Switzerland, and the UK) shows a variation of the ideological continuum occupied by parties that is greater than the 20% of such continuum. If in the cases of Greece and Germany we see an increasing polarisation of the competition, in the cases of Switzerland and the UK, this high variation in the level of concentration is given by the presence of elections in which parties have adopted very centripetal positions.

What we have seen so far confirms that the data considered for the empirical analysis show a quite relevant variation among elections and countries, at least from the party positioning point of view.

All in all, we can conclude that the structure of the data, the numerosity of parties, of elections, and of countries, make possible considering the results of the empirical analysis as highly generalizable.

6.2. Operationalisation of variables

After having seen the structure of the data and described them, we can now take into account the variables that will be used in the empirical analysis. The first variable we will

observe is the dependent one. Here, we aim at answering the following question: how can we appropriately detect the degree of sub-optimality of a party location?.

6.2.1. Party sub-optimal choice: a measurement

Detecting party locations' sub-optimality does not represent an uncomplicated task. Indeed, not only does it require to compare parties' actual positions to parties' optimal ones, but it also needs the calculus of parties' optimal position. Let us start from this latter, which is a requirement for the calculus of parties' sub-optimal locations.

To understand the procedure I have followed to estimate parties' optimal locations, it is necessary to recall the discussion over the nature of the dependent variable of the spatial model of voting (see section 3.2). In such context, I supported the use of a discrete variable (the vote) as a dependent variable instead of a continuous one (such as the probability to vote). One of the arguments I had put forward was connected to the necessity, especially for spatial modellers (Adams et al., 2005), to estimate parties' optimal positioning during elections. According to this framework, during an election, each voter aims at maximising his/her perceived utility represented by a utility function as follows

$$U_{ij} = V_{ij} + \varepsilon_{ij}$$

where V_{ij} represents the deterministic amount of utility derived from both policy and non-policy factors, while ε_{ij} is a stochastic probability error term. Since, in this case, the voter's utility function is represented by a probabilistic function, the spatial model computes the probability for the voter i to vote for the party j by maximising the random utility function. In particular, it does so by applying the following formula

$$P_{ij} = \frac{e^{V_{ij}}}{\sum_{j=1}^{N} e^{V_{ij}}}$$

where $e^{V_{ij}}$ is the exponential function of the utility for voter i if he/she casts the ballot in favour of j, and $\sum_{j=1}^{N} e^{V_{ij}}$ stands for the sum of the utilities corresponding to the

vote of i for each party j in the set of N, that is, the set of available options. Consequently, according to the random-utility model, voter *i* has a probability to cast the ballot in favour to a party j that 'is proportional to the exponential of the deterministic component of the utility associated' (Adams et al., 2005, p. 19).

A statistical model that allows to compute the individual probability of voting for the different parties is the Conditional Logistic one (McFadden, 1974). As we have already seen in section 3.2, such discrete choice model cannot be directly applied to a comparative dataset in which different numbers of parties have been considered and where the individual vote should be estimated. Nevertheless, if it is applied to a single case study (that is, making a country-by-country analysis), it is possible to estimate the Nash equilibria of a party competition by departing from the individual utility function of single voters.

As we have seen in the first chapter, the Nash equilibrium represents a core concept in all the studies connected to the Rational Choice Theory. It follows that this is also decisive in the spatial model scholarship. Indeed, when the system is at the Nash equilibrium, no party has the incentive to change its location by keeping its opponents' location constant.

More into detail, a Nash equilibrium in a spatial model of party competition is represented by 'a set of positions that vote-seeking or policy-seeking candidates/parties would present in order to win elections and that would be stable in the sense that no party would have an incentive to deviate unilaterally from its position' (Adams et al., 2005, p. 6). This obviously does not mean that parties will never move from such position, but that, in a given electoral competition, this set of positions represents the best choice for each party, given the location of the other candidates.

Then, the following question is 'how can parties' optimal positions be estimated?'. Following the reasoning put forward by Merrill III and Adams (2001), the first element to take into consideration is individual's utility function. Indeed, once voters' preferences both on the ideological and also on the non-policy dimensions are given (in this case, it means that both the bias against parties and leaders' evaluation are settled), parties can increase or decrease their consensus by changing their position on the ideological continuum. Their moves make their electoral consensus increase or decrease.

Intuitively, it follows that parties have reached the optimal position when, given voters' utility functions and their opponents' location, a move by a party does not lead to an increase in its electoral consensus, but only to a decrement of its electoral share.

By applying this reasoning to single case studies, and by using a Conditional Logistic model, it is possible to estimate parties' optimal positions precisely. By recalling the argument put forward in the second chapter, we know that, according to the Biased Voter Model, the electorate decides whom to vote for according to the following utility function:

$$U_{ij}(p,\gamma) = -\gamma_1(v_i - p_j)^2 + \gamma_2 l_j - \gamma_3(|B_{ij} - B_{iJ}|) - \beta_1(|B_{ij} - B_{iJ}|)(v_i - p_j)^2 - \beta_2(|B_{ij} - B_{ij}|)l_j + Xt_i + \varepsilon_{ij}$$

where v_i and p_j are the positions of voter i and party j on the ideological dimension; B_{iJ} is i's positive inclination with respect to J (that is, the party that i prefers the most); B_{ij} represents the positive inclination of the voter i with respect to party j; $l_j$is i's evaluation of leader j; $\gamma_1, \gamma_2, \gamma_3, \beta_1, \beta_2$ are positive weighting parameters[125].

In the Conditional Logistic model, the probability for i to vote for j is given by:

$$P_{ij}(p,\gamma) = \frac{e^{U_{ij}(p,\gamma)}}{\sum_{j=1}^{N} e^{U_{ij}(p,\gamma)}}$$

where $e^{U_{ij}(p,\gamma)}$ is the exponential of the utility provided by party j, and N is the number of parties competing in a given election.

Consequently, the expected share of votes of party *j* when I voters participate to the election is equal to:

$$EV_j(p,\gamma) = \frac{1}{I}\sum_{i}^{I} P_{ij}(p,\gamma)$$

[125] As we have explained in the second chapter of this research, weighting parameters represent the coefficients estimated by the regressions and, more generally speaking, the importance and the direction of the factors considered in the utility function of the voter.

We should remember that, at its Nash equilibrium, each party cannot increase its share of votes by taking a different location. This means that, at Nash equilibrium, the partial derivative of $EV_j(p,\gamma)$ with respect to the location of j (p_j) is equal to zero for all the parties j involved in the competition. Formally:

$$\frac{\partial\, EV_j(p,\gamma)}{\partial\, p_j} = \sum_i \frac{\partial P_{ij}(p,\gamma)}{\partial\, p_j} = \sum_i P_{ij}(p,\gamma)\big[1 - P_{ij}(p,\gamma)\big](2\,\gamma)\big(v_i - p_j\big) = 0$$

Therefore, by taking the partial derivative equal to zero and solving the equation for p_j, we obtain:

$$p^* = \frac{\sum_i P_{ij}(p,\gamma)\big[1 - P_{ij}(p,\gamma)\big]v_i}{\sum_i P_{ij}(p,\gamma)\big[1 - P_{ij}(p,\gamma)\big]}$$

that is, the location at which party j maximises its vote share given the actual positions of all the other parties in the competition.

By iteratively updating the Nash equilibrium of parties given the position of all the other competitors, the iterative algorithm advanced by Merrill III and Adams (2001) updates the spatial positioning of all the parties and, by accounting, at the same time, both for the policy and non-policy factors, computes the optimal positions of all the parties in each given election[126].

Once having computed the optimal position for each party, we still need to compute the degree of sub-optimality of each party locations. Among the different possibilities, in this research, I have derived party positions' sub-optimality from the absolute difference between the actual position of the party and the optimal one, that is:

$$|\, p_j^* - p_j|$$

[126] This procedure has been already automatized by an Excel program developed from Merrill III that can be found at http://course.wilkes.edu/Merrill/stories/storyReader$14, and by Curini and Iacus' (forthcoming) Nopp program in R. In order to compute all the Nash optimal positions required by the empirical analysis, I have relied on Curini and Iacus' R program.

where p_j^* is the optimal position for party j computed through the iterative algorithm, while p_j is its actual position. This operationalisation allows to detect how far is the actual position of a party from its optimal location, and to measure how much the strategy followed by the party is far away from the optimal one in a very straightforward way. In other words, this operationalisation allows understanding how much a certain party position is sub-optimal.

Despite the intuitive formalisation of this operationalisation, Curini (2014) argues that it can be problematic. Indeed, by showing that the linear fit of the distribution of the optimal position is steeper than the one of the actual position, he highlights that 'optimal positions tend to be less centrifugal than the actual positions [*and*] that the line of best fit is steeper for radical parties (i.e., those parties with an actual position of value less than 2 or greater than 8 on the left–right ideological scale from 0 to 10) than for other parties' (Curini, 2015, p. 90 italics added).

From this reasoning, Curini derives that, by considering the actual positions of parties as the expansion of their optimal positions around the centre, the two values should be compared by taking into consideration parties' closeness to the centre of the political space. Consequently, he defines another measure of the sub-optimality, which he calls RATIO, formally defined as:

$$RATIO = \frac{|\, p_j^* - p_j|}{|\, centre - p_j|}$$

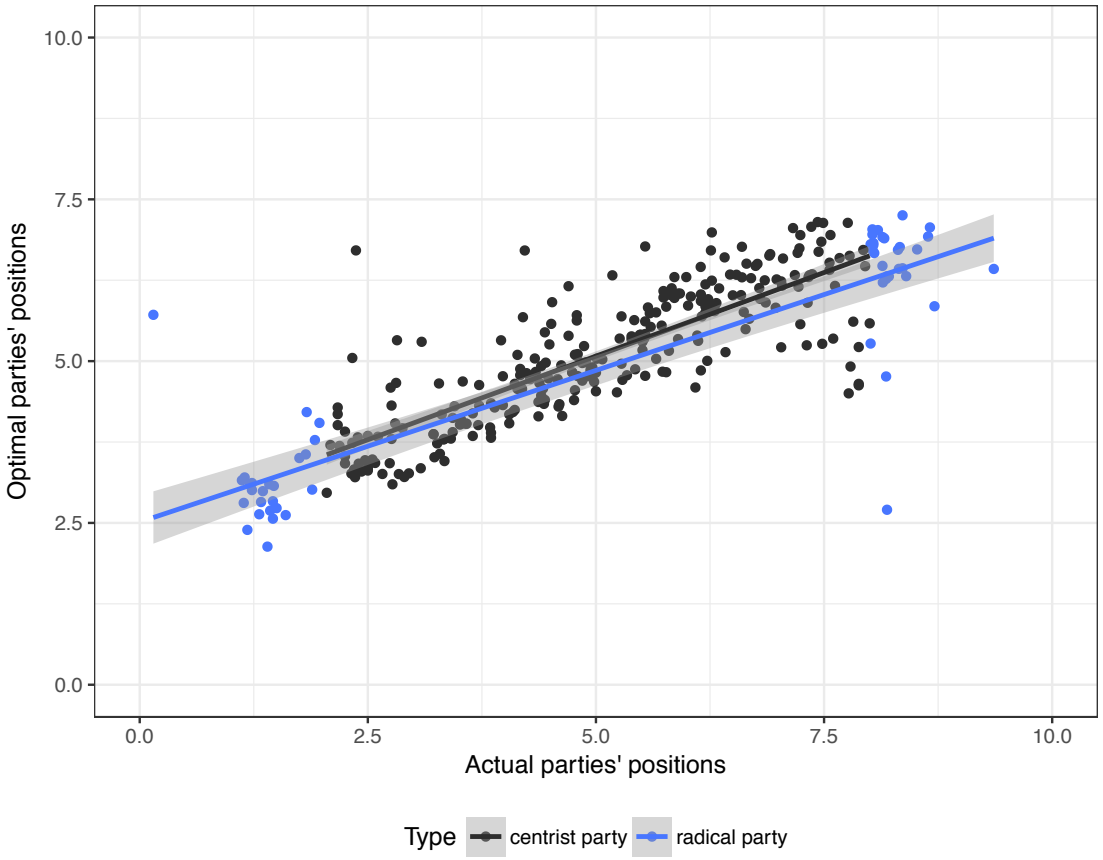
where p_j^* is the optimal position for party j, p_j is its actual position, and $centre$ is the centre of the political space (5 on a 0-10 scale).

Despite the accuracy of Curini analysis, according to the research question and the hypotheses put forward in this study, it seems more appropriate use the additive variable with respect to the multiplicative one, for a series of reasons.

First of all, not always is it adequate to 'partial out effectively the *"centripetal" force* of the Nash Equilibrium' (Curini, 2015b, p. 91 italics added): indeed, if a party has adopted a more centrist position, this has to be taken into consideration. On the contrary, by applying

the ratio, the effort put forward by this party to take a centring position would be potentiated, while the same effort put forward by a less centrist party would be comparatively decreased. Indeed, by accounting for the centre in the calculus of the sub-optimality of party positioning, we artificially give more importance to the distance between the actual and the optimal positions of a centre-leaning party with respect to the distance between the actual and the optimal position of a more radical party.

Figure 6.3 *Optimal and actual party positions*



As Curini (2014: 91) explains, 'if 5 is the centre point of a 0-10 scale, then a moderate party with an optimal position at 6 and an actual position at 7 has degree of sub-optimality positioning equal to 2, exactly the same value that represents a radical party with an optimal position at 7.5 and an actual position at 10'. Is this artificial distance that we are interested in? I do not think so.

Indeed, by artificially increasing the sub-optimality of the positioning of centre-leaning parties, we implicitly assume that mainstream parties and radical parties evaluate distance (and the vote-seeking strategies) with different weights. In addition, we also arbitrarily decide which weight to use. This is not necessarily incorrect. Indeed, detecting the difference between mainstream and radical parties' strategies is one of the conclusions to which Adams and colleagues (2011) have arrived by analysing the ideological switch of parties through years[127]. Nevertheless, whether extreme parties give more or less weight to the distance from the optimal position is something that cannot be considered as an assumption on which to build a dependent variable: this is a hypothesis that has to be tested[128].

In addition to these - more theoretical - doubts, there are two formal and empirical problems. Indeed, the multiplicative term put forward by Curini does not take into consideration the eventuality that the estimated optimal position can be very close to the centre of the political space, or even exactly at the centre of the political space. In this very latter case, it would not be possible to estimate the RATIO, since its value would be infinitive. Also, if the predicted optimal location is not exactly at the centre, but it is very close to it, the estimated RATIO would have very high and (somehow) meaningless values. Empirically, we can find an example by looking at the case of the Team Stronach in the 2013 Austrian general election: in such case, the party was located at 6.22, and his predicted optimal position was 5.005. If the sub-optimality of his location according to the additive operationalisation were 1.211, according to RATIO, this would have been equal to 242.25, an evidently too high value to be considered as a reliable degree of sub-optimality. Similar problems have been found for the Portuguese Social Democratic Party, the German National Democratic Party, the Social Alliance in Iceland, the French Democratic Movement and the like. The fact that these parties are not very relevant ones (at least at the electoral level) does not mean that are not symptoms of a problem of the operationalisation. Moreover, given the fact that

[127] Indeed, they have found that extreme parties give more relevance to the distance with respect to mainstream party. This is in line with research on issue-based competition, see Ansolahebere and Iyengar (1994).

[128] In this research, indeed, there is a hypothesis related to this specific point (H. 5.2 presented in the previous section), and we will test it in the following section.

one of the main aims of this research is getting highly generalisable results also the argument according to which such parties could be excluded from the empirical analysis has to be rejected.

Finally, if we look at Figure 6.3, we can note that the fitted line for extreme parties (that is, the ones with a location smaller than 2 and bigger than 8 on a 1-10 scale) is surely a little bit steeper than the one for the entire pool of parties. Nevertheless, if we control for the confidence intervals of the fit line, we see that there is not a statistically significant difference between the two distributions. This means that, at least at this point of the analysis, we do not see a significant difference in the location of the optimal positioning for radical and mainstream parties. Consequently, for all these reasons, we will estimate the sub-optimality of party strategies via the difference between the optimal and the actual positioning of the parties.

6.2.2. Independent variables

Moving to the independent variables, I will follow the most straightforward line of presentation: first, I am going to discuss the two variables derived from the literature (that is, the expected electoral gain and the polarisation). Then, the three key variables of the Three Biased Actors Model (that is, the distance from attached voter positions, the relevance of attached voters, and the valence advantage of the leader) will be presented. Finally, I will conclude with the presentation of the variable connected to the personalisation of general elections.

1. Expected gain. This is the first variable that I have derived from the literature of spatial models[129]. Indeed, as we have seen in the fourth chapter, most of the models put forward by scholars assume that parties compete during an electoral campaign in order to maximise the vote share (Ansolabehere & Snyder, 2000; Groseclose, 2001; Adams et al., 2005; Carter & Patty, 2015).

[129] For all the independent variables I will present in the following pages, more detailed descriptive statistics are reported in Appendix F.

This does not exclude the possibility that parties also have policy-related expectations and objectives (see for instance Groseclose, 2001a). Nevertheless, even if this issue has been problematised by both spatial modellers and the behavioural scholarship, the literature agree on the fact that office and vote-related objectives represent one of the most relevant targets that a political organisation follows during an electoral competition. For this reason, in the previous chapter, I have argued that, when parties face a relevant expected electoral gain by taking the optimal position, it means that they have taken a particularly sub-optimal position.

To adequately operationalise parties' expected electoral gain, I compute the proportional difference from the actual percentage of the vote gained by parties and parties' expected share of the vote if they would have taken the optimal position. Formally, we can define the expected gain as follow:

$$\frac{EV_j(p,\gamma) - EV_j(p^*,\gamma)}{EV_j(p,\gamma)}$$

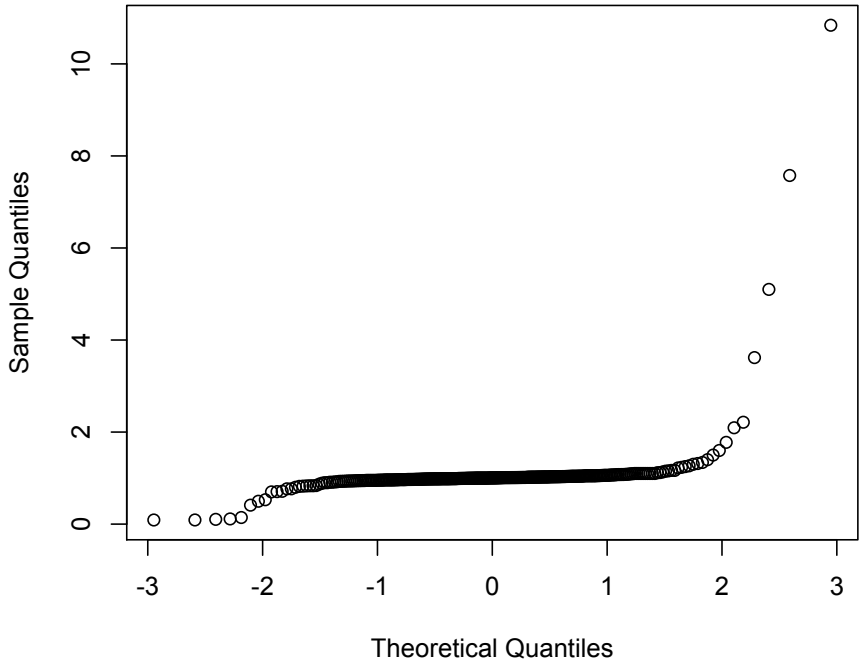
where $EV_j(p,\gamma)$ corresponds to the expected share of votes when party j is positioned at the actual position p, while $EV_j(p^*,\gamma)$ corresponds to the expected share of vote when party j is located at the optimal position p^*[130]. In this situation, I have decided to compute the expected electoral gain by relying on a proportional change and not on an additive difference for a number of reasons. In the latter case, indeed, an increase of 4% would have had the same meaning both for a mainstream party that had gained the 35% of the votes and a small extreme party which had obtained the 3% of votes. Obviously, such increase of 4% does not have the same impact on the performance of the mainstream party

[130] It is necessary to underline that the share of votes considered in the model for the estimation of the variable is not the same share of votes a party has gained in a given general election, but the percentage obtained by the party in the datset considered. Indeed, let us imagine that, in the empirical analysis, we had not considered all the parties competing in a given election. In such case, the percentage of vote expected by the party would have surely been bigger than the one obtained in reality. Moreover, since the expected share of vote is computed by relying on the data collected, considering not the share of vote gained at the general election it would bias the final results. It is for this reason that we compute the share of votes respect to the total number of votes gained by the parties considered in the model.

and of the small polarised party. Indeed, the former party has increased its consensus only by 7.5%, while the latter has more than duplicated its share of votes.

Consequently, I have opted for the multiplicative variation of the consensus between the votes gained by a party at its actual position and the one it would have gained at its optimal one. This operationalisation allows us to consider the impact of such variation by eliminating the difference among parties depending on their size.

Figure 6.4 *Distribution of Electoral Gain*



By looking at the data, all the cases in which there is a particularly high variation in the expected share of votes are Southern European countries (Spain, Portugal, and Greece). On the contrary, if we take into consideration the overall dataset, the data bounded between the 5th and the 95th percentile are included in the interval that goes from an electoral loss of 0.18 and an electoral gain of 1.23.

These data can be observed even from a graphical point of view. Indeed, as the Figure 6.4 shows, the great majority of the data are steeped in the interval 0/2, while only a few parties highlight more extreme positions. This means that, for most of the parties in the

dataset, the expected gain is not a determinant factor at the electoral level, since the electoral incentive to take a better position is at maximum equal to 4%.

2. Party radicalism. As we have seen in the previous section, one of the motivations not to operationalise the degree of sub-optimality positions by using the RATIO devised by Curini, and instead recurring to the additive dependent variable is the necessity to test the impact of parties' ideological radicalism instead of assuming its effect.

In this respect, a number of scholars have underlined that radical parties compete for elections in very different way than mainstream parties. In particular, Adams and colleagues (2011) have shown that extreme parties face a higher cost than mainstream parties when shifting policy positioning on the ideological continuum. Consequently, to verify whether effectively radical parties are more inclined to take sub-optimal positioning, we will regress party radicalism on party sub-optimal positioning. In particular, we will estimate the degree of the radicality of parties positions by computing the distance between the party's location and the centre of the political space. Formally:

$$| p_j - centre |$$

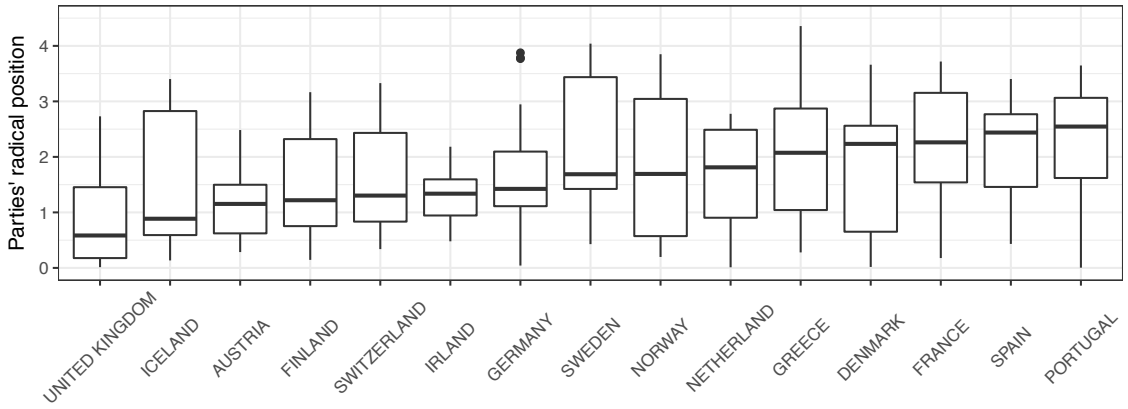
where p_j is the actual position of the party and $centre$ is the centre of the ideological continuum considered[131]. Also in this case, I have opted for a very straightforward operationalisation, able to detect the degree of party radicalism on the ideological continuum and, at the same time, not to introduce arbitrary biases in the operationalisation of the variable[132].

[131] More into details, the actual position of the party is represented by averaging the party location declared by the surveys' respondents. Conversely, the centre of the 1/10 ideological continuum is settled at 5.

[132] Indeed, a possible different operationalisation would have been considering whether the party is a niche (or extreme) one or not. This would have meant building a dichotomous variable that would have distinguished between two types of parties, and not operationalised the degree of polarisation. This second possibility is not problematic *per se*, especially if the theoretical reasoning that justifies the differentiation between the two types of parties is solid and in line with the scholarship. Nevertheless, given the comparative nature of this research and the high number of countries taken into account, I have preferred not to introduce a unique cut-off point

Accounting for a continuous variable like party radicalism allows us to detect the impact of a more extreme position without introducing an arbitrary cut-off point under which parties are not considered as extreme. Moreover, by empirically introducing in the analysis such variable, and not a dichotomous one that would have identified the type 'radical parties', I also aim at testing the impact of a characteristic of all the competing parties and not the different nature of different parties on their sub-optimal location.

Figure 6.5 *Polarization per country*



By looking at the distribution of party radicalism across countries, in Figure 6.5 above, in 10 countries, at least half of the parties competing for elections have a median degree of radicalism lower than 2. This means that, in these countries, at least the 50% of the parties are located in the central area of the ideological continuum.

Moreover, the figure also shows that those countries including parties with the highest level of radicalism are Spain, Portugal, France, Greece, and Denmark. In particular,

by defining whether a party is an extreme one or not, since it would have had different impacts on different systems. Indeed, following the example put forward when we have discussed the dependent variable, are we sure that a party positioned at 2 is equally extreme in Norway and in Greece? Moreover, are we sure that a party positioned at 7 cannot be considered as an extreme party both in France and Portugal? I believe that finding a non-contestable cut-off point, able to correctly detect the differences among parties in different political systems, would have been very hard. Moreover, since there is not a perfect overlapping between the concept of 'niche party' and that of 'extreme party', it would have also been tough verifying the argument we have put forward in the previous section by considering different types of parties.

in such countries more than half of the parties are located between 0 and 2 and between 8 and 10, that is in very polarised positions. The party systems that include the most polarised parties are Greece (with both Golden Dawn and Syriza), followed by Sweden (with the Left Party) and Norway (with the Red Electoral Alliance).

Nevertheless, by looking at the degree of radicalism of the parties located at the 75th percentile of the distribution, we can observe that only few countries highlight a very low degree of party radicalism. Indeed, only United Kingdom, Austria, Netherlands and Ireland show a high concentration of parties (up to 75th percentile) bounded between 2 and 8.

After having described the variables derived from the literature, it is possible describing the variables that are more connected to the framework of party competition devised in the previous chapter. In particular, in the following section, we will deal with parties' distance from attached voters, the relevance of attached voters, and the leader's valence advantage.

3. Distance from attached voters. By focusing on the parameters introduced by the Three Biased Actors Model, we first encounter the distance from the average position of the attached voters. According to the framework devised in the previous chapter, not only is this a crucial factor in the explanation of sub-optimal party positions, but it is also a variable that can be connected to the relevance of attached voters' complaints in front of unappreciated leaders' choices.

In particular, the Three Biased Actors Model expects that, to a higher distance between the attached party voters and a party's positioning, there is an increase in the sub-optimality of this party's positioning (H. 5.3). Moreover, the model also expect that the impact of such variable (that is, the distance between the average location fo the attached voters and the placement of the parties) is conditioned by the effect of the relevance of attached voters (H. 5.4).

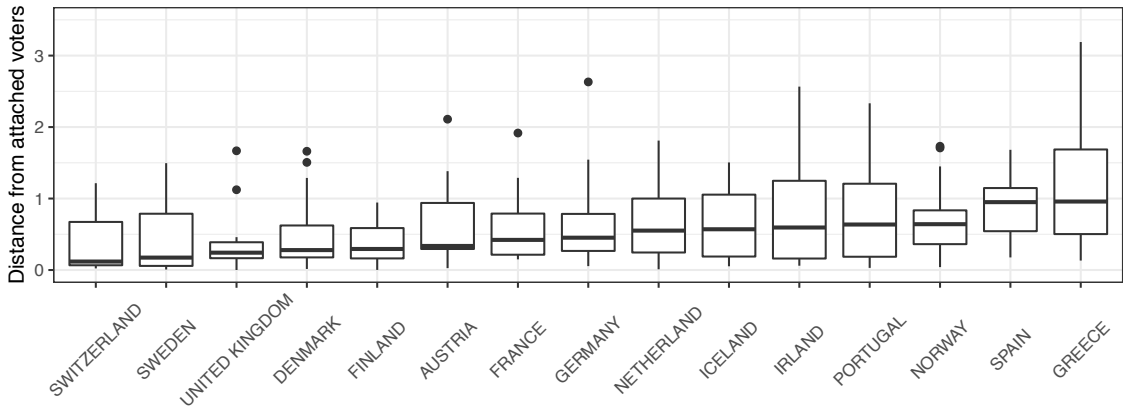
To test the impact of the distance of actual party position from the attached voters' position, I have operationalised the distance variable as follows:

$$| p_j - \overline{AV_j} |$$

where p_j is the actual position of a party j and $\overline{AV_j}$ is the average position of the attached voters of j.

Moreover, if we observe the descriptive statistics of the variable by countries, we notice that, on average, the average size of the distance between the position of parties' attached voters and parties' actual position does not reach very high levels (Figure 6.6). Indeed, with the exception of some cases in Greece (the Golden Dawn and the Communist Party in 2012), Ireland (the Sinn Fein in 2007 and 2011), and Germany (the National Democratic Party of Germany in 2005), no party has taken a position which are far more than 2.5 points from the average positions of their attached voters.

Figure 6.6 *Distance from attached voters per country*



A second element is that more than 30% of the parties highlights a position that is at maximum 0.5 points distant from one of their attached voters, while only the 22% of the parties are located more than 1 point distant from the average position of their attached voters.

An interesting element that deserves to be underlined is related to the fact that, in addition to Switzerland, the countries where parties take positions closest to the average locations of their attached voters are three Nordic ones (Denmark, Sweden, and Finland)

4. Relevance of attached voters. The second factor introduced by the Three Biased Actors Model and that needs to be operationalised is the relevance of attached voters with respect to the general electorate of a party. Indeed, as we have seen in the previous chapter, this is

one of the crucial variables due to its possible conditional effect on the impact of the distance between a party's positioning and the average location of its attached voters (H 5.4). Despite the theoretical intuitiveness of the factor, its operationalisation is not an easy matter.

First of all, we could think that the proportion of the attached voters on the overall electorate of a party could be a reliable measure[133]. Indeed, it is intuitive that the higher the percentage of attached voters within the overall electorate of a party, the higher the possibility for attached voters to have a say concerning the party. Consequently, the first element that we should take into consideration in developing such variable is the attached voters:

$$\frac{\sum_i Ai_j}{\sum_i i_j}$$

where $\sum_i Ai_j$ is the total number of party j's attached voters, and $\sum_i i_j$ is the total number of party j's voters.

Moreover, a second element to consider in the operationalisation of the relevance of a party's attached voters is represented by the dispersion of attached voters' preferences. Indeed, the capacity of attached voters to make pressure on the party leader cannot be considered the same if the attached voters have the same position or, conversely, if they have very different positions.

Let us imagine a very polarised party, where its attached voters highlight highly similar positions on the ideological continuum: in such case, if the party leader advances a proposal that is not welcomed by its attached voters, the fact that all of them have similar positions will make their pressure on the strategy of the leader a very impacting one, since the entire attached electorate of the party will make pressure on the leader to change his/her proposal in a uniformed way.

Conversely, if we deal with a mainstream party able to include attached voters with very different locations, it is very challenging for a leader to advance proposals that will

133 This would be in line with the approach adopted by many scholars, and in particular by the party-organisation-related scholarship that operationalises the pervasive influence of party members on the party electorate by using a simple ratio between the number of members and the number of voters of the party (among others, see Bosco & Morlino, 2006).

dissatisfy the entire set of attached voters. Indeed, it is likely that when some attached voters do not welcome a policy promoted by the leader, there will be another component of the same attached voters that, conversely, will welcome the proposal.

This can be further considered as empirically reasonable in light of the prediction of the model at equilibrium on the distance between the actual party position and the average location of attached voters, that increases as the importance of attached voters increases as well. A way to empirically operationalise such intuition is to consider the dispersion of the attached voters on the ideological continuum, that is:

$$\frac{1}{sd(AV_j)}$$

where $sd(AV_j)$ is the standard deviation of the location of attached voters of party j on the ideological continuum. By taking the inverse of the standard deviation, we obtain a value that increases when the value of the standard deviation decreases. Someone could argue that such index might lead to an indeterminate infinite value: this is true, but since the probability that all the attached voters of a party are located on the same point on the 1-10 ideological scale is extremely low, we can consider such operationalisation as not problematic from a statistical point of view[134].

The two components that we have seen so far can be combined into a unique index, formally defined as

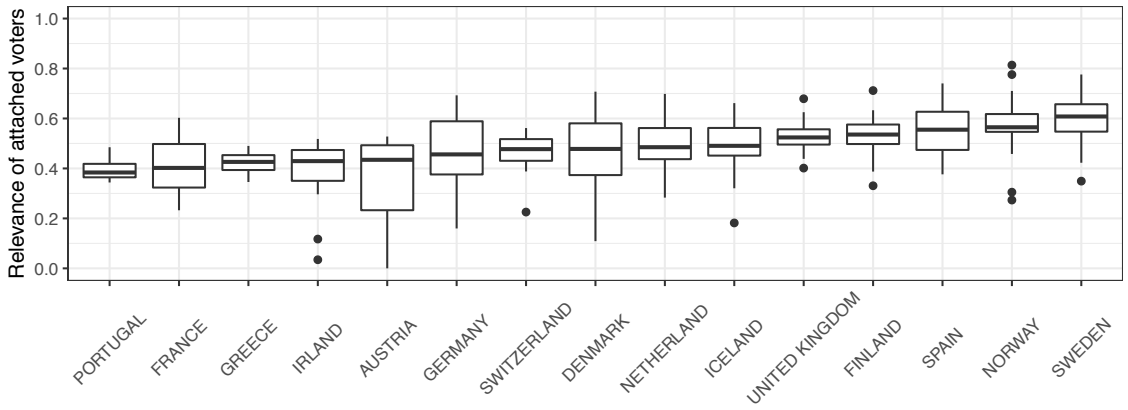
$$\frac{1}{sd(AV_j)} \frac{\sum_i Ai_j}{\sum_i i_j}$$

Such index will then have greater values when the proportion of attached voters over the overall electorate of a party increases and, at the same time, the ideological dispersion of voters decreases. This operationalisation is one of the best possible ones in line with the

[134] In addition to the extremely low probability that all the voters of a party are positioned on one point, Figure 67 and Appendix F show that there is not a single case highlighting this feature in the dataset taken into account for the empirical analysis.

target we had defined in the previous chapter. Indeed, the capacity of attached voters to condition the decisions by leaders concerning party positioning is strictly connected to both the importance of attached voters within the overall electorate of the party and the dispersion of their positions. Indeed, as seen in the previous chapter, attached voters give much more relevance to the ideological distance compared to the other voters who are profoundly conditioned by the amount of bias against the party.

Figure 6.7 *Impact of attached voters per country*



Passing to descriptive statistics of the data, the capacity of the attached voters to condition the party choice highly differs within countries, but not among countries.

Indeed, as we can see from Figure 6.7, all the countries (except for Portugal) show a median of the impact of attached voters between 0.4 and 0.6. A second element is the small dispersion of the data. Indeed, except for the German, Austrian, and Danish cases, all the countries do not show a significant dispersion of the majority of data. In these latter cases, indeed, the parties between the 25th and the 75th percentile of the distribution do not differ from each other for more than 0.2 points. Nevertheless, many countries show outliers: meaning that, despite a general trend according to which attached voters have a relatively high impact on party decisions, there are several cases in which the impact of attached voters is not very impacting or, conversely, might be considered as extremely important.

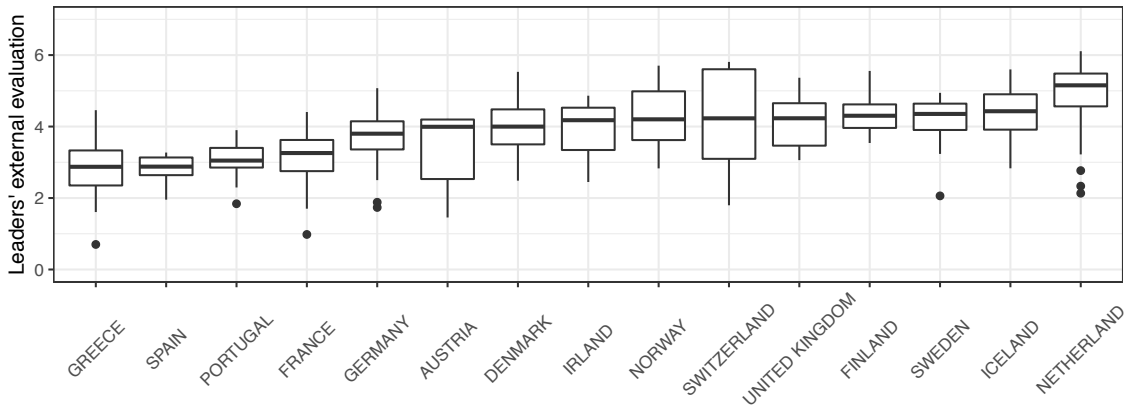
5. Leader's reputation. The last factor considered by the Three Biased Actors Model is leader's reputation. Indeed, as we have seen in the previous chapter, the positive evaluation

of a leader represents a crucial variable in the individual voting utility function, especially when the electoral competition is more personalised. But how can we include voters' evaluation in this analysis?

A first possibility would be to consider the judgements of all the voters, and consequently estimate the average evaluation of a leader from a general viewpoint. Nevertheless, this solution would have involved a number of problems. Indeed, as seen in chapter 3, if we took into account also the evaluation of attached voters in the calculus of positive leader reputation, we would obtain a higher leader evaluation for those parties with a greater electorate, and in particular a even higher evaluation for bigger parties. This is connected to the fact that, as we have seen in the third chapter, when voters are biased toward a party, they declare, on average, a higher evaluation of the leadership.

As a consequence, in order not to bias leadership evaluation for more voted parties, I have decided to estimate the average evaluation for each leader by only considering the judgements of those voters who are not biased toward such party. Indeed, given the fact that biased evaluation does not positively inflate the variable, such operationalisation is highly more precise than considering all the voters' evaluation.

Figure 6.8 *Leader positive evaluation per country*



Consequently, it descends that those leaders with a higher evaluation by those voters who are not biased toward the party have a higher valence advantage with respect to the other leaders. Moreover, this operationalisation is also in line with the results put forward in

the third chapter of this research[135], and with the reasoning put forward in the previous chapter.

Passing to the data, in Figure 6.8 we can see, differently from the case of the impact of attached voters, there is a high variation between countries. Indeed, although most of the countries have the median of leadership evaluation bounded between 4 and 5, some countries highlight some more extreme positions. For instance, the Netherlands show a median evaluation of this country's party leaders greater than 5, as well as the United Kingdom. Conversely, some other cases show lower average evaluations of the leader: among these countries, we find the Southern European ones (Spain, Portugal and Greece), which highlight an average leaders' evaluation pretty closer to 3. Also in this case, some parties represent outliers on the distribution, meaning that the general evaluation of non-biased voters on political leaders varies substantially, either within countries and between countries.

6. Personalisation of General Elections. Finally, the last variable considered in this analysis is the degree of personalisation of general elections. Indeed, as already seen in the previous section, I expect the personalisation of politics might play a shaping and quite a relevant role by conditioning the impact of leaders' valence advantage.

This is surely in line with the findings presented in the third chapter of this research, that have shown a relevant role of the personalisation of politics on the individual voting behaviour. Passing to the operationalisation of such variable, also in this case, I have relied on the results of the first expert survey on the personalisation of party politics (Marino et al., 2017). Here, we are interested in observing the more general role played by the personalisation of general elections, and verify whether, in front of different conditions of competition (that is, to different degrees of personalisation of general elections), the characteristics of the leaders (and in particular, their valence advantage) have different impacts on the degree of sub-optimality of their position. For these reasons, I will also account in this second part of the research for the data coming from experts' responses to the question 'How would you evaluate the overall impact of the personalisation of politics

[135] Indeed, we have seen that, despite leader evaluation matters mostly for attached voters, it is also a determinant variable for the non-attached voters who are positively inclined towards 'a given party.

in each of the following General Elections? Please rate such impact on a 1-10 scale, where 1 means "very low impact" and 10 means "very high impact"".

Given we have presented such variable in the third chapter of this research, it is not necessary to present the data again. So, we can now turn our attention to the empirical analysis.

6.3. Empirical Analysis

After having presented the Three Biased Actors Model and the dataset built for this second part of the research, and having described the variables, it is now possible to make a step forward and discuss the results of the empirical analysis.

As discussed while presenting the dependent variable of this empirical analysis, before applying the mixed regression to estimate the impact of the independent variables on parties' sub-optimal positioning, a number of preliminary passages to build the dependent variable are required. Therefore, in this section, I will first describe the passages done for building the dependent variable and also present the method used to test the hypotheses put forward in the previous chapter. Subsequently, the results of the empirical analysis will be discussed.

6.3.1. Method

As we have described in the previous section, the dependent variable of this second part is the degree of sub-optimality parties' positioning. To operationalise such variable, we have computed the absolute difference between the position of each parties' Nash equilibria and the actual position. To properly estimate the degree of sub-optimality, the first step is surely the calculus of parties' optimal position.

So, I have first performed a conditional logistic regression analysis for each of the fifty-six elections taken into consideration in the research. In particular, by regressing on the

individual vote the Biased Voter Model, I was able to test, for each country, the probability for each voter to vote for each of the competing parties considered in this work[136].

More into detail, since, in the Biased Voter Model, both alternative-specific and decisor-related variables have been taken into account, it has been necessary to put forward an alternative-specific conditional logistic analysis and not just a conditional logistic one[137].

Moreover, recalling the discussion put forward in the third section of the third chapter, it has been possible to put forward such kind of analysis due to the fact I have performed different regressions for different countries. Obviously, this does not mean that it is easily possible to grasp a general explanation of the individual voting behaviour and to compare the different coefficients efficiently. Conversely, the procedure I have followed allows to compute the probabilities of each voter to vote for each of the alternatives in each single election, and then estimate the optimal party positioning by applying the iterative algorithm to compute the Nash equilibria. Once having computed the optimal position for all the parties, it is possible to build the dependent variable put forward in this part of the research: the degree of sub-optimality of party position.

It is now possible entering into the details of the method used to estimate the determinants of parties' sub-optimal positioning. First of all, since both the dependent variable and the independent ones are computed at the party level, the unit of analysis is not the individual anymore, but is the single political party in each election. Moreover, a second difference with the model applied in the first part of this research is strictly connected with the dependent variable. Indeed, given the fact that the dependent variable is a continuous one, we have to rely on a model based on a linear regression analysis and not on a discrete

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136 As we have seen in the previous section, this is a necessary element to compute the Nash equilibrium following the iterative algorithm of Merrill II and Adams (2001)

137 Indeed, as put forward by Mc Fadden (1974) and Alvarez and Nagler (1998), the pure conditional logit model allows researchers to estimate the impact on the dependent variable of only the alternative-related factors, that is those factors that assume different values depending on the alternative selected. This is because, according to the conditional logistic model, the utility predicted by the regression function should vary depending on the characteristics of the alternative. This is what allows the conditional logistic regression not to have a base outcome as a point of reference for the estimation of the log-odds and the probabilities of individual choice, and therefore to differentiate itself from the multinomial logistic regression (Thurner, 2000a).

one. So, I have relied on a mixed model, and in particular on a linear mixed model, as done in the first part of this research, where a mixed model has been used as well.

Indeed, given the fact that each competition is different from the others and that parties' optimal positions depend both on the structure of competition and on the interactions among the strategies of all the parties competing in the same election, it appears evident that the parties in the elections are hierarchically clustered in elections.

Moreover, conversely to the first part of this dissertation, where I have used data including different voters who were consulted in different elections by National Election Studies, in this case, the same party might be considered in the analysis more than once. Let us give an example by using the British Labour party: since the Labour party is one of the alternatives for British voters in all the elections considered in our dataset (1997, 2001, 2005, 2010, and 2015), the dataset will account for the same party (that is, the Labour party) five times, and not just once[138]. Consequently, given the observation for the same party is present in different elections, we have to take into consideration that 'party in election' observations are hierarchically clustered in single party-level groups of observations. At the same time, the parties are also clustered within an election-related cluster: indeed, the same party competes in different elections. Moreover, as already seen in the previous section, the impact of the single competition particularly affects the construction of sub-optimal parties' positions. This means that this factor needs to be taken into consideration when the empirical analysis is put forward.

To account for all these caveats, I have put forward a mixed linear regression analysis accounting for both the clusters of the data at the party level and for those at the election level. This particular structure of the data must be taken into account, since it is determinant for putting forward a correct analysis. Otherwise, the standard errors estimated by the regression analysis could be biased (for a longer discussion, see Steenbergen and Jones, 2002).

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[138] Someone could argue that also in the previous part of the dissertation I was dealing with 'the voter in each election'. This is true, since I was dealing with the preferences of voters in different elections. Nevertheless, since I did not account for the presence of the same voter in different elections (or, at least, there is an infinitesimally low probability that the same voter is selected in two different surveys), it has been possible to consider the elections as independent from one another.

Also in this case, to be sure that performing a multilevel model increases the reliability and the goodness of fit of the analysis, I have compared the log-likelihood of a linear regression analysis with the one of the mixed model. The log-likelihood value moves from -344.5049 in the case of the classical linear regression to -259.1543 in the case of the mixed model. This means that the log likelihood of the mixed model is 0.25 times smaller than the linear regression ones. This confirms that the introduction of the level factors has a significant impact on the goodness of fit of the models. For all these reasons, the empirical analysis will be based on a Multilevel Linear Regression, whose random effect is settled at the party level[139].

6.3.2. Explaining sub-optimal parties' strategies

After having presented the method used to empirically test the Three Biased Actors Model of party competition, it is now possible to enter more into detail of the empirical analysis and discuss the results, presented in Table 6.2 below[140].

The table reports the estimated coefficients for four different models: the null model, the model that does not include the conditioning effect of attached voters' relevance, the Three Biased Actors Model, and, finally, the Three Biased Actors Model accounting for the impact of personalisation of politics.

First of all, by looking at Table 6.2, we can see that the model that shows the best goodness of fit is undoubtedly Model III, that is, the regression that empirically tests the Three Biased Actors Model. This is confirmed by most of the goodness of fit measures: the BIC, AIC, log likelihood, and the conditioning R2[141]. Indeed, the Three Biased Actors Model

[139] Also in this case, the numerosity of the second- and third-level variables using a multilevel regression would not risk to bias downwards the standard error (Maas & Hox, 2004). It follows that the analysis respects the existing rules of thumb on level variables' numerosity (Stegmueller, 2013; Bryan & Jenkins, 2016).

[140] The model does not suffer from problems of multicollinearity. See more details in Appendix G.

[141] Only in the case of the marginal R2 does Model 4 show a R2 higher than Model 3. This means, that the explanatory power of the fixed effects is slightly higher in Model 4 with respect to Model 3. Nevertheless, if we look at the overall explanatory power of all the variables (that is, the Conditioning R2) and the overall goodness of fit (BIC, AIC, log-likelihood) Model 3 has better fit with respect to Model 4.

have a better good of fit when also the interaction is accounted. Moreover, we can also observe that the goodness of fit of the Model is maxima when only the variables included in the Three Biased Actors Model are considered: if the personalisation is added to the model, the goodness of fit of the model decrease.

Table 6.2 *Mixed Linear Model, Western Europe – Three Biased Actors Model*

	Model I	**Model II**	**Model III**	**Model IV**
party radicalism		0.300***	0.290***	0.290***
		(0.032)	(0.032)	(0.032)
expected gain		0.025	0.031	0.032
		(0.023)	(0.023)	(0.023)
attached voters		-0.189	-0.516*	-0.557*
		(0.212)	(0.246)	(0.248)
distance position		0.637***	0.397**	0.386**
		(0.056)	(0.109)	(0.109)
leader evaluation		-0.017	-0.024	0.117
		(0.025)	(0.025)	(0.140)
distance position | attached voters			0.592***	0.616***
			(0.230)	(0.233)
personalisation				0.042
				(0.096)
valence advantage | personalisation				-0.023
				(0.023)
constant	0.896***	0.108	0.288	0.054
	(0.074)	(0.145)	(0.160)	(0.606)
N	312	312	312	312
N Single parties	102	102	102	102
N Elections	56	56	56	56
AIC	526.654	250.698	247.262	259.120
BIC	541.639	284.385	284.692	304.036
Log-likelihood	-259.327	-171.668	-113.631	-117.560
R2 Marginal Effect		0.68	0.69	0.70
R2 Conditional Effect	0.78	0.91	0.91	0.91
Variance – Single parties	0.40	0.08	0.08	0.08
Variance - Elections	0.05	0.05	0.05	0.04
Variance Residual	0.13	0.063	0.058	0.059

Moreover, Marginal and Conditioning effects are specific R2 measures for mixed methods models. Indeed, they allow to distinguish between the goodness of fit of only Fixed Effect and Fixed Effects in addition to Random Effects (for more details please see Nakagawa & Schielzeth, 2013)

Passing to the interpretation of variables' coefficients, we first focus on the impact of party radicalism and the parties' expected gain. These variables are related to the two hypotheses that we have derived from the literature. Between the two expectations, just one appears as confirmed by the empirical analysis.

First of all, we can see in the table that to a higher value of party radicalism it corresponds an increase in such party's degree of sub-optimal positioning. In addition, Table 6.2 also shows that there is not a significant relationship between an increase in the expected electoral gain and the distance between a party's optimal position and its actual one. This latter result highlights that the possibility to gain a higher electoral consensus does not represent a decisive motivation for West European parties to take more convenient positions. In other words, pure vote-seeking incentives do not represent a sufficient brake to make parties take less sub-optimal positions. Obviously, this does not mean that parties are not vote oriented at all, but, conversely, that when we investigate the explanatory factors for the degree of parties' sub-optimality positioning, other factors are quite more relevant in shaping parties' behaviour.

Among these latter factors, we can surely consider a party's ideological radicalism, which has a positive and significant impact on party sub-optimal positioning and therefore makes us consider H. 5.2 as confirmed by the empirical analysis. This result is in line with the literature, and confirm the findings by Adams and colleagues (2006) on the study of parties' policy switch and those by Ansolahebere and Iyengar (1994) on the use of different issues during elections.

Indeed, in line with these abovementioned studies, both the positive sign of the coefficient and its significance confirm that the higher the radical party positioning, the higher the sub-optimal location of the political formation. This means that polarised parties (or niche parties, by using the denomination by Adams and colleagues) are not as free as the mainstream ones to move on the ideological continuum during the electoral campaign by following public opinion's preferences.

This is further confirmed by the table of results, which shows that more radical parties adopt less-optimal electoral strategies. Indeed, although radical parties have, on average, an electorate as attached as the one of mainstream parties, their attached voters are much more distant from parties' location with respect to mainstream parties. On average,

mainstream parties' attached electorate is 0.48 points distant from parties' location, while this distance becomes 1.13 points in the case of more radical parties

By moving our attention to Model II and Model III, once we introduce in the regression equation the variables put forward by the Three Biased Actors Model, the goodness of fit of the models strongly increases. Moreover, if we look at the fixed effect coefficients, we also see that most of the variables introduced by the Three Biased Actors Model reach the standard level of significance and show the expected sign.

In particular, in both Model II and Model III, to an increase in the distance between a party's location and the positioning of its attached voters, it corresponds an increase in the sub-optimality of this party's positioning.

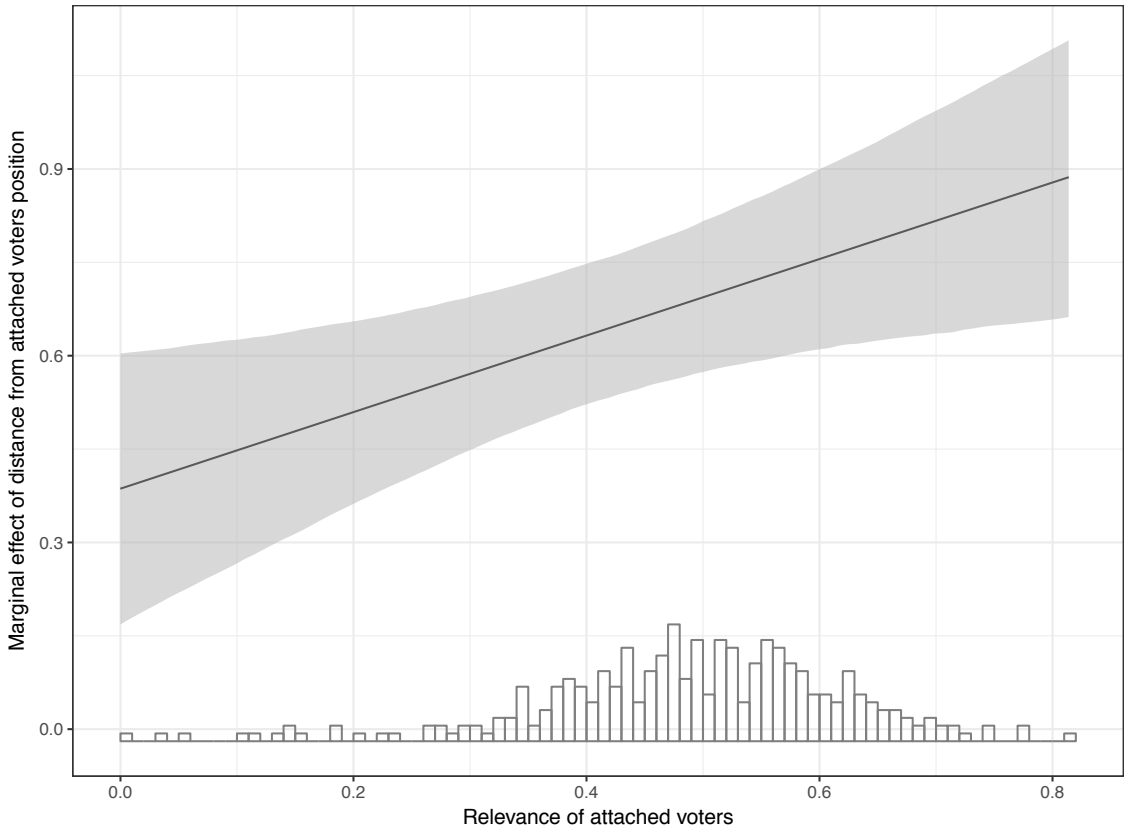
This result confirms the goodness of the reasoning put forward in Chapter 5, according to which when the distance between the parties and their attached voters increases, party leaders are braked in taking a more vote-seeking position. Indeed, according to the Three Biased Actors Model, in such a situation, attached voters tend to criticise party leaders due to the eclectic position of the party. Moreover, attached voters' complaints involve a decrease in leaders' reputation and positive evaluation by the entire electorate. In other words, the more parties are located far from their attached voters, the less strong will be the positive impact of leaders' evaluation on individual voting behaviour[142]. The negative effect of attached voters' complaints represents a relevant disincentive for leaders who aim at increasing the electorate by taking more convenient ideological positions. Consequently, by looking at the negative and significant It follows that Hypothesis 5.2 is confirmed by the empirical analysis. Moreover, such result not only is in line with the expectations advanced in Chapter 5, but it also allows us at empirically confirming the intuition at the base of the Three Biased Actors Model of party competition: that is, that individual bias affects party competition by making attached voters play an active – and crucial - role during the electoral campaign. Moreover, the relevance of attached voters in determining parties' placement during the electoral campaign is also confirmed by the fact that such relevance positively and significantly affects the impact of a party's distance from its attached voters' location.

[142] We have seen in the previous section that leader evaluation represents a decisive and significant factor in voters' voting behaviour.

In other words, this means that to an increase in the attached voters' relevance with respect to the overall electorate of a party, the higher the sub-optimality of this party's placement when the distance between the party and its attached voters increases.

Indeed, we can see, in Figure 6.9 below, that when attached voters get more and more relevant, the marginal effect of an increase in the distance between a party's and attached voters positions increases as well. This means that, in such situation, attached voters increase their blackmail potential with respect to the party's leader. Therefore, an increase in the relevance of attached voters makes the constraining role of the distance between the actual party position and the average location of attached voters more and more crucial in the process of parties' position-taking.

Figure 6.9 *Conditioning effect of attached voters' relevance on the distance between party's and attached voters' positioning.*



In other words, it could be said that an increase in the distance between parties' and attached voters' positioning does not particularly brake parties' position-taking when the

attached voters are highly dispersed on the ideological continuum and do not represent a very relevant part of its electorate. On the contrary, when the attached voters represent a noticeable section of a party's electorate, then the braking impact of the ideological distance between the party and its attached voters becomes determinant. Not only does this result empirically verify H 5.4, but also confirms both the strong impact that individual cognitive biases have on party competition, and also the intrinsic link that connects the Biased Voter Model (analysed in the first part of this dissertation) to the Three Biased Actors Model.

Indeed, in section 3.3, we have observed that to higher levels of bias toward a party, an increase in the ideological distance between a voter and a party was stronger and stronger in affecting the voter's probability to cast the ballot in favour of such party. Similarly, here we observe the boosting conditioning effect of an increase in attached voters' relevance on the impact of party's distance from attached voters' location.

Overall, what we have seen concerning H 5.3 and 5.4 (that is, the effect of the distance between attached voters' placement and party's one, and the conditioning impact of attached voters' relevance) represents a relevant confirmation of the role played by attached voters during elections. Nevertheless, there is a second element that, according to the Three Biased Actors Model, might affect party sub-optimal positioning: the leader's reputation. Indeed, as we have seen in the fifth chapter, according to the model devised in this second part of research, if a leader is positively evaluated by the electorate, he/she has a competitive advantage with respect to other leaders with a lower reputation.

Therefore, since leader evaluation might be determinant for the increase in parties' consensus, leaders with a higher reputation aim at preserving it by positioning the party less distant from attached voters' location. Indeed, according to the logic put forward by the Three Biased Actors Model, if a leader locates his/her party far away from the average position of its attached voters, these latter will complain about leaders' decisions and, in turn, their complaints will profoundly affect the possibility that such leader's evaluation plays a decisive role.

Moreover, we have also seen that higher leaders' reputation particularly affects the voting probabilities for those voters who are already positively inclined toward a party. Consequently, since the higher the positive evaluation of the leader, the higher the impact of leader reputation on voters, leaders will tend to take sub-optimal positions and not let the attached voters complain about their strategies.

Despite the prediction of the Three Biased Actors Model of party competition, Models II and III show that leaders' reputation does not have a significant impact on the dependent variable. So, H 5.5 cannot be considered as confirmed by the empirical analysis. The non-significant impact of leaders' evaluation on the degree of sub-optimality party positioning is further confirmed by the non-significant impact of leader evaluation even when it is conditioned to the level of personalisation of general elections.

These results strongly question the existing literature either on spatial models and on the personalisation of politics. Indeed, recent research in the spatial model scholarship has underlined the crucial role played by leaders' evaluation and leaders' valence advantage in position taking. In particular, in the fourth chapter, we have seen that, according to the existing literature (among others, see Groseclose, 2001; Carter & Patty, 2015), party positioning is strongly affected by the valence advantage of party leaders' with respect to the others leader[143].

Nevertheless, this effect disappears if the active role of attached voters is taken into account during elections. Moreover, also the personalisation of general elections, that plays a role in individual voting behaviour (see chapter three), does not seem to foster the impact of leaders' evaluation in positioning parties in more optimal locations.

Indeed, by following the graphical approach to interactions (Brambor et al., 2006), we can observe in Figure 6.10 below that, despite the increasing levels of personalisation of politics, an increase in the leader's evaluation according to the voters who are not attached to the leader's party does not significantly affect the optimality of such party's position taking.

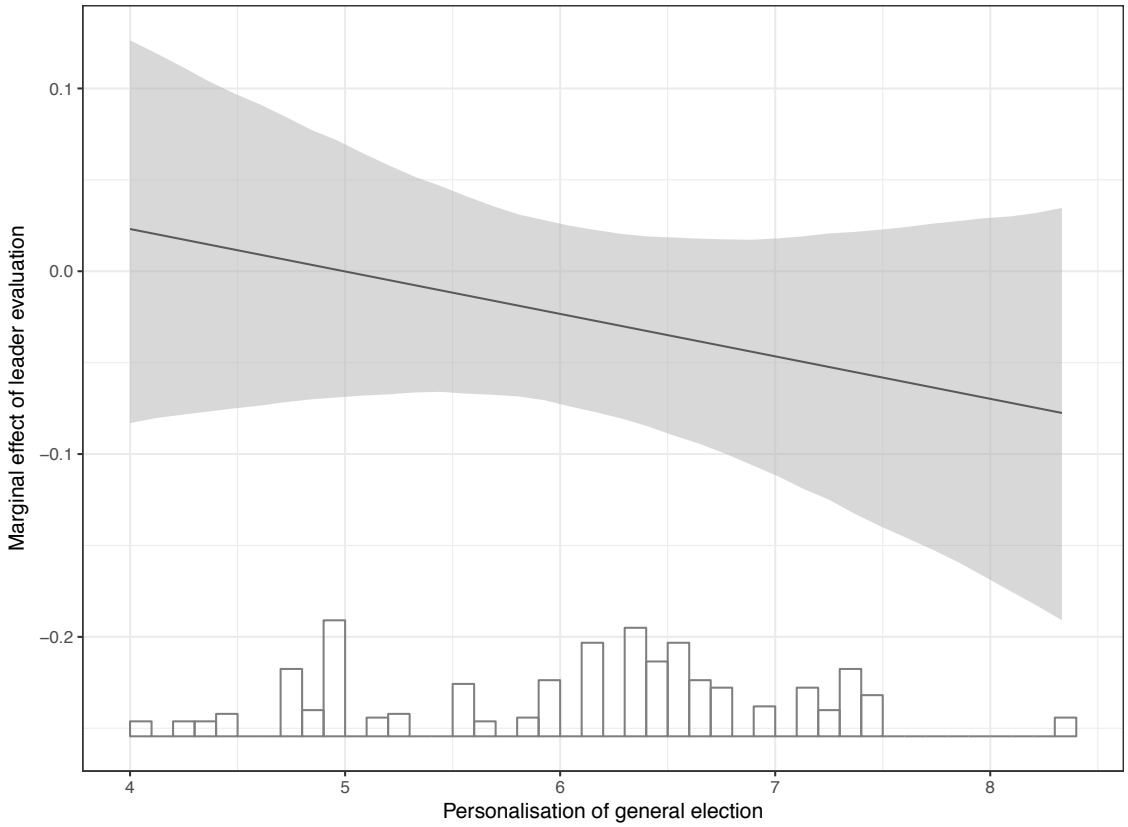
Indeed, the figure shows that the upper confidence interval always assumes positive values, while the lower confidence interval always have negative values. It follows that the

[143] Someone could argue that we are not testing the impact of leaders' valence advantage. Although this does not represent the real focus of this research, as a robustness check, I have also tested the impact of leaders' advantage by operationalising the valence advantage of a leader as the difference between a leader i's average evaluation of non-attached voters and the average evaluation of the leader with the worst reputation. This operationalisation, indeed, allows us to consider a comparative 'valence advantage' term. The results of such further analysis (displayed in Appendix G) not only confirm that the goodness of fit of the three biased model is greater (see in particular the BIC values), but it also confirms that also a more 'valence advantage' factor does not have an impact on party positioning.

prediction put forward by the Three Biased Actors Model concerning the role of leadership evaluation cannot be considered as confirmed by this empirical analysis.

In this respect, the results of the empirical analysis plastically underline that if the leader's evaluation represents a determinant factor for the decision of which party vote for among the set of most preferred parties (see section 3.3), whether leader's reputation is higher or lower in the set of non-attached voters does not appear as relevant for parties' positioning.

Figure 6.10 *Conditioning impact of personalisation on the effect of leaders' positive evaluation*

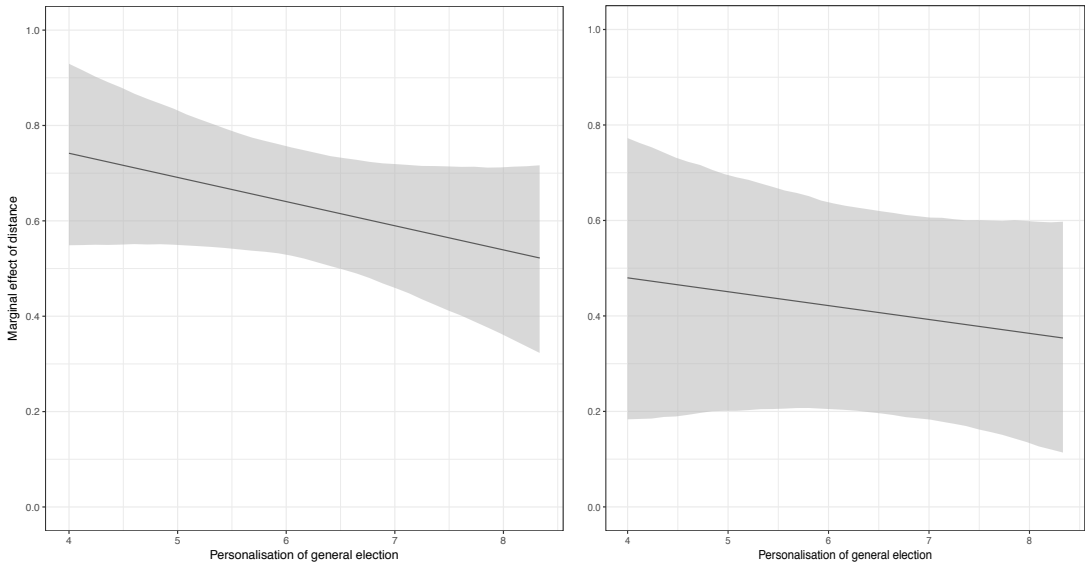


This means that when party leaders have to decide where to locate their political organisations, their decision is mostly shaped by attached voters, who strongly condition the electoral positioning of a party. In particular, the non-significant result of party leaders' evaluation further confirms the relevance of individual bias as a central factor not only in

individual voting behaviour but also for the strategies adopted by political formations during the party competition.

Moreover, the fact that also in very personalised elections the impact of a higher leader's evaluation does not allow him/her to take more convenient positions further confirms that the pressure put forward by the attached voters on party leader has a determinant and braking effect even when the leaders represent the centre of the electoral competition. Indeed, we had expected that, in very personalised elections, the role of party leader would have been more crucial and, in turn, the conditioning effect of attached voters' complaints would have been not so much determinant.

Figure 6.11 *Conditioning impact of personalisation of general elections distance between party's and attached voters' positioning.*



In order to test whether effectively the personalisation of general elections plays a shaping role on the impact of the distance between attached voters' location and party positioning, I have developed further analysis whose results are shown in Figure 6.11a (when attached voters' relevance is not considered) and 6.11b (when attached voters relevance is considered)[144] above.

[144] The regression analyses are reported in Appendix G.

What we can draw from these further analyses is that the personalisation of politics has a braking effect on the impact of an increase in the distance between attached voters and parties only when the conditioning effect of the attached voters' relevance is not considered. Even if an increase in the distance between a party and its attached voters always determine an increase in the sub-optimality of this party's positioning, we can observe that the slope of the two functions is quite different.

More into detail, when the impact of attached voters' relevance is not accounted for, there is a significant and breaking impact of the personalisation of general elections on the negative impact of distance on the optimality of party position taking. On the contrary, when the conditioning impact of attached voters' relevance is included in the regression, the impact of personalisation of general elections loses all its conditioning effect.

Even these further analyses confirm that, in the process of party positioning during the electoral campaign, the impact of leadership evaluation and the personalisation of general elections are not significant. What matters is the relevance and the distance of attached voters, who profoundly condition leaders' strategy.

To conclude, the results put forward by the empirical analysis shows that, among the factors that we have considered in the empirical analysis advanced in the third and this chapter, what counts in party competition is undoubtedly the effect of individual cognitive biases. This means that, even if it would have been possible to expect, in line with the existing literature, that both leaders' evaluation and the personalisation of politics would have played a central role in party competition, such factors seem to vanish in front of the strength of attached voters' pressure and requirements.

Conclusions

The results put forward in this chapter have underlined the fundamental role played by individual biases not only in individual voting behaviour but also in party competition and have thus confirmed the goodness of the main intuition at the base of the Three Biased Actors Model. In particular, both the distance of the party with respect to the attached voters' positioning and also the relevance of parties' attached voter with respect to the entire

electorate are significant and crucial determinants of a more sub-optimal positioning. These results represent a very important innovation for the party competition scholarship.

More specifically, such results confirm the existence of a principal-agent relationship between attached voters and party leaders, according to which attached voters can condition the positioning of a party. This relationship between the party and its attached voters make these latter able to bound the possible location that the party may take during a party competition. Indeed, in the empirical analysis, we have seen that the higher the distance between the party and the voters, the higher the sub-optimality of party positioning.

This result confirms the expectation derived from the Three Biased Actors Model presented in Chapter 5, according to which when the attached voters take a position farer from the party and the point of equilibria, the leader tends to locate the party following the position of the attached voters (that is, more distant from the optimal positioning). Moreover, the fact that this impact gets stronger when the attached voters increase their relevance in the overall electorate of the party further confirms the goodness of the Three Biased Actors Model.

These results are particularly connected with the ones observed in the third chapter, where we have seen that the attached voters give much more relevance to the ideological distance than other voters.

Moreover, if this empirical analysis strongly confirms the determinant role played by attached voters and individual bias, it also highlights that the role of leader evaluation and the personalisation of general elections are not fundamental in parties' competition and position-taking. In this respect, we have seen that leadership evaluation does not have a significant impact on the decision of the leader himself/herself to position the party in a more or less convenient position even if the election is highly personalised. Furthermore, the empirical analysis also shows that the degree of personalisation of politics does not have a particularly impacting role. Indeed, not only does the personalisation of general elections not foster the impact of party leaders' positive evaluation, but additional analyses have shown that its conditioning effect on the distance between parties and their attached voters is not relevant. Indeed, if a higher degree of personalisation of general elections has a braking effect on the impact of the distance between the attached voters and the party's location when the relevance of attached voters is not considered, this effect does not hold anymore when we account in the model also for attached voters' relevance in party's electorate.

To conclude, the empirical analysis we have put forward in this chapter has allowed to deeply understand how parties are located during the electoral campaign. In particular, two elements profoundly innovate the related scholarship: first, attached voters strongly condition parties' position-taking, by braking leaders to take more optimal positioning; second leaders' positive evaluation and the personalisation of general elections do not impact on parties' position-taking, neither favouring or disfavouring more optimal locations. It follows that if it is crucial to introduce in spatial models of party competition the role of attached voters, before arguing that leaders' valence advantages and the personalisation of politics make leaders freer during electoral competitions, some more research should be put forward. This very last element will be at the centre of the conclusion of this dissertation.

Conclusions

Building a unified theory of elections represents a significant concern for the political science scholarship. Not simply, as we have argued in the Introduction, because elections are crucial moments in the democratic life of a country, but also because the spatial model scholarship has rarely put forward a general and encompassing theory of elections that accounts for both voting behaviour and party competition, and also for behavioural and positional factors[145].

Indeed, scholars have mostly put forward studies of single aspects of the electoral sphere (that is, they have separately studied voting behaviour and party competition), and only rarely have spatial models of elections been integrated by behavioural factors. It follows that an encompassing and general theory of elections able to profoundly connect the behavioural and the spatial model scholarships both for the individual voting behaviour and for party competition level is potentially very useful for political science.

As we have already seen in the first and third chapters of this dissertation, this research does not represent the first attempt to connect the spatial scholarship with the behavioural approach to elections. Indeed, the question 'do both non-policy and behavioural factors influence the spatial model of voting?' has been at the centre of several contributions (for instance, see Adams, 2001; Merrill, Grofman and Adams, 2001; Adams, Merrill III and Grofman, 2005; Jessee, 2010; Lachat, 2015a, 2015b; Adams *et al.*, 2017). These works have represented a turning point for the literature of voting behaviour, since they have allowed two scholarships (the spatial model one and the behavioural one focusing on party identification) to positively influence each other.

Nevertheless (as shown in the Introduction and also in the second and fourth chapters of this work), several issues remained neglected both at the theoretical and empirical level, thus making the construction of an overall theory of elections extremely difficult. This dissertation has departed from this point and, by putting forward a novel approach to the

[145] One exception is represented by Adams, Grofman and Merrill III (2005), whose Unified Theory of Party Competition introduces in individual utility functions also a non-policy factor such as partisanship and estimate optimal positions given the novel indiviudal utility function.

study of voting behaviour (that is, the Biased Voter Model) and party competition (that is, the Three Biased Actors Model), has aimed at presenting an encompassing and general model of election.

This final chapter will be devoted to summarise the main innovations that this dissertation has introduced in the spatial model approach and, more in general, in the electoral behaviour scholarship. Moreover, in addition to the presentation of the theoretical and empirical pieces of evidence put forward in this work, a second, and to a certain extent even more important, concern is related to the identification of possible future strands of research that depart from this study.

Indeed, as we have seen in the Introduction, in the empirical Chapters 3 and 6, and in Appendix H, several novel and fascinating research questions can be easily derived from the theoretical and empirical pieces of evidence of the Biased Model of Elections, demonstrating that this dissertation might represent a determinant step for the construction of novel and sophisticated theories of election.

Therefore, this concluding part is organised as follows: the next section will be devoted to the discussion of the theoretical propositions advanced in this study; then, the empirical results presented in the third and the sixth chapters of this dissertation will be presented; in the third section, I will discuss the consequences of this study for the electoral scholarship, by arguing that dynamic, more in-depth, and case-study-related applications of the Biased Model of Elections represent the natural continuation of this research; finally, in the last section, I will support the relevance of this study also for other branches of research in political science and draw the main conclusions of this work.

What have we seen?

Among the issues neglected by the literature that have not allowed for the definition of an encompassing and general theory of elections, two issues have been particularly important, and have also been crucial for this dissertation: first, the impact of individual bias toward/against parties in voting behaviour; second, the consequences of voters' biased nature at the party-competition-level. It is for this reason that the overall framework of analysis presented in this study has been called the Biased Model of Elections.

Let us start from the first issue. If, at a first glance, the impact of individual bias might appear as not decisive for a general theory of elections, we have seen, along all this work, that individuals' bias is a fundamental factor in determining electoral results, both at the individual and the party competition level. In particular, we know that the introduction in the individual utility function of a non-policy factor such as partisanship has represented one of the most relevant innovations put forward in the last decade (Merrill III et al., 2001; Adams et al., 2005; Lachat, 2015b). At the same time, we have seen that there are many reasons to argue that the way in which non-policy factors and individual bias have been introduced in spatial models of voting could have been perfectible.

Indeed, if party identification only operationalises voters' positive inclination toward a single party, it does not allow to discover anything about voters' inclinations toward all the other parties competing for elections. In addition, we also know from the psychological and inter-group relations literature (Tajfel & Turner, 1979; Sacchi et al., 2013) that individuals have different degrees of positive/negative inclination with respect to the different groups they face, and that such different levels of bias toward/against groups influence the way in which individuals evaluate a number of factors influencing their voting behaviour. Naturally, this holds also for the evaluation of political parties. On this respect, the spatial model framework presented in this study (that is, the Biased Voter Model) includes an original operationalisation of individual bias that acts as conditioning factor for voters' evaluation of the ideological proximity of the voter from the parties and for the leadership evaluation. These two elements (that is, the operationalisation of individual bias and its conditioning effect) have allowed to put at the centre of the Biased Voter Model a non-policy factor and to estimate to which extent individual bias are determinant in the vote.

Furthermore, the second relevant element that has been considered in the development of the Biased Model of Elections is the impact that voters' biases have on the party competition. This is unusual for the spatial model scholarship. Indeed, even the recent contributions that that have encompassed non-policy factors in parties' utility functions have considered voters as marginal actors in the party competition.

More into detail, scholars have always assumed that voters would not have taken part in the party competition, and that their role would have been confined to casting the ballot on the electoral day. In fact, in these models, parties take for granted the distribution of the voters on the positional dimensions and compete only by taking into consideration the

variation of their opponents' positioning. Consequently, even if the introduction of non-policy factors in voters' utility functions lead to the prediction of different optimal party positions compared to the ones predicted by the classical Downsian model, also in this cases parties take positions by following a dominant strategy and by taking into account, given a certain distribution of voters, only the variation in their opponents' placements (see as instance Adams, Merrill III & Grofman, 2005).

Nevertheless, we know that the empirical reliability of such expectations is highly questionable: during electoral competitions, parties difficultly adopt the optimal positions predicted by spatial models. Therefore, it might be that there is something at work not to make parties take optimal positions.

In this dissertation, I have extensively argued that this neglected factor is the individual bias. More into detail, a party does not take an optimal position because of the active role of the voters who are positively biased toward this party. Indeed, according to the Biased Voter Model presented in the second chapter, the voters who are positively inclined toward a party (that is, its attached voters) are profoundly interested in ideological proximity and, consequently, want the party they prefer to adopt the most ideologically close position.

It follows that, by acting as the principal of the party's leader, its attached voters engage a reputational game with the party leader during the electoral campaign. According to this reputational game, if the distance between the party's placement and the average location of the attached voters increses, the attached voters will criticise the decision of party leader more strongly. In fact, in such situation, the decision of their agent differs from their expectations and preferences and this, in a non-cooperative game structure, represents a great incentive for a player to inflict a punishment to his/her agent. Attached voters' critiques condition the general evaluation of the party leader, which is, in turn, a decisive element not just for the attached voters, but for the entire electorate.

It follows that, in such a situation, a leader who cares about voters' positive evaluation of his/her personality would be particularly interested not to be criticised by attached voters. So, the leader will not position the party only according to a pure vote-seeking strategy, but will also consider attached voters' placement, since their behaviour could be dangerous for party's electoral results. Consequently, whether the party is located farer or closer from its attached voters and whether the attached voters are more or less relevant in the party electorate, they will be more or less able to condition the party's placement. That is, the

degree of a party placement's sub-optimality will be connected to the characteristics and the positioning of the party's attached voters.

Empirical Evidence on 56 West European elections

The empirical results presented in the third and sixth chapters are profoundly interesting for the electoral scholarship. Indeed, both the empirical tests (that is, the test of the Biased Voter Model and of the Three Biased Actors Model) have confirmed the goodness of the theoretical framework advanced in this dissertation and have also put forward many pieces evidence which are profoundly fascinating both from a spatial and a behavioural perspective.

Moreover, the analyses have been put forward on a dataset that account for 56 electoral competitions in 15 West European countries since 1995. The high number of countries, elections, and parties make the results of the empirical analyses particularly reliable and generalizable. All in all, it is possible to conclude that the empirical analyses have confirmed the theoretical expectations advanced by the Biased Voter Model in the second chapter and by the Three Biased Actors Model in the fifth chapter.

Let us start from the Biased Voter Model. As expected, the empirical analysis has confirmed the fundamental and conditioning role of individual party bias. More into detail, a multilevel logistic regression has shown that not only does a higher degree of individual bias against a party negatively affect the probability to vote for such party, but has also proved that such bias shapes the impact of all the other factors included in each voter's utility function. In particular, the empirical analysis has underlined that to higher degrees of individual bias against a party, the proximity-related and the leader-related dimensions lose salience in the utility function of the voter.

This means that if a voter is biased against a party, he/she will be less shaped by the ideological distance and leader evaluation related to that party, since he/she will be more conditioned by his/her pre-existing bias against the party. More into detail, we have seen that the higher the amount of bias against a political party, the lower the negative impact of an increase in the ideological distance between the voter and the party. Then, the higher the amount of bias against a political party, the lower the positive impact of a higher evaluation of political leader. At the same time, it should be noticed that both the ideological distance

and leadership evaluation have the expected coefficient when they are not shaped by the individual bias (respectively, a negative and a positive one).

Passing to the empirical test of the Three Biased Actors Model of party competition, the analysis has confirmed the theoretical propositions of the model. Indeed, a multilevel linear regression has shown that when the attached voters are placed, on average, more distant from the party, the party leader tends to locate his/her organisation farer from the optimal placement[146]. In other words, he/she follows the attached voters in order not to obtain a higher amount of criticisms. So, if the attached voters are located farer from the party, the party has fewer incentives to adopt vote-seeking strategies during the electoral campaign. This is linked to the relevance that attached voters have during an electoral campaign, whose role cannot be confined, as existing works have done, only to passive actors who cast a ballot during the election day.

Moreover, the impact of the distance between the attached voters' average placement and the position of the party on a sub-optimal location gets stronger when the importance of the attached voters increases. And this is a further confirmation of the active role played by the attached voters. Indeed, when the attached voters get more relevant within the party's electorate, and when their positioning is not dispersed on the positional continuum, the positive impact of the distance between such attached voters and the party on the increase of the party's sub-optimal positioning gets stronger. In other word, when attached voters share the same positioning and represent a high percentage of the party's electorate, their impact gets stronger.

Passing to the impact of party leader's evaluation, the analysis of the second part of this dissertation has shown that an increase in the positive evaluation of the leader has not an effect on party placement's sub-optimality. This further confirms the relevance of attached voters, whose characteristics are (along with more radical party placements) the only factors that significantly affect the position of the party.

In addition to the impact of individual factors in the Biased Voter Model and the role of attached voters and party characteristics in the Three Biased Actors Model, this work has also advanced a novel theoretical approach to the personalisation of politics, and has

[146] For an explanation of why parties are placed on the left/right continuum by the party leader, please see the discussion in the fifth chapter.

tested a number of expectations on the impact of the personalisation of general elections on voting behaviour and party competition.

This is linked to the fact that the personalisation of politics has become one of the most important topics in political science in the past decades, and several branches of research in have started to consider it as a crucial factor to investigate. Moreover, the personalisation of politics can be considered as a crucial factor especially in a study, like mine, testing a spatial model of elections, where the individual bias toward parties is determinant. Indeed, when the personalisation of the general elections gets more and more relevant, the impact of leader-related factors should acquire importance (both in the Biased Voter Model and in the Three Biased Actors Model), while more party-related factors (such as individual bias against parties) should decrease their salience (in this case, solely in the Biased Voter Model).

To the best of my knowledge, this is the first time that the personalisation of politics, as an independent factor, is introduced in a spatial model of voting and in an empirical research on the determinants of voting behaviour. Most of the scholars of electoral behaviour have overlapped the concept of personalisation of the general elections with the leader effect. On the contrary, in this dissertation, I have argued that an increase in the personalisation of general elections represents one of the determinants of a higher leader effect. This has been possible only to thanks to the results of a recent expert survey (Marino, Martocchia Diodati and Verzichelli 2017), which has in-depth studied the degree of personalisation of general elections all over Western Europe since the mid-80ies.

First of all, let us focus on the impact of personalisation on individual voting behaviour. In this case, we have seen, in the third chapter, that the personalisation of general elections is a decisive element able to shape voters' choice determinants profoundly. In particular, the empirical analysis of the third chapter has confirmed that when the personalisation of general elections gets more relevant, an increase in a leader's evaluation positively affects the probability to vote for such leader's party more and more significantly. At the same time, the empirical analysis has shown that an increase in the personalisation of general elections leads to a decrement of the conditioning effect of the individual party-related bias, which always affects the impact of leadership evaluation, but it does so in a less relevant way. This means that, first of all, the higher the personalisation of general elections,

the higher the impact of leadership evaluation; moreover, the higher the personalisation of general elections, the lower the conditioning impact of bias against a party.

Conversely, if the personalisation of general elections has a relevant say on individual voting behaviour, the empirical analysis of the sixth chapter has shown that it does not have any influence on the strategy of parties during an electoral campaign. Indeed, the only factors that profoundly affect the sub-optimal placement of parties are represented by the location of attached voters and by their relevance and concentration. Therefore, even if this result somehow questions the real impact of the personalisation of politica at the party positioning level, it also confirms the goodness of the intuition at the base of the Three Biased Actors Model: voters have a crucial say in party competition.

Toward a dynamic theory of elections

The results put forward in the third and sixth chapters have confirmed the goodness of the biased models of elections proposed in this work. This represents a relevant step toward a more precise comprehension of elections for a number of reasons.

In particular, the introduction of a variable able to operationalise individual bias in a spatial model of voting represents a decisive innovation in the field. Indeed, thanks to such factor, it has been possible to test whether, and to which extent, pre-existing and party-related preferences can shape voters' behaviour. Differently from the existing operationalisations, the individual bias operationalised in this research have empirically translated the comparative reasoning that voters make when they evaluate parties.

Indeed, voters consider parties in light of the evaluation of the party they are most biased toward, and this has relevant consequences on the individual inclination toward parties and on voting behaviour itself. Moreover, the conditioning role played by individual bias on the impact of ideological distance and leadership evaluation (also in light of the degree of personalisation of general elections) represents a profound novelty in the panorama of voting behaviour. In fact, not only has the empirical analysis shown the predominance of individual party-related bias with respect to leadership evaluation's impact, but it has also proved that when individual bias is considered as a 'filter' for voters' evaluation of leadership and ideological proximity, we grasp a clearer picture of electors' voting behaviour.

Furthermore, if the conditioning role of individual bias could represent a major result, a further innovation put forward by this dissertation is connected to the fact that not only is individual bias relevant in individual voting behaviour, but it also plays a decisive role in party competition.

As we have seen in the fifth chapter, the presence of individual bias makes a number of voters affectively linked to a party. Moreover, this involves a greater attention on ideological proximity. In turn, the fact that such voters particularly care about ideological proximity lead them to more profoundly consider leaders' party's placement and, in certain circumstances, to condition the leader's behaviour actively.

Indeed, the high utility loss they would face in front of a distant party positioning might profoundly affect the probability for these voter to vote for the party they prefer. Nevertheless, exactly because of the affective relationship that connects such voters with the preferred party, these voters would firstly try to condition the party leader and make him/her position the party closer to their location.

All in all, the findings of the empirical test of both the models advanced in this dissertation represent two relevant innovations, since they have allowed to show the relevance of a key factor such as the individual bias and, more generally, to put forward a general theory of elections.

Nevertheless, there is a further and decisive element that signals the importance that this dissertation can have in the panorama of electoral research. Indeed, by showing a different structure of competition with respect to the ones already presented in the literature, this dissertation represents a necessary step to develop more country-related, dynamic, and in-depth spatial analyses.

More specifically, one of the limits of the spatial models of party competition is connected to their static nature. Indeed, as we have seen in the sixth chapter and in Appendix H, game-theoretical spatial models of party competition predict the final positions of the parties when the game reaches a Nash equilibrium. This 'static' nature of the spatial models of party competition might represent a limit from an explanatory point of view.

In particular, a number of novel contributions 'see politics as a continuously evolving dynamic process that never settles at some static equilibrium' (Laver & Sergenti, 2011, p. 18) and analyse the electoral competition through agent-based models. According to such perspective, parties change position continuously on a policy-based space by following

specific strategies and, in specific moments, this could also involve that they adopt positions far away from their best ones. In addition to this first point, we can also enumerate a number of other differences between classical spatial models and agent-based ones.

First of all, agent-based models are positively characterised by making it possible to observe the dynamics of the electoral competition. At the same time, this prevents scholars to perform comparative analysis aimed at investigating party positioning in a straightforward way. Indeed, given that, in agent-based models, parties do not have an 'optimal' or 'actual' positioning, it is particularly difficult to analyse comparatively the determinants of a certain position. Nevertheless, if this might represent a limit for such type of analysis, it is also true that the identification of the strategies adopted in different moments of the political campaign represents a turning point for the electoral research[147]. This has a profound impact on the results of the elections and on the structure of the party competition. Indeed, a different structure of parties' strategies, proposals, and positioning might have a different impact on the utility functions of voters, and, consequently, a different impact on voters' electoral choice.

Although agent-based models represent one of the most innovative tools for studying party competition, the analyses based on such perspective share with the classical spatial models of party competition the assumption according to which voters take part to the electoral competition only by casting their vote on the election day. At the same time, this dissertation has shown that this is not necessarily true, at least in Western Europe in the last 20 years. This represents a crucial element for the study of spatial party competition, since the results we have put forward in the second part of the dissertation profoundly question the underlying assumptions of the classical model of spatial party competition. Then, the Three Biased Actors Model, that has empirically disconfirmed such assumption, has represented a necessary step to advance novel research questions aimed at developing novel dynamic models of party competition. Such models should able to adequately explain party competition and correctly predict party strategies without ignoring the crucial say of attached voters.

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[147] Indeed, as we have seen in the Appendix H, parties do not adopt the strategies along all the period preceding the elections. This element reveals the variation in party strategy as the time pass by and the elections get closer.

Therefore, introducing into dynamic analyses of party competition the theoretical innovations put forward by this dissertation would allow developing more precise and in-depth analyses on elections. For instance, it will be possible to verify whether the conditioning effect of individual party-related bias would acquire importance in voters' behaviour as time passes by during an electoral campaign. Indeed, can we really expect that those voters who decide which party to support at the beginning of the electoral campaign are conditioned by party-related bias in the same way as late-decider voters?

Moreover, It will also be possible to understand whether there is a relationship between the strategies put forward by parties and the explanatory factors of the individual voting choice. Indeed, as I have underlined several times in this dissertation, the two sides of the electoral market should be not seen as independent dimensions. That is, whether the individual bias acquires relevance or not might be strictly connected to the strategies adopted by the different parties during the electoral campaign. For instance, we could hypothesise that voters would be more sensitive to positional issues in situations where parties maintain more static positions during the electoral campaign, or that leadership evaluation becomes more salient in voters' utility function when parties vary ideological placement frequently.

At the same time, also a variation in the impact of individual bias on voters' behaviour might affect the impact of attached voters' criticisms on parties positioning. Indeed, let us imagine that the impact of leader evaluation is particularly decisive in voters' utility functions during a specific period of the electoral campaign (say, the last week). In such a situation, the marginal impact of a decrease in leader evaluation given by the attached voters' criticisms would represent an even more problematic issue for parties, given the proximity to the election day. Moreover, since a better evaluation of a leader would profoundly affect voters' behaviour, those leaders with a higher average evaluation will have incentives to take advantage of such condition, by either following attached voters or take more optimal positions. Putting forward such results would represent an essential innovation in the field of party competition. Indeed, not only would we see whether certain factors have a differentiated impact according to the period preceding the elections, but it would also be possible to estimate the variation of parties' (sub-)optimal positioning during an electoral campaign.

Moreover, by performing a dynamic and in-depth analysis, it will be possible verifying whether the results found in the comparative analysis put forward in this dissertation hold

in single cases and also whether the expectations of the Biased Voter Model also holds by considering different issues (in particular, positional issues like the financial crisis and the immigration, ore more valence related ones like the economic growth and the fight to corruption). More specifically, introducing into the Biased Voter Model a number of incentives connected to more issue-based theories of party competition would represent a further refinement of the models presented in this dissertation. Indeed, if a number of works have already connected spatial models with issue-based ones (Lachat, 2014), the introduction of issue-based incentives in a spatial model of competition would represent a further innovation in the field, especially in light of the empirical evidence in favour of the Three Biased Actors Model.

In line with this reasoning, we could also expand the preliminary analysis developed in Appendix H, and verify whether, in front of attached voters' and opponents' positions on several issues, parties behave in different ways. Do parties politicise about specific issues more in terms of valence or positional issues (Stokes, 1963, 1992; Clarke et al., 2004; Clark, 2009)? And why do they decide to attack their candidates via negative campaign? These are questions that have already been approached by different strands of literature (Walter, 2013; De Sio, De Angelis and Emanuele, 2017). Nevertheless, whether the answers to such questions might be influenced by the attached voters' positions and the spatial incentives given by parties' opponents might represent two further questions descending by making Appendix H interact with the Three Biased Actors Model presented in Chapter 5.

All these possible novel research questions confirm the relevance of the argument put forward in this dissertation. Moreover, outlining these novel and fascinating research questions (that could be applied to single case studies or to comparative analyses) would have been impossible without the theoretical innovations and the empirical findings that this dissertation has put forward. Indeed, if the impact of individual comparative bias on voting behaviour and the relevance of attached voters during the party competition had not put forward, we would have not been able to advance a model of party competition able to formalise both the structure of individual utility function and the incentives at the base of parties' strategies adequately.

Consequently, what has been put forward in this analysis is a necessary requirement for a development of more case-sensitive and in-depth analyses of voting behaviour and

party competition, able to account also for the consequences of individual bias from different standpoints.

Beyond the electoral scholarship

In addition to what we have seen until now, the results put forward in this dissertation could also represent a relevant element for studies dealing with other research branches in political science. Indeed, in the sixth chapter, we have seen that attached voters are crucial actors in party competition, since they condition parties to adopt sub-optimal positions. Nevertheless, in front of such relevance, parties could also find new and efficient strategies to decrease attached voters' blackmail potential and, at the same time, increase the autonomy of their leader, especially in party position-taking.

One of such possibilities is to increase the legitimisation of party leader to decrease the impact of attached voters' criticisms. One of the ways to reach such goal is making the leader to be selected by a more inclusive selectorate (Lisi, 2010; Sandri, Seddone, & Venturino, 2015). Indeed, thanks to the selection by wider selectorate, a leader might have a higher degree of autonomy and, in front of attached voters' criticism, he/she might also underline that, since he/she has been selected by his/her party' 'people' (especially if the selectorate includes members of the party or of the electorate), he is legitimised to place the party on the most convenient position. indeed, we know that more open party leader selection rules are one of the factors that make leaders more autonomous in positioning the party with respect to the intra-party groups (Ceron, 2012), other players who aim at conditioning the decisions of the party leader. Therefore, we can imagine that by adopting such a strategy, parties (and party leaders) will be able to reduce the pressure of both factions and attached voters concerning party positioning. Perhaps, this would also be a possible way to address to a further issue: the fact that party leaders have to deal, at the same time, with two players aiming at conditioning party positioning (factions and attached voters). What happens if factions take much more polarised positions with respect to the party's attached voters? How can leaders consider both players? And which of the two actors is more powerful?

As the reader can see, several novel research questions can be drawn from the results we have seen in this dissertation. Moreover, they go far beyond the scope of this research.

This does not only represent a fundamental issue for a research plan connected to the main topic of this dissertation, but also confirms the importance of this research, which might be considered as a possible turning point for the definition of several research proposals.

To conclude, this dissertation has had two main objectives: advancing a novel model of voting behaviour able to adequately account for individual bias, and verifying whether it would have been possible to put forward a formalised model of party competition able to account for the role of biased voters. The formalisation of the Biased Voter Model and of the Three Biased Actors Model have allowed reaching such aims by showing that, on the one hand, voters evaluate party platforms and leaders conditioned by a relative bias (as shown by the Biased Voter Model). On the other hand, by looking for the empirical consequences, on party competition, of individual party-related bias, the Three Biased Actor Model has shown that when a party's attached voters are located not particularly close to the party's positioning, this party's leader tends to locate the party closer to the attached voters' position, thus adopting a less optimal position. The relevance of these findings and the highly generalisability of the analysis make this dissertation only a starting point for further analyses. But this will be another story.

Appendices

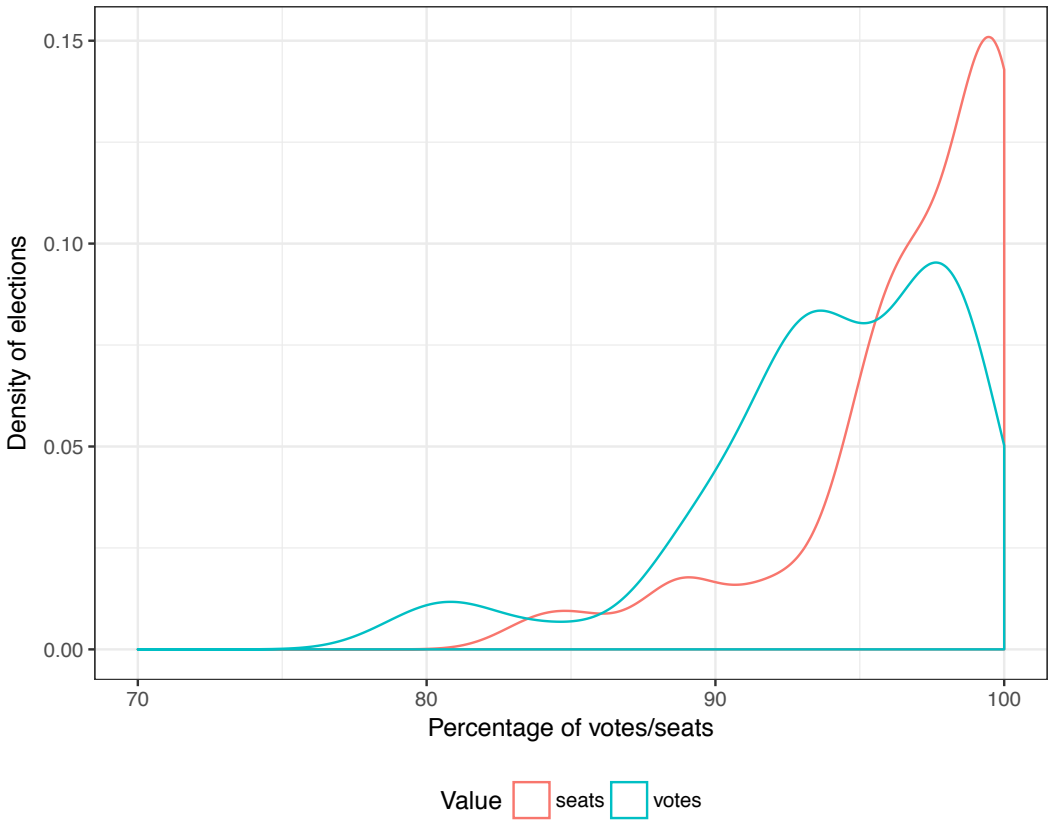
Appendix A: elections and parties considered in the empirical analysis

A.1 List of parties per election

Country	Parties
AUSTRIA	Alliance for the Future of Austria, Austrian People's Party, Freedom Party of Austria, Social Democratic Party of Austria, Team Stronach, The Greens, The New Austria
DENMARK	Centre Democrats, Christian People Party, Conservatives, Danish People, Green, Liberals, New Alliance, Radical Left, Red-Green, Social Democrats, Socialist People
FINLAND	Centre Party, Christian Democrats, Green League, Left Alliance, National Coalition Party, Social Democratic Party Of Finland, Swedish People's Party In Finland, True Fennies
FRANCE	Democratic Movement, French Communist Party, Greens, National Front, Socialist Party, Union for a People's Movement
GERMANY	Alliance 90/Greens, Alternative For Germany, Christian Democratic Union, Christian Democratic Union /Christian Social Union, Free Democratic Party, Left, National Democratic Party of Germany, Social Democratic Party
GREECE	Coalition of the Radical Left, Communist Party of Greece, Democratic Left, Ecologists- Greens, Golden Dawn, New Democracy, Pan-Hellenic Socialist Movement, Popular Orthodox Rally, The Coalition of the Radical Left, The Communist Party of Greece, The Independent Greeks
ICELAND	Bright Future, Civic Movement, Icelandic Movement, Independence Party, Left, Liberal Party, Pirate Party, Progressive Party, Social Alliance Party
IRELAND	Fianna Fail, Fine Gael, Green, Labour, Progressive Democrats, Sinn Fein
NETHERLANDS	Christian Democratic Appeal, Christian Union, Democrats 66, Green Left, Labour Party, List Pim Fortuyn, Party for Freedom, People's Party For Freedom and Democracy, Political Reformed Party, Socialist Party
NORWAY	Centre Party, Christian People's Party, Conservative Party, Labor Party, Liberal Party, Progress Party, Red Electoral Alliance, Socialist Left Party

PORTUGAL	Left Block, Popular Party, Social Democratic Party, Social Democratic Party + People's Party, Socialist Party, Unitarian Democratic Coalition
SPAIN	Convergence and Union, Popular Party, Spanish Socialist Party, United Left
SWEDEN	Centre Party, Christian Democrats, Conservative Party, Democrats, Feminist, Green, Left Party, People Party's Liberals, Social Democratic Worker's Party
SWITZERLAND	Christian Democrats, Conservative Democratic Party, Freethinking Democrats, Green Liberal Party, Green Party, Social Democrats, Swiss People's Party, Ticino League
UNITED KINGDOM	Conservative Party, Labour Party, Liberal Democrats, Plaid Cymru, Scottish National Party, UK Independent Party

A.2 Percentage of votes and seats considered in the empirical analysis

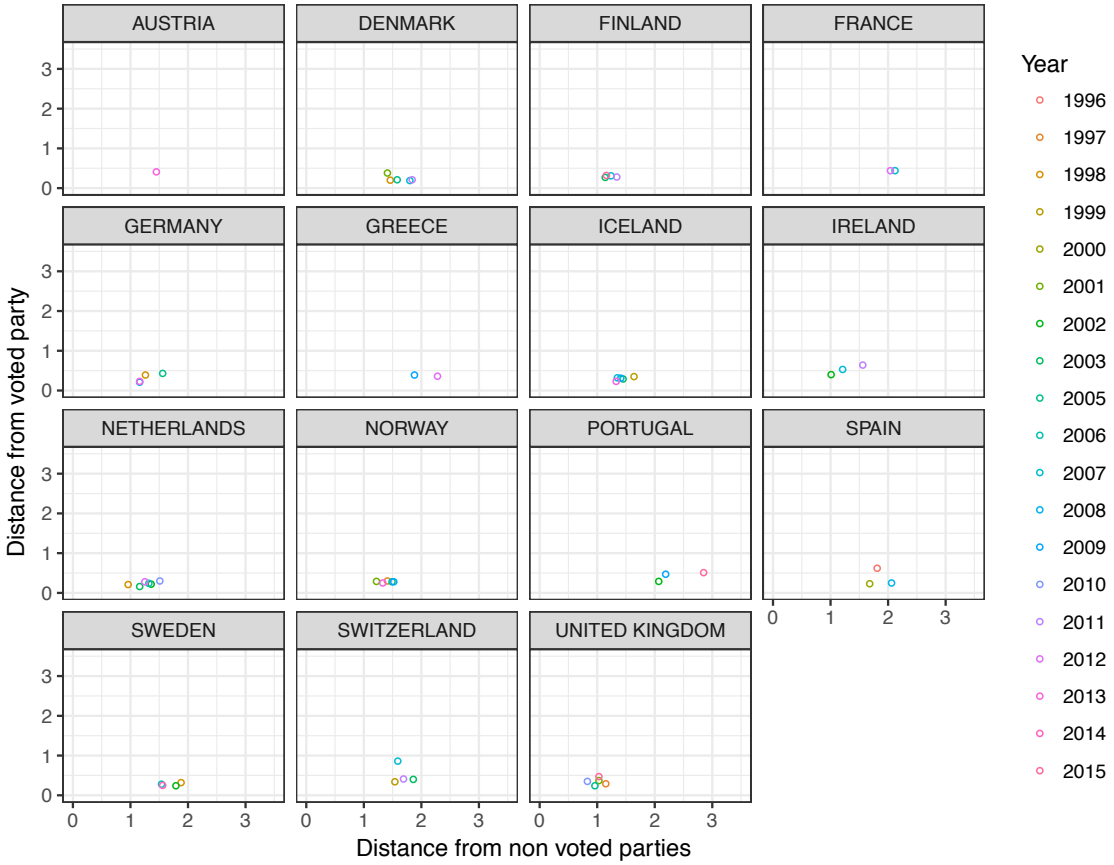


Appendix B: Descriptive statistics for the Biased Voter Model

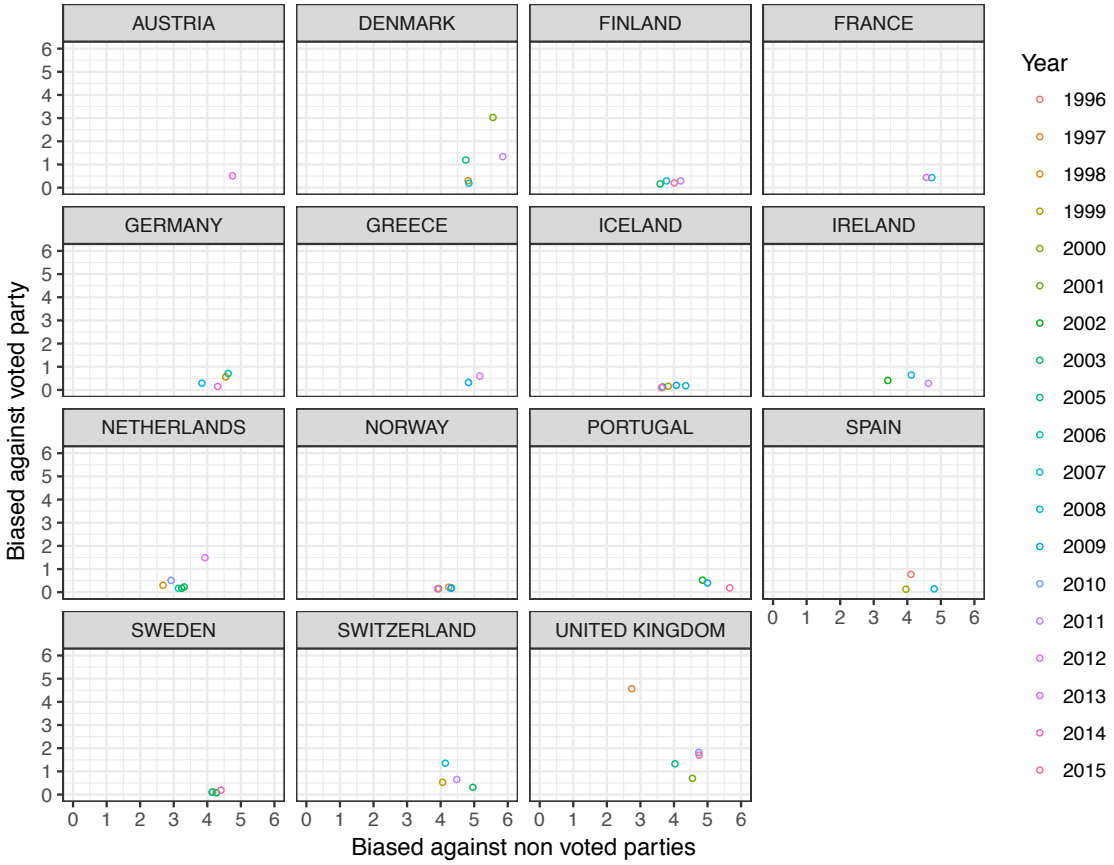
B.1 Descriptive Statistics

Variable	Mean	SD	Min	Max	N
Vote	0.169	0.374	0	1	376303
Age	48.971	16.401	19	99	376303
Gender	1.477	0.499	1	2	376303
Education	2.285	0.697	1	3	376303
Ideological proximity	1.303	1.873	0	10	376303
Bias against party	3.678	2.920	0	10	376303
Evaluation of leader	4.991	2.751	0	1	376303
Personalisation of general elections	6.094	0.978	4	8.333	376303

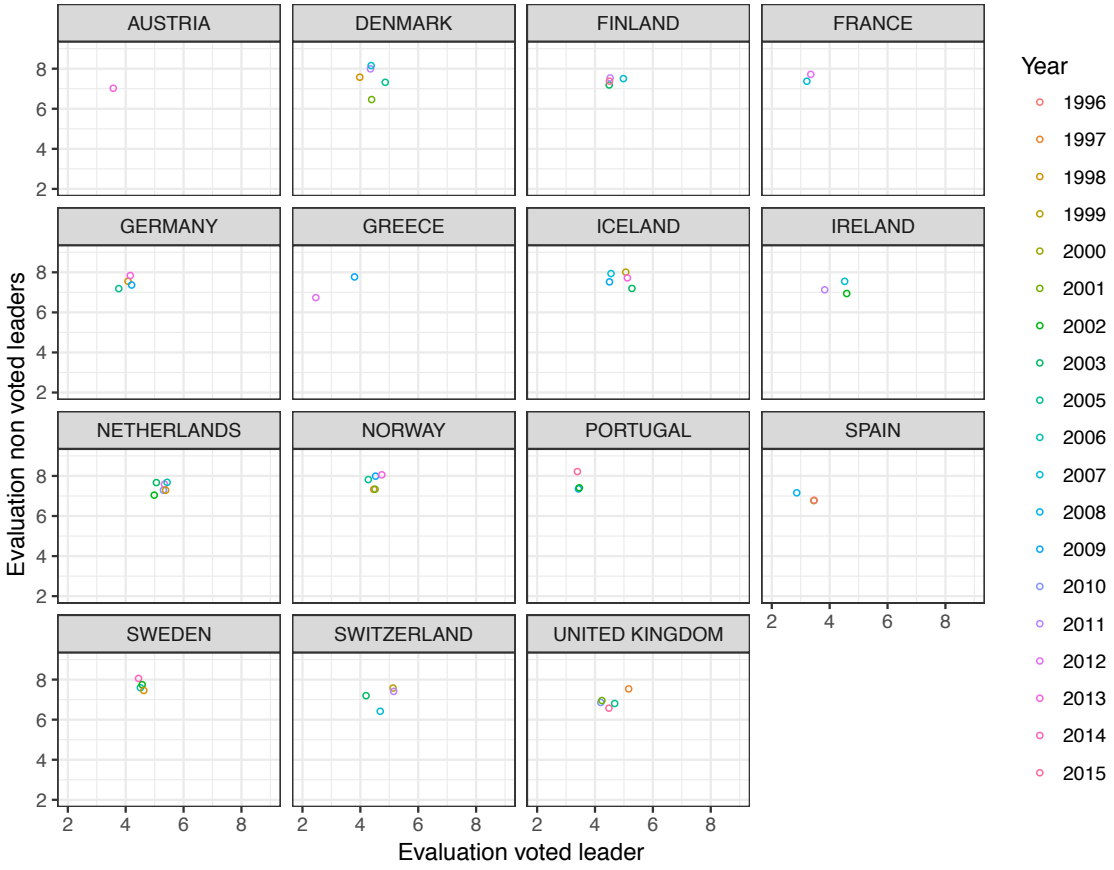
B.2 Descriptive Figures – Ideological Distance



B.3 Descriptive Figures – Individual Bias



B.4 Descriptive Figures – Leader Evaluation



Appendix C: Empirical test of the Biased Voter Model

C.1 Models used for the Likelihood Ratio Test

	Generalised Linear Model	**Generalised Mixed Linear Model**
Constant	-1.703***	-1.605***
	(0.004)	(0.051)
AIC	322339	316046
BIC	322349	316068
Log Likelihood	-161168.4	-158021.2
N.	376303	376303
Group: Elections ID		56
Variance (Intercept)		0.172

***p < 0.001, **p < 0.01, *p < 0.05; Log-odds reported; Standard Error in parentheses

C.2 Multicollinearity test for the Biased Voter Model

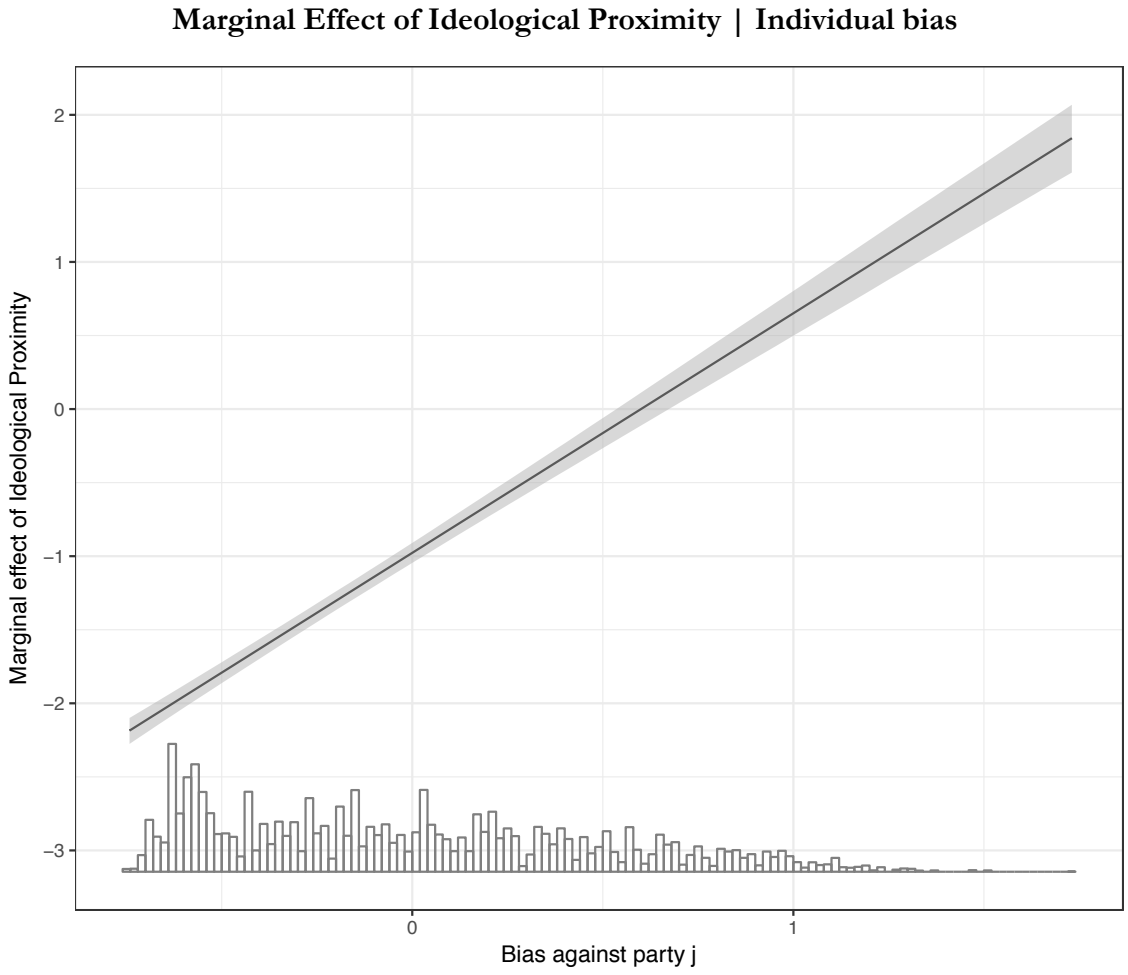
Variable	VIF
Age	1.036
Gender	1.003
Education	1.035
Ideological proximity	1.014
Bias against party	1.075
Evaluation of leader	1.070

C.3 Multicollinearity test for the Personalised Biased Voter Model

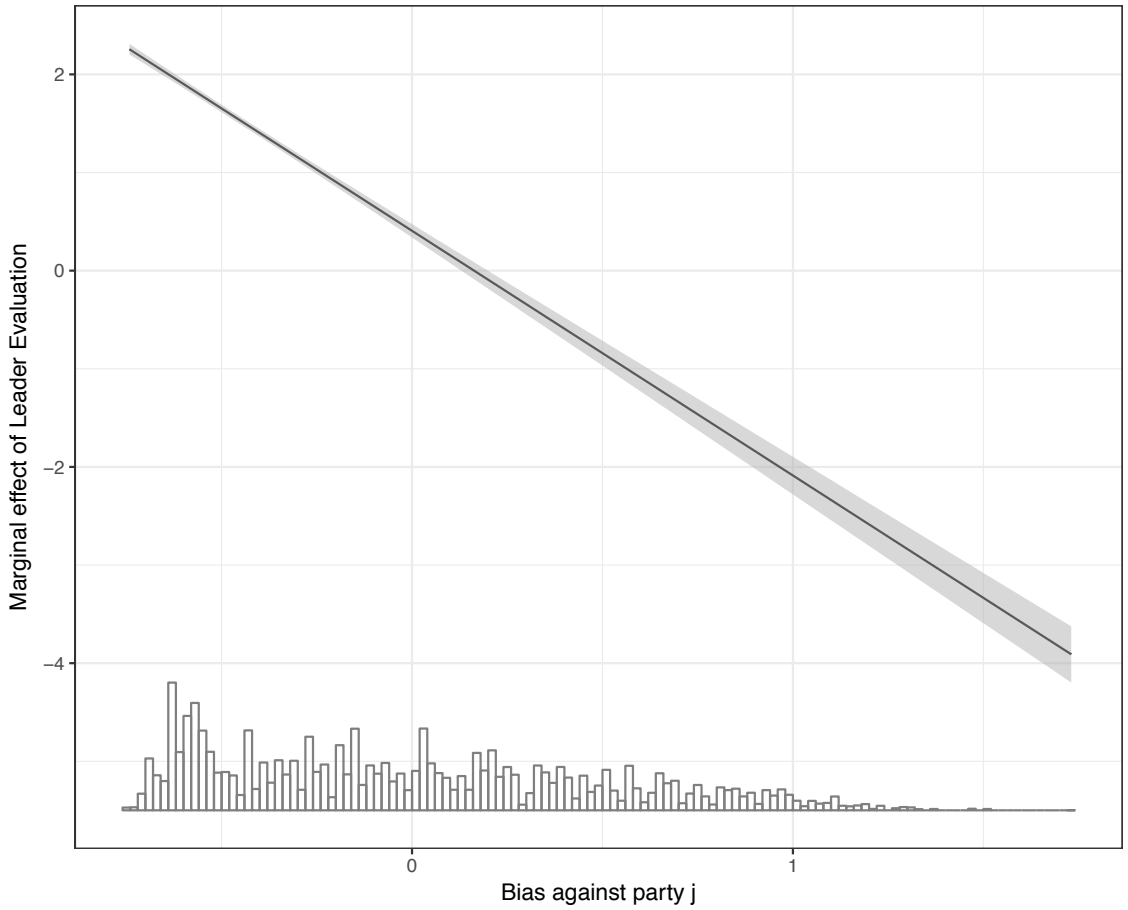
Variable	VIF
Age	1.036
Gender	1.003
Education	1.035
Ideological proximity	1.014
Bias against party	1. 076
Evaluation of leader	1.070
Personalisation of General Elections	1.000

Appendix D: Post-estimation plots - Biased Voter Model

D.1 Margins plot of interaction terms

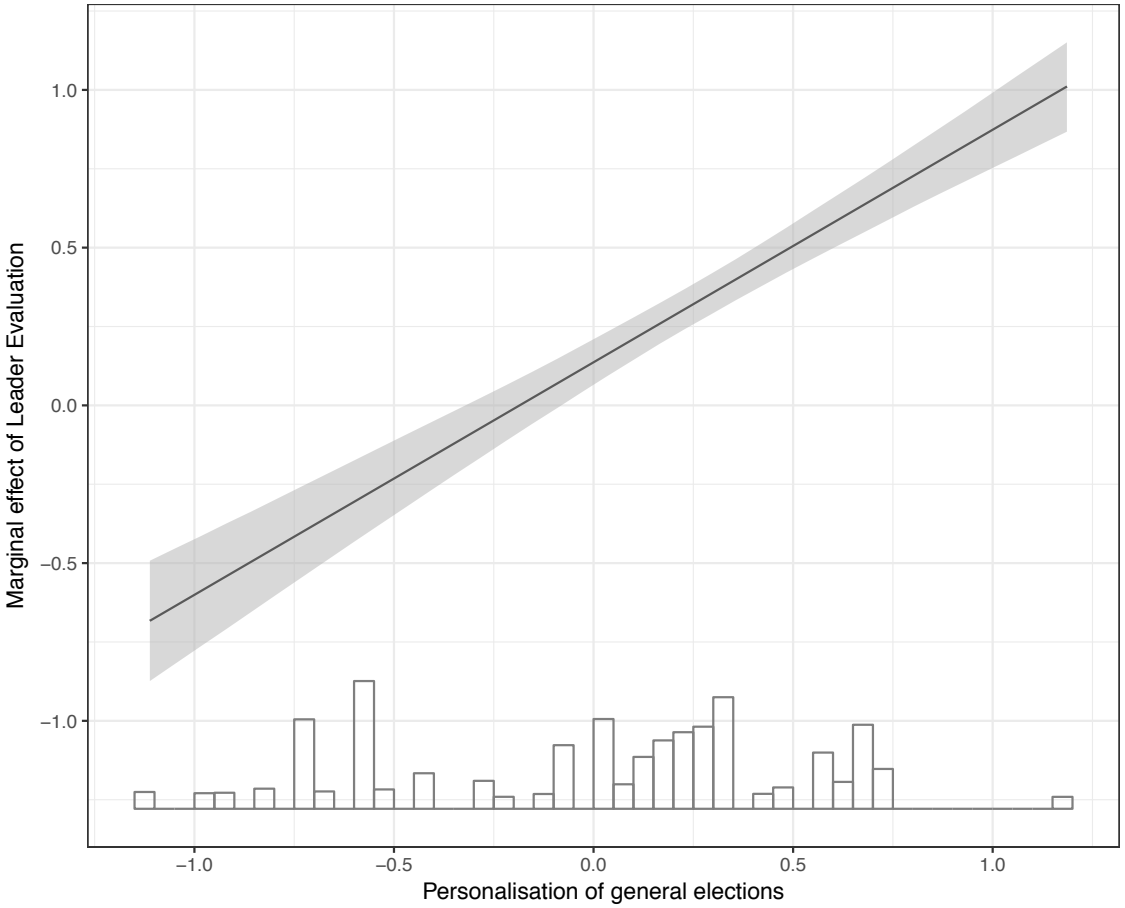


Marginal Effect of Leadership Evaluation | Individual bias

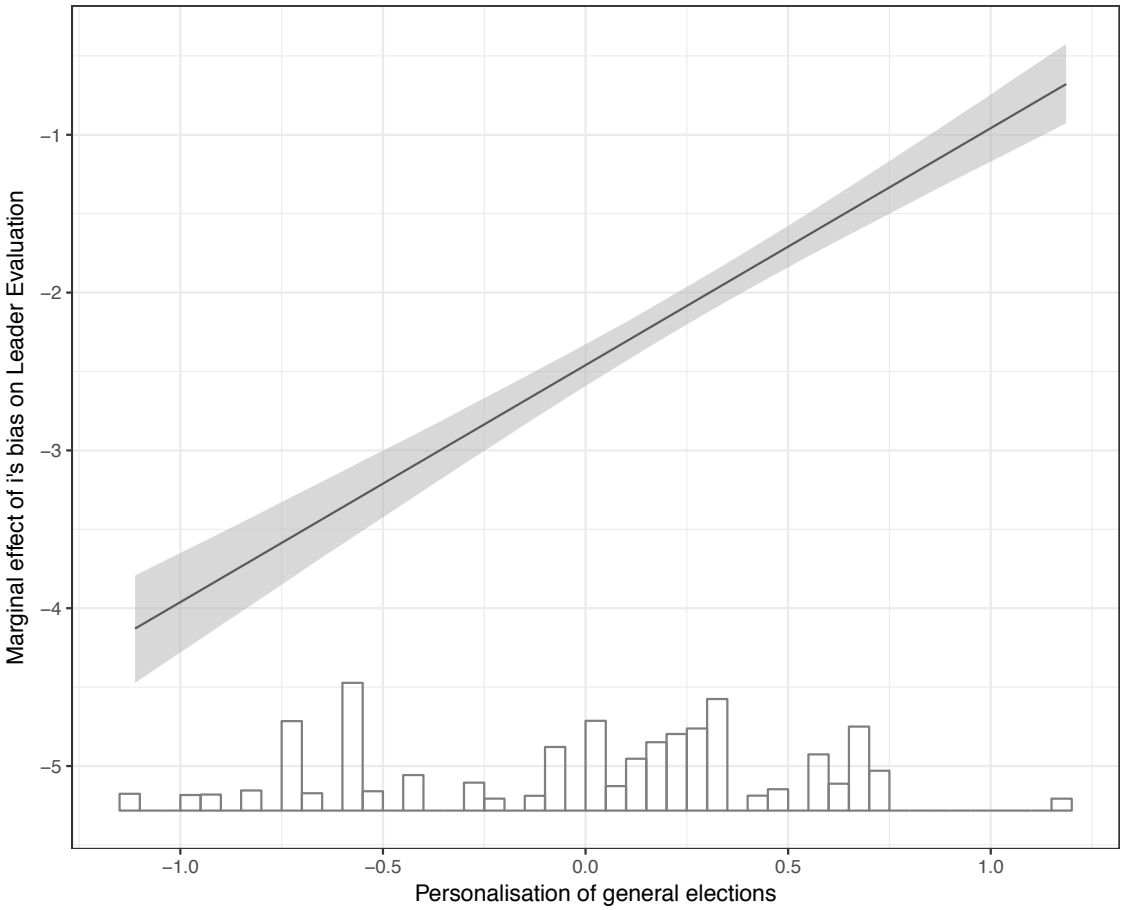


D.2 Margins plot of interaction terms

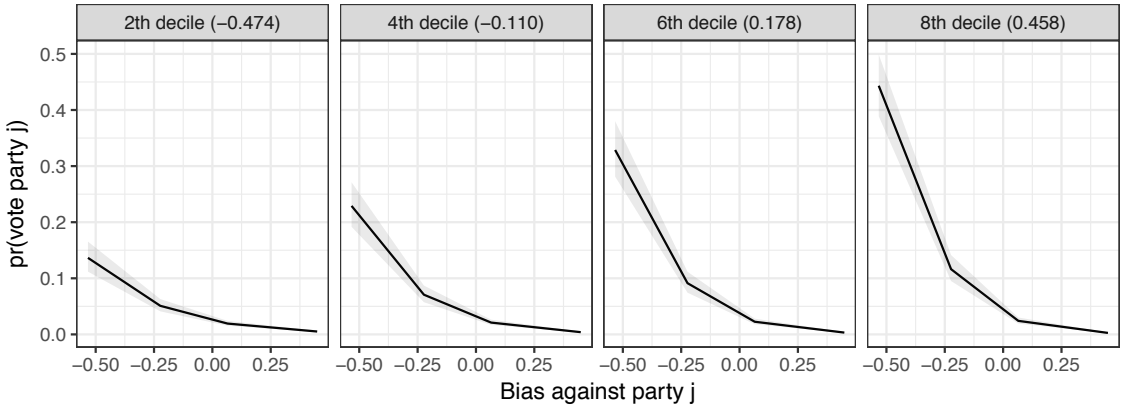
Marginal Effect of Leader Evaluation | Personalisation of General Elections



Marginal Effect of Individual bias * Leader Evaluation | Personalisation of General Elections



D.3 Predicted probabilities of Individual Bias controlling for Leader Evaluation



As the figure reported above clearly shows, the impact of an increase in the individual party-related bias relevantly increases as the evaluation of party leader is higher. This means that a negative bias toward a party shapes individual's probability to vote for a party in a more and more significant way when a voter more positively evaluates party's leader. Nevertheless, if we compare the figure shown in this appendix with Figure 3.10 in the text, we see a relevant difference.

Indeed, as Figure 3.10 shows, the impact of leader evaluation on the probability to vote for a party is nullified when the voter is highly biased against the party under evaluation. This means that the impact of a negative bias against a party is relevant enough to make leader evaluation not impacting the elector's voting probabilities.

On the contrary, by looking at the figure reported above in this appendix, we observe that, even when the evaluation of the leader of a party is unusually low, a lower amount of bias against a party still increases the probability for a voter to cast the ballot in favour of such party.

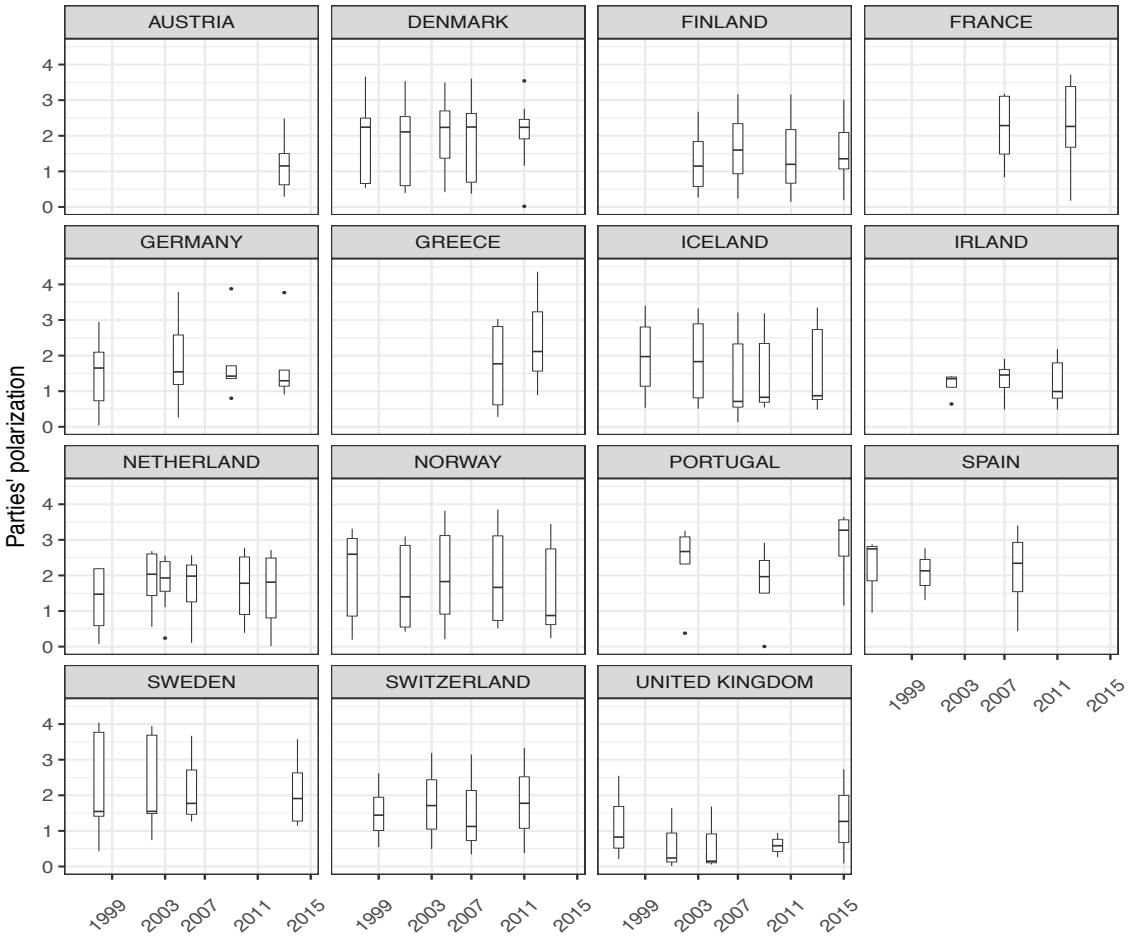
Consequently, we can safely conclude that if the leader effect holds only when voters are not biased against a party, the impact of individual bias hold (with different magnitudes) at each level of leader effect.

Appendix E: Three Biased Actors Model

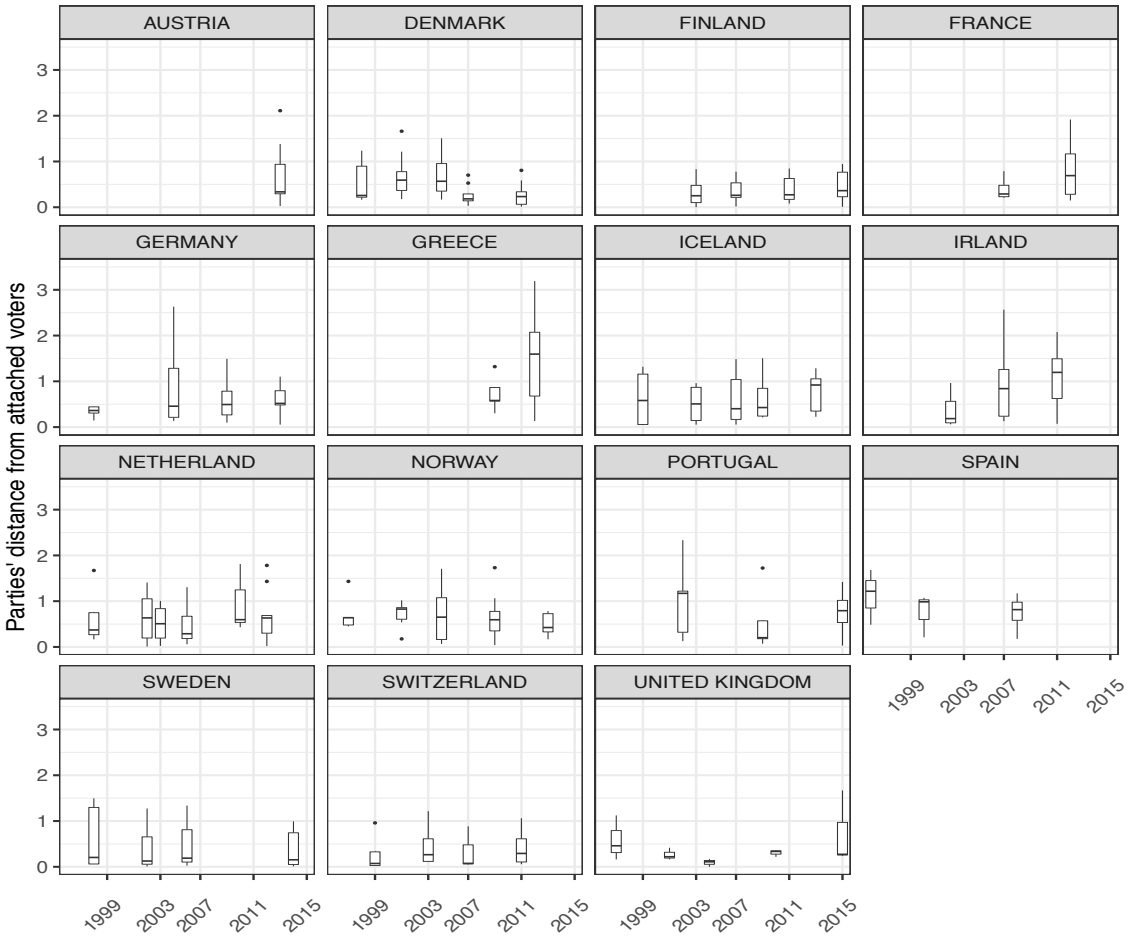
	x	*V*	*Opt. pos. 1*	*Opt. pos. 2*	*Opt. pos. 3*	*Opt. pos. 1 N.A.V*	*Opt. pos. 2 N.A.V*	*Opt. pos. 3 N.A.V*	*Diff. 1*	*Diff. 2*	*Diff. 3*
1	0.5	0.1	3.84	3.97	4.22	3.81	3.95	4.16	0.02	0.04	-0.06
3	0.5	0.1	3.83	4.02	4.29	3.80	4.02	4.24	0.01	0.04	-0.05
5	0.5	0.1	3.82	4.07	4.34	3.80	4.08	4.31	0.01	0.03	-0.04
1	1	0.1	3.84	3.97	4.22	3.81	3.95	4.16	0.02	0.03	-0.06
3	1	0.1	3.83	4.02	4.29	3.80	4.02	4.24	0.01	0.03	-0.05
5	1	0.1	3.82	4.07	4.34	3.80	4.08	4.31	0.01	0.03	-0.03
1	1.5	0.1	3.84	3.97	4.22	3.81	3.95	4.16	0.03	0.03	-0.06
3	1.5	0.1	3.83	4.02	4.29	3.80	4.02	4.24	0.02	0.03	-0.05
5	1.5	0.1	3.82	4.07	4.34	3.80	4.08	4.31	0.01	0.02	-0.03
1	2	0.1	3.84	3.97	4.22	3.81	3.95	4.16	0.03	0.03	-0.06
3	2	0.1	3.83	4.02	4.28	3.80	4.02	4.24	0.02	0.03	-0.04
5	2	0.1	3.82	4.06	4.34	3.80	4.08	4.31	0.01	0.02	-0.03
1	3	0.1	3.84	3.97	4.21	3.81	3.95	4.16	0.03	0.02	-0.05
3	3	0.1	3.83	4.02	4.28	3.80	4.02	4.24	0.02	0.02	-0.04
5	3	0.1	3.82	4.06	4.34	3.80	4.08	4.31	0.01	0.02	-0.03
1	0.5	0.2	3.84	3.97	4.22	3.81	3.95	4.16	0.02	0.03	-0.06
3	0.5	0.2	3.83	4.02	4.29	3.80	4.02	4.24	0.01	0.03	-0.05
5	0.5	0.2	3.82	4.07	4.34	3.80	4.08	4.31	0.01	0.03	-0.03
1	1	0.2	3.84	3.97	4.22	3.81	3.95	4.16	0.03	0.03	-0.06
3	1	0.2	3.83	4.02	4.28	3.80	4.02	4.24	0.02	0.03	-0.04
5	1	0.2	3.82	4.06	4.34	3.80	4.08	4.31	0.01	0.02	-0.03
1	1.5	0.2	3.84	3.97	4.21	3.81	3.95	4.16	0.03	0.02	-0.05
3	1.5	0.2	3.83	4.02	4.28	3.80	4.02	4.24	0.02	0.02	-0.04
5	1.5	0.2	3.82	4.06	4.34	3.80	4.08	4.31	0.01	0.02	-0.03
1	2	0.2	3.84	3.96	4.21	3.81	3.95	4.16	0.04	0.01	-0.05
3	2	0.2	3.83	4.02	4.28	3.80	4.02	4.24	0.03	0.01	-0.04
5	2	0.2	3.82	4.06	4.34	3.80	4.08	4.31	0.02	0.01	-0.02
1	3	0.2	3.85	3.96	4.20	3.81	3.95	4.16	0.04	0.00	-0.04
3	3	0.2	3.83	4.01	4.27	3.80	4.02	4.24	0.03	0.00	-0.03
5	3	0.2	3.82	4.06	4.33	3.80	4.08	4.31	0.02	0.00	-0.02
1	0.5	0.5	3.84	3.97	4.21	3.81	3.95	4.16	0.03	0.02	-0.05
3	0.5	0.5	3.83	4.02	4.28	3.80	4.02	4.24	0.02	0.02	-0.04
5	0.5	0.5	3.82	4.06	4.34	3.80	4.08	4.31	0.01	0.02	-0.03
1	1	0.5	3.85	3.96	4.20	3.81	3.95	4.16	0.04	0.00	-0.04
3	1	0.5	3.83	4.01	4.27	3.80	4.02	4.24	0.03	0.00	-0.03
5	1	0.5	3.82	4.06	4.33	3.80	4.08	4.31	0.02	0.00	-0.02
1	1.5	0.5	3.85	3.96	4.20	3.81	3.95	4.16	0.05	-0.02	-0.03
3	1.5	0.5	3.83	4.01	4.27	3.80	4.02	4.24	0.04	-0.02	-0.02
5	1.5	0.5	3.82	4.05	4.33	3.80	4.08	4.31	0.03	-0.01	-0.01
1	2	0.5	3.85	3.95	4.19	3.81	3.95	4.16	0.06	-0.04	-0.02
3	2	0.5	3.83	4.00	4.26	3.80	4.02	4.24	0.05	-0.03	-0.01
5	2	0.5	3.82	4.05	4.32	3.80	4.08	4.31	0.03	-0.03	-0.01
1	3	0.5	3.86	3.94	4.17	3.81	3.95	4.16	0.08	-0.07	-0.01
3	3	0.5	3.84	3.99	4.24	3.80	4.02	4.24	0.07	-0.07	0.01
5	3	0.5	3.82	4.04	4.31	3.80	4.08	4.31	0.05	-0.06	0.01
1	0.5	1	3.85	3.96	4.20	3.81	3.95	4.16	0.04	0.00	-0.04
3	0.5	1	3.83	4.01	4.27	3.80	4.02	4.24	0.03	0.00	-0.03
5	0.5	1	3.82	4.06	4.33	3.80	4.08	4.31	0.02	0.00	-0.02
1	1	1	3.85	3.95	4.19	3.81	3.95	4.16	0.06	-0.04	-0.02
3	1	1	3.83	4.00	4.26	3.80	4.02	4.24	0.05	-0.03	-0.01
5	1	1	3.82	4.05	4.32	3.80	4.08	4.31	0.03	-0.03	-0.01
1	1.5	1	3.86	3.94	4.17	3.81	3.95	4.16	0.08	-0.07	-0.01
3	1.5	1	3.84	3.99	4.24	3.80	4.02	4.24	0.07	-0.07	0.01
5	1.5	1	3.82	4.04	4.31	3.80	4.08	4.31	0.05	-0.06	0.01
1	2	1	3.87	3.93	4.15	3.81	3.95	4.16	0.10	-0.11	0.01
3	2	1	3.84	3.97	4.22	3.80	4.02	4.24	0.09	-0.11	0.03
5	2	1	3.83	4.03	4.29	3.80	4.08	4.31	0.07	-0.10	0.03
1	3	1	3.88	3.90	4.12	3.81	3.95	4.16	0.13	-0.18	0.05
3	3	1	3.85	3.95	4.19	3.80	4.02	4.24	0.12	-0.19	0.07
5	3	1	3.83	4.00	4.26	3.80	4.08	4.31	0.10	-0.17	0.07

Appendix F: Descriptive Figures for the Three Biased Actors Model

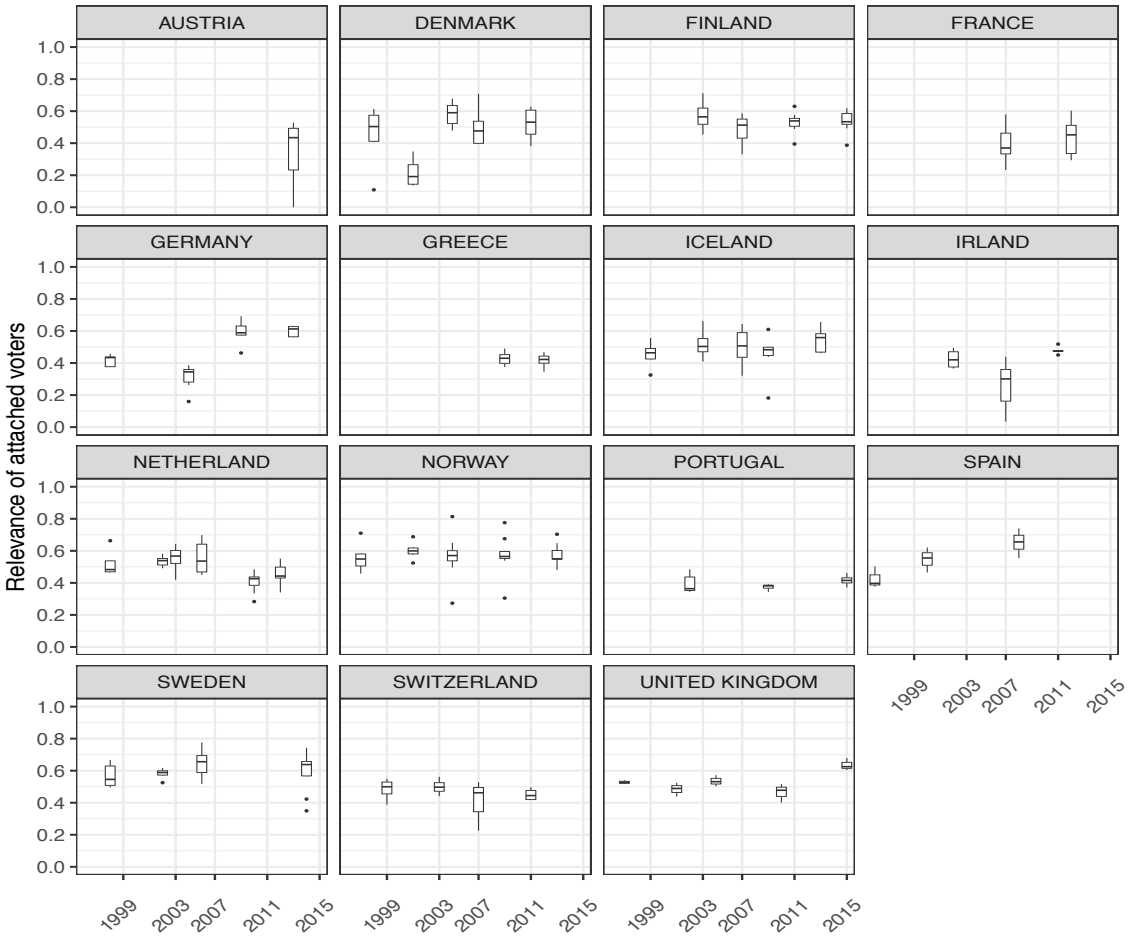
F.1 Descriptive Figures – Party radicalism per year and country



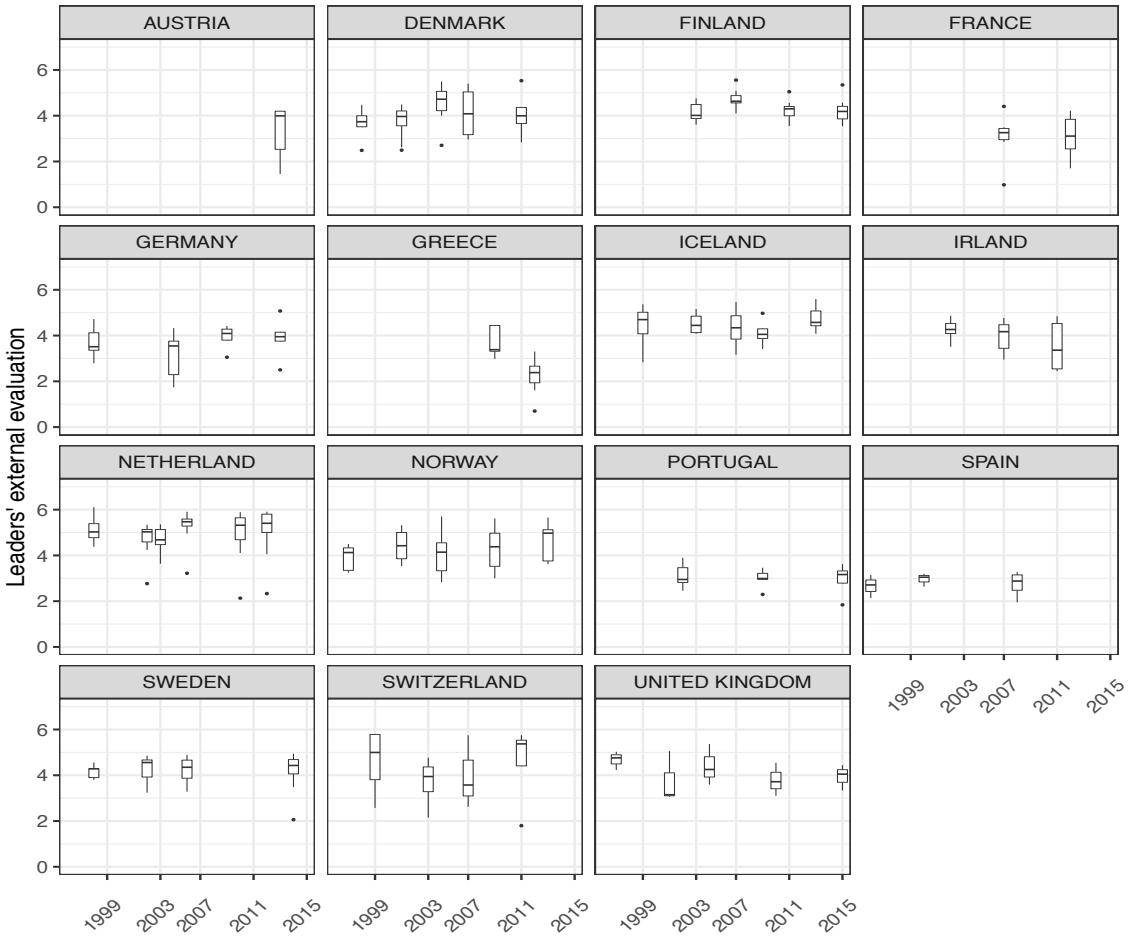
F.2 Descriptive Figures – Distance between party's and attached voters' positioning



F.3 Descriptive Figures – Relevance of attached voters on party's electorate



F.4 Descriptive Figures – Leaders' reputation



Appendix G: Empirical test of the Three Biased Actors Model

G. 1 Multicollinearity test for the Three Biased Actors Model

	VIF
ideological radicalism	1.627
expected gain	1.033
attached voters	1.160
distance position	1.651
leader evaluation	1.144
personalisation	1.019

G.2 Leader valence advantage – robustness check

	Model 1	**Model 2**
ideological radicalism	0.293***	0.295***
	(0.033)	(0.033)
expected gain	0.032	0.030
	(0.023)	(0.023)
attached voters	-0.547*	-0.569*
	(0.244)	(0.246)
distance position	0.410***	0.413***
	(0.108)	(0.109)
leader evaluation	0.008	0.051
	(0.023)	(0.126)
distance position | attached voters	0.571*	0.554*
	(0.230)	(0.231)
personalisation		-0.024
		(0.085)
valence advantage | personalisation		-0.007
		(0.020)
constant	0.173	0.328
	(0.149)	-0.541
N	312	312
N Single parties	102	102
N Elections	56	56
AIC	248.246	261.171
BIC	285.676	306.087
Log-likelihood	-114.123	-118.585
R2 Marginal Effect	0.68	0.69
R2 Conditional Effect	0.91	0.91
Variance – Single parties	0.08	0.08
Variance - Elections	0.05	0.04
Variance Residual	0.05	0.05

G. 3 Impact of personalisation of general elections

	Model 1	**Model 2**
ideological radicalism	0.298***	0.290***
	(0.032)	(0.032)
expected gain	0.028	0.032
	(0.023)	(0.023)
attached voters	1.334	0.937
	(1.374)	(1.378)
distance position	0.946***	0.592*
	(0.231)	(0.278)
leader evaluation	-0.013	-0.021
	(0.025)	(0.025)
distance position | attached voters		0.533***
		(0.238)
personalisation	0.106	0.085
	(0.120)	(0.120)
distance position | personalisation	-0.051	-0.028
	(0.037)	(0.038)
constant	-0.538	-0.243
	(0.760)	(0.766)
N	312	312
N Single parties	102	102
N Elections	56	56
AIC	262.646	260.754
BIC	307.562	309.413
Log-likelihood	-119.323	-117.377
R2 Marginal Effect	0.68	0.69
R2 Conditional Effect	0.91	0.91
Variance – Single parties	0.09	0.08
Variance - Elections	0.05	0.04
Variance Residual	0.05	0.05

Appendix H: Toward a dynamic model of Party Competition

The main aim of the Three Biased Actors Model of party competition, advanced in the sixth chapter, is to introduce into the classical models of party competition a third relevant actor potentially affecting the competition: a party's attached voters. That is, the set of voters particularly biased in favour of such party.

The introduction of a third actor in a model of party competition represents a crucial innovation. Indeed, this allows to profoundly understand the rationale behind parties' sub-optimal positioning during the electoral campaign, and also verify whether there is a conditioning effect of attached voters on parties' ideological placements. To account for attached voters' conditioning role, I have formally defined a three-actors game where attached voters play a decisive role. More precisely, in front of a party location which is far away from attached voters' average ideological placement, these latter will react by criticising the positioning decision of the party leader, consequently negatively affecting the leader's reputation. That is, attached voters will aim at making disincentives to party leaders' more vote-seeking positions.

According to the theoretical model presented in Chapter 6, attached voters' behaviour profoundly affects parties' strategies: indeed, if the leader's reputation becomes smaller, also its capacity to increase the expected consensus obtained by the party will decrease[148]. It follows that, due to the impact of attached voters, parties rarely take an optimal positioning. On the contrary, according to the theoretical model presented in Chapter 2, it is precisely the influence of attached voters that brings leaders to place the party on a more (or less) sub-optimal location. From the equilibria of the Three Biased Actors Model presented in Chapter 5, I have derived some hypotheses that have been empirically tested, in Chapter 6, on data coming from the comparative dataset that has been already used for the first part of this dissertation.

In addition to the confirmation of the general assumptions at the basis of the Three Biased Actors Model, two further and more general considerations can be advanced by

[148] On this specific point, see the empirical results presented in Section 3.3, where the biased voting model advanced in the first part of this thesis has been empirically tested.

connecting the results presented in Chapter 6 with those shown in Chapter 3. That is, by connecting the results of the analysis related to voting behaviour with the outcome of the analysis on party competition.

First, positional issues are decisive in the electoral campaign for both voters and parties; second, if leaders' reputation represents a source of utility for voters, parties' sub-optimal positions do not depend on leaders' evaluation.

Although these two elements constitute only a part of the consequences of the introduction of individual bias (toward or against parties) in voting behaviour and in party competition, they could be taken in high regards so as to perform more case-study-related and fine-grained analyses.

Indeed, if this dissertation has aimed both at overcoming the classical assumptions of both voting-related and party-competition-related spatial models and also at explaining the role of individual bias via a comparative and generalisable analysis of Western Europe, the results presented in Chapters 3 and 6 might suggest some possible further research questions. One could be analysing the type of issues raised by parties during the electoral campaign to better understand the relevance of and the variation in party competition strategies. This obviously does not mean analysing the issues used by parties (as issue models of party competition do), but detecting whether parties rely most on positional issues or on valence issues during the electoral campaign[149]. To take into account the variation of parties' strategies, a possible interesting analysis would be dynamically analysing party representatives' declarations, that is, in different times during the electoral campaign.

Such research question would allow researchers to deal with a number of relevant issues. Indeed, not only would it permit to detect whether positional issues represent the determinant element in the electoral campaign, but it would also allow to verify whether during an electoral campaign parties use other types of political strategies, like valence issues (Stokes, 1963; Clark, 2009; De Sio et al., 2017) or negative campaign strategies (among others, see Hansen & Pedersen, 2008; Elmelund-Præstekær, 2010; Walter, 2014a, 2014b). Moreover, by analysing political declarations before the electoral campaign, it would be possible to

[149] As we have seen in Sections 1.2, 1.3, and 4.2, positional issues represent all those issues over which both parties and voters have different preferences (e.g. job market). On the contrary, valence issues (see also 4.1) are those issues over which parties share the same objectives (e.g. fight to corruption).

develop an even dynamic analysis of party competition, allowing us to verify whether there exist differences among the strategies adopted by parties in different moments before an election.

Summarising, the analysis the stances advanced by party representatives before the elections would allow us not only to estimate how much parties use different strategies, but also to observe to which extent they vary the adopted strategy.

Evidently, such type of study can hardly be performed on a large number of elections, like the one adopted in the analysis put forward in this dissertation. Indeed, not only would there be a relevant language-related problem that even most recent computational models could not overcome, but it would also be extremely challenging to obtain textual information on the declaration of politicians since 1996 in all the countries considered. It follows that fully addressing the research question I am discussing would go far beyond the scope of this research. Nevertheless, by relying on single-election data, derived from an analysis of party declarations before the 2013 Italian general election and the 2014 European election in Italy, we will see in this Appendix whether there is a connection between the general, more static, and omni-comprehensive analysis and a more dynamic and fine-grained analysis.

In this appendix, I will firstly present the evidences brought to political science by the Quantitative Text analysis scholarship. I will underline the main tools and the motivations that have pushed scholars to increasingly use this methodological tool. Furthermore, I will explain why it is important studying the type of issues raised by parties and why the results of the analysis performed in this Appendix can be connected to this dissertation. Then, I will present the results of a first analysis that I have performed on the 2013 Italian general and 2014 European elections' electoral campaign.

Text analysis in political science

The analysis of political texts has represented a very relevant concern for comparative politics since the 1960s (Monroe & Schrodt, 2008), even if it is with the Web revolution, at the beginning of the 21st century, that the scholarship has begun to advance a growing number of tools for automatically analysing political texts (Laver, Benoit, Garry, Laver, & Trinity, 2003; Slapin & Proksch, 2008; Hopkins & King, 2010; Lowe, Benoit, Mikhaylov, & Laver, 2011; Lucas et al., 2015; Benoit, Conway, Lauderdale, Laver, & Mikhaylov, 2016).

With the increasing relevance and availability of such tools, scholars have started to apply quantitative data analysis to a high number of topics. According to the literature on the topic, text analysis is mostly applied in two fields: to estimate parties' or intra-party groups' ideological positioning, and to detect the type of issues put forward.

Within the first field of studies, scholars have mostly investigated (by relying both on social media data and more classical texts) the ideological positioning of parties in parliament (Diermeier, Godbout, Yu, & Kaufmann, 2012; Lauderdale & Clark, 2014), the ideological positioning of parties in the electoral arena (Proksch & Slapin, 2010; Lowe et al., 2011; Nulty, Theocharis, Popa, Parnet, & Benoit, 2016; Catalinac, 2017), and intra-party-groups' positioning (Z. Greene & Haber, 2016, 2017; Ceron, 2017). Indeed, by using unsupervised scaling algorithm like *Wordscore* (Laver et al., 2003) and *Wordfish* (Slapin & Proksch, 2008), it is possible to locate parties on a unidimensional continuum, either by relying on a reference text (in the case of Wordscore) or not (for Wordfish).

If these studies deal with scaling preferences of parties and/or groups on different policy or ideological continua, the second set of studies has been mostly interested in extracting from texts the topics raised by actors (thanks to the unsupervised topic modelling) and in classifying declarations and/or texts (via the sentiment analysis and classification). As underlined by Wilkerson and Casas (2017), unsupervised topic modelling allows to compare texts and clusters of declarations by following a similarity criterion. In particular, this approach allows to detect the topic raised by MPs during parliamentary debates (Grimmer, 2010, 2013; Quinn, Monroe, Colaresi, Crespin, & Radev, 2010) and also during electoral campaign (Roberts et al., 2014; Tsur, Calacci, & Lazer, 2015; Boussalis & Coan, 2016). Conversely, supervised analyses (such as sentiment and classification) require much more efforts, since all the texts taken into consideration must be *a priori* classified, that is, categorized before the analysis is run.

Time-related constraints have lead this method not to be mainly used by political scientists (see also the discussion in Wilkerson and Casas, (2017). Nevertheless, by using supervised classifying methods, scholars have investigated the role of framing in newspapers articles and have also categorised bills by following a policy agenda topic codebook (Collingwood and Wilkerson, 2012; Workman, 2015).

Although we have seen that supervised classification requires an important amount of time, in order to classify the strategies adopted by parties during the 2013 and 2014

electoral campaigns, I have relied on this approach. Indeed, since I aim at categorizing parties' declarations according to a theoretical classification, and not by focusing on the content of the declarations, a supervised model is required to adequately classify the topics I am dealing with.

Why performing a dynamic analysis of parties' stances?

Given that putting forward a supervised analysis is particularly time-consuming, and also given that other unsupervised techniques would be available to clusters parties' declarations, a question immediately rises: why is it relevant to classify parties' declarations during an electoral campaign?

A first answer is that, by adopting such analysis, it is possible to profoundly change the perspective of an empirical research on party competition: by analysing parties' stances during a competition it will be possible to perform a dynamic empirical analysis. Indeed, findings of static analyses can be confirmed by an empirical analysis, using more sophisticated and dynamic models of competition such as the Agent-Based Model (see Laver and Sergenti2011) does not allow to empirically confirm the theoretical expectations in a dynamic way.

Conversely, by classifying the issues raised by parties during all the electoral campaign, it will be possible to empirically verify how party competition evolves before the elections. Moreover, by dynamically connecting party strategies to the expected consensus, it would also be possible to estimate the optimal strategy that parties have to play at each point in time. That is, being able to estimate whether a party has the incentive to play a 'positional' strategy, or a valence one, or a 'negative' one vis-à-vis the strategies adopted by the other competitors.

A second advantage of dynamically classifying parties' stances into strategy types is connected to a more methodological issue, that is, identifying an additional source of data useful to locate parties on the ideological continuum. This is an important point for two different reasons. First of all, we have seen, a few lines above, that political texts are often used to locate parties on an ideological continuum and to verify policy shifts in the long term. In this respect, one of the possible sources often used by scholars has been parties' electoral manifestos (let us think about the Comparative Manifesto Project). Moreover, we have also

seen that, with the increasing relevance of social media, scholars have started relying on politicians' social media posts and locating parties with a dynamic approach (Barberá, 2015). Nevertheless, compared to social media, newspapers represent a more reliable source of information: if politicians do not write posts on all the issues on the table every day, newspapers tend to present articles on all the issues under discussion day by day. Moreover, if newspapers represent an appropriate source of information for estimating parties' positioning (for instance by using the Wordfish algorithm), the distinction between positional and valence issues is a crucial step to reach a higher level of accuracy in the estimation of parties' placement. Indeed, as largely discussed in this dissertation, parties' ideological position is given by parties' preferences on positional issues, while what distinguishes parties on the valence dimension is their degree of competence and reputation on issues on which all parties agree. Consequently, given it is possible to distinguish between positional and valence issues, it is also possible to locate parties on the ideological continuum by only relying on stances related to positional issues. So, there is the possibility to estimate parties' locations without introducing distortions caused by parties' declarations on valence issues.

The sum of these two elements (that is, the dynamic nature of the information sources and the consideration of only positional issues) makes newspapers an ideal source of information to estimate parties' positioning. Moreover, using it would also allow to estimate party placements' variation during a campaign, and this goes towards the direction of the first advantage of classifying parties' strategies (that is, defining the optimal strategies during the electoral campaign).

Furthermore, a more qualitative advantage brought about by the dynamic study of parties' stances, like the one performed in this Appendix, is that, it is possible to provide a confirmation and a more fine-grained description of the general and static results of spatial model analysis performed in this dissertation. For instance, in the fifth and sixth chapter of this dissertation, we have observed that during party competitions, parties' positions are particularly shaped by the requests of attached voters concerning parties' declarations on positional topics. On the contrary, leadership evaluation seems not to play a decisive role, even when the election is particularly personalised.

So, a more fine-grained and dynamic analysis might be relevant to qualitatively describe the evolution of a campaign and confirm more general hypotheses. This means, for instance, verifying whether there is a correspondence between the general indication of the

static analysis and the effective number of times parties use a positional, a valence, and a negative argument during a campaign. This element constitutes a third advantage of using a Machine Learning classifier approach, and it is not strictly connected with the predictive and analytical capacities of such tools of analysis. Nonetheless, it represents a significant advantage, since it allows to profoundly understand parties' strategies.

So, if even a textual analysis of parties' strategies during an electoral campaign confirms that the positional strategy represents the main element in the electoral campaign, we will have a further qualitative piece of evidence that the analysis put forward in this research has reached a high level of generalisability. For this reason, by relying on Italian newspapers' articles published in a four-month period before the 2013 Italian general election (October 2012 – February 2013) and the 2014 European election in Italy **(**January 2014 – May 2014)**,** I have developed a machine learning supervised classifier able to distinguish between positional strategies, valence strategies, and negative campaigning on positional issues, and negative campaigning on valence issues. The next pages will be devoted to the description of the method used in this Appendix and to the presentation of the results of the empirical analysis.

Detecting the type of strategies in the 2013 and 2014 Italian parties' competition

As we have seen in Chapters 1 and 4, parties might compete by advancing valence and/or positional issues. Moreover, we also know that negative campaign represents a decisive strategy that parties might adopt during the electoral competition (Walter, 2014a, 2014b). So, we can derive four different types of strategies that parties might follow during elections:

1) A positional strategy: presenting parties' positioning on a classical positional dimension;
2) A negative positional strategy: criticising opponents' proposals on positional dimensions;
3) A valence strategy: underlying competence and positive characteristics of parties on valence issues (that is, honesty, competence in making the economy grow, and the like);

4) A negative valence strategy: underlying the negative traits of the opponents on valence issues (that is, honesty, competence in making the economy grow, and the like).

Obviously, we could also aggregate these four categories into two macro-types of strategies: positional and valence ones. In order to empirically detect the salience of these four types of strategy during an electoral campaign, I have collected 621 articles published in the section 'politics' of the most important Italian online newspaper (La Repubblica.it[150]) in the four months preceding the 2013 Italian general election and the 2014 European election in Italy[151]. To avoid problems of framing effect, I have not considered all the commentary articles, while I have only selected those appearing in the political news section.

Once having collected the texts, articles have been tokenised into 24739 sentences. Each of these sentences has been subsequently classified according to the four different strategies by 27 students of the Political Science department of the University of Milan[152]. In particular, each sentence has been coded by two different students in order to have a confirmation concerning the reliability of the coders' decisions.

Table 1 *Party Strategies in Italian 2014 European and 2013 General Elections*

	Non Strategy	**Positive**	**Negative**	Overall Col. proportions	*Strategy Col. proportions*
Non Strategy	15871	**-**	**-**	0.64	
Positional	**-**	**4898**	**1784**	0.27	*0.75*
Valence	**-**	**1580**	**606**	0.9	*0.25*
Overall rows proportions	0.64	0.26	0.10	1	-
Strategy rows proportions	-	*0.73*	*0.27*	-	-

[150] I am aware of the possible criticisms of selecting only one source of information. In particular, given the high presence of 'partisan' newspaper' in Italy, it is highly likely that the frame of the articles would be more in favour of certain parties with respect to others. Nevertheless, given the fact that, in this empirical analysis, I have only been interested in distinguishing between the different types of strategies adopted by different parties, and not in scaling parties' positioning, the framing problem should not represent a substantial problem.

[151] Articles have been webscraped by using BeautifulSoup in Python.

[152] Students have been trained for eight hours in order to let them being able to properly classify such sentences.

After the students have classified all the sentences, it has been possible to compute the inter-coder reliability index, which has a value equal to 0.62. This means that, for each 100 sentences, on average, students have classified in the same way the sentence 62 times. In order not to rely only on the 62% of the sentences on which students agree, and therefore to avoid possible selection bias problems, I have double checked all the sentences classified by the students and classified the sentences the students disagree on.

By looking at the data presented in Table 1 above, among all the sentences, only a small part represents a declaration from politicians and/or parties. Indeed, among the 24,739 sentences classified by the students, 64% are sentences that do not express any strategy, while 20% express a positional strategy, 6% a valence one, 7% a negative positional one, and 2% a negative valence strategy. This means that a great part of the text that composes the analysed articles does not communicate any strategy of politicians.

By making a step forward, in order to profoundly understand the dynamics of party competition in a dynamic way, it might be relevant to develop a Machine Learning classifier able to further automatically classify all the newspaper articles, without relying on human codification anymore. Machine Learning Research represents one of the main topics in political science methods nowadays (on this topic, see the discussion on classifiers put forward by Wilkerson and Casas, 2017). It follows that to develop a classifier able to precisely detect which kind of strategy parties are pursuing when declaring something, it is necessary to verify the predictive capacity of the classifier, and then compare the accuracy of the model with respect to the accuracy of students' reliability.

I have consequently, encoded the sentences according to the bag of words representation and distinguished the overall dataset in three sub-datasets: the training set (70% of the data), the test set (15%) and the validation set (15%). Then, in order to classify the strategies put forward, I have tested five different models. In particular, a Naïve Bayes classifier and four different Support Vector Machines (SVM): one with a linear kernel, one with a polynomial (3 degree) kernel, one with the Radial Basis Function kernel and one with the Neighbour kernel[153].

[153] Both Naïve Bayes and SVM are classifiers, the main difference between the two models is related to the fact that Naïve Bayes consider the different classes as independent, while SVM consider them as not independent. The non-linear and different kernels account for the interactions between classes.

Moreover, since the data we deal with are pretty unbalanced (that is, the percentage of sentences that are non-strategy ones is quite high), I have specified the presence of a such skewed distribution of the data in the model.

Table 2 *Machine Learning Models' accuracy*

Model	**Accuracy 5 strategies**
Naïve Bayes	0.70
SVM linear	0.70
SVM polynomial	0.77
SVM Neighbour	0.77

As we can observe by looking at Table 2, even if the models do not reach an extremely high level of accuracy, they show an accuracy which is always bigger than or equal to 70%. This means that all the considered models are more accurate than students in classifying party strategies. Indeed, they have an accuracy that is at worst 8% better, and at best 15% more accurate that students' one. Obviously, there are still improvement margins, and it will be possible to refine the model in the future in order to further increase its accuracy. Nevertheless, given the inter-coder reliability and the complex task we are dealing with, the 70% of accuracy can be considered as a satisfactory result, especially because it will be possible to repeat this analysis in future electoral campaigns.

Some qualitative insights

If we use the results of a predictive and experimental environment, like the one described in the previous paragraph, for putting forward a qualitative and descriptive analysis, such results confirm the more general evidence put forward in Chapter 6. Indeed, we have already seen in Table 1 above that positional stances are quite more numerous than valence ones. This means that politicians tend to present and discuss more those issues that qualify their ideological placement and less their perceived competence (or the opponents' incompetence) on valence dimensions.

Moreover, if we look at Table 3 below, we see that the salience of the four different strategies both before the 2013 Italian general election and before the 2014 European election in Italy, we observe that the overall distributions has a number of similarities.

Table 3. *Distribution of parties' electoral strategies*

Strategy	**2013 general election**	**2014 European election**
Positional	0.46	0.64
Negative Positional	0.24	0.16
Valence	0.20	0.16
Negative Valence	0.10	0.04

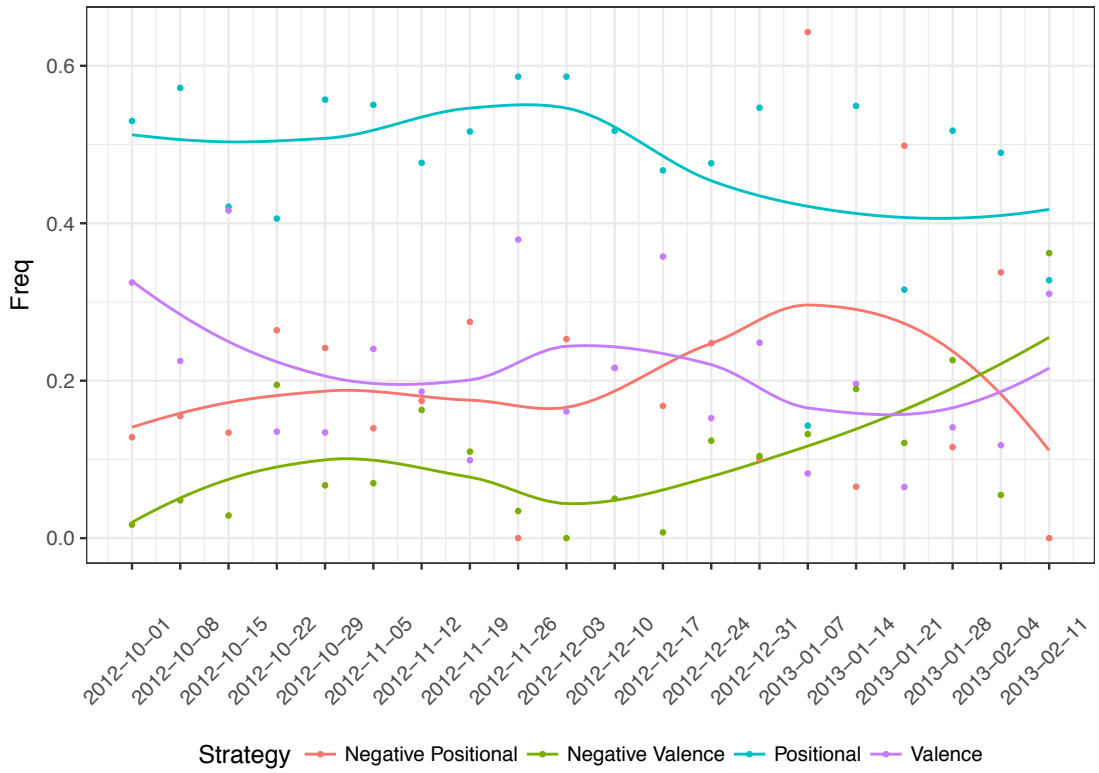
Indeed, the positional strategies are always the most used ones, while only a smaller part of the stances raised by the parties is based on a valence strategy. Nevertheless, by comparing the general election to the European one, parties have played much more on the positional strategy in the latter case with respect to the former one (64% vs 46%). As a consequence, all the other possible strategies have been less salient in the 2014 European election than in the 2013 general one.

Moreover, since this kind of analysis allows us to observe whether there is any variation in the salience of the different party strategies as time goes on, it would be interesting to observe whether substantial differences exist over time.

On this last point, Figure 1 and Figure 2 below report the weekly variation in the salience of the four different strategies in both the Italian General and European elections. Also in this case, we see that in both cases (that is, in the four months before the two elections), there is a similar general pattern. Indeed, a positional strategy is surely the most used one, while the all the other three different strategies are similarly salient for the entire period before each election.

Nevertheless, even if we can detect a similar general pattern, some differences are also pretty evident. Indeed, if we look at Figure 1, as the election gets closer and closer, parties tend to decrease the importance given to positional issues and, conversely, increase the salience given to the valence dimension.

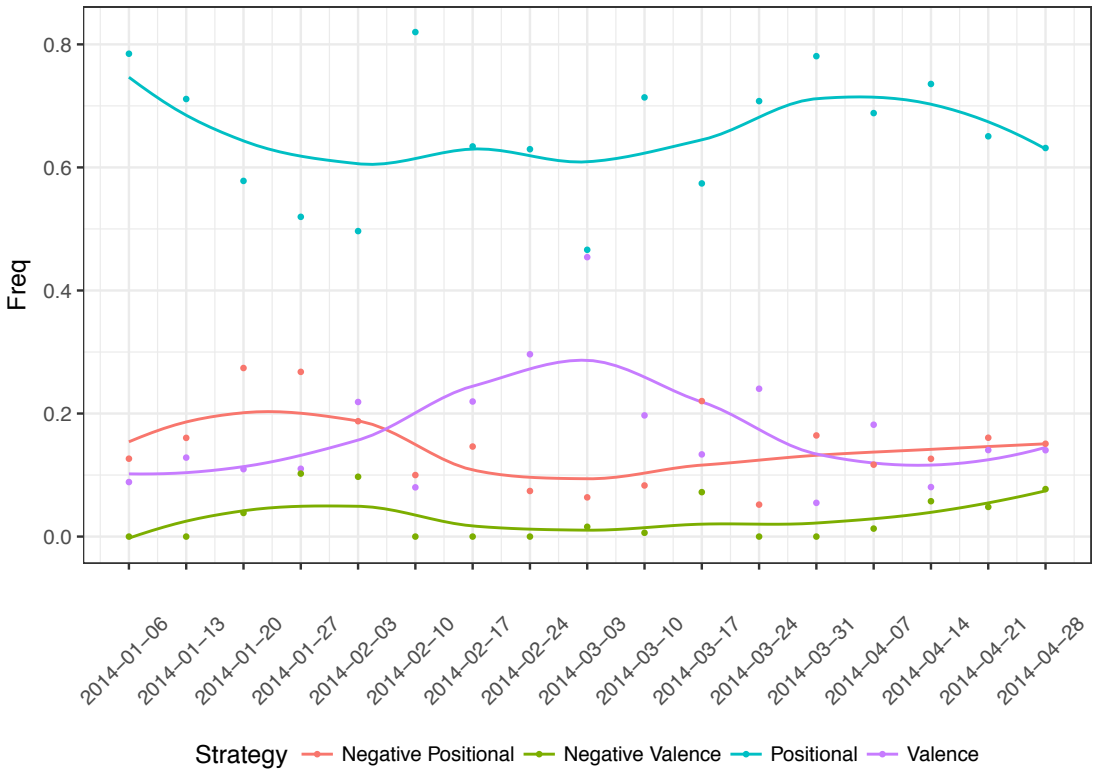
Figure 1 *Trend of strategies' salience – 2013 General Elections*



More into details, two months before the 2013 general election (approximately the middle of December 2012), parties start increasing the salience given to the negative positional campaign and reduce the salience of a pure positional strategy. Nevertheless, in the last month before the election, another drastic change can be detected: parties stop to play a positional negative campaign and start underlying the pitfalls of the opposing leaders and parties (that is, they start playing a valence negative campaign). Moreover, if positional stances remain stable for all the final period of the electoral campaign, there is a little increase in the use of valence issues.

Even if these results confirm the relevance of positional strategies, they also suggest that, when the election gets closer and closer, parties tend to leave the use of positional strategies in favour of more valence ones. This is in line with studies on the demand side of the electoral market, which have underlined that the importance given to competence and leadership gets more and more relevant in electoral choice when the decision has been taken closer to the elections (Barisione & Schmitt-Beck, 2015).

Figure 2 *Trend of strategies' salience – 2014 European Elections*



Turning our attention to the European elections (Figure 2 above), the positional strategy remains much more salient with respect to all the other strategies for all the period before the election. Moreover, after a peak some months before the elections, the salience of the valence issues moves back to a more average level, that is, closer to 15% of the stances raised by parties. On the other side, as the election gets closer and closer, both the valence negative and positional negative campaigns acquire relevance. Also the positional strategy decreases a bit its salience over time. Therefore, despite the variation in the salience of the four possible strategies are less evident in the European elections with respect to the General elections, in both cases, there is an increase in the alternative strategies compared to the classical positional one.

Conclusions

The results presented in this appendix represent one of the possible use of the data produced by a Machine Learning analysis of parties' stances on newspapers. In particular,

thanks to a dynamic analysis, I have been intensively observed the evolution of party competition during two electoral campaigns (the Italian General and European elections). This has allowed to preliminarily confirm the results put forward in the Chapter 6, that is, that positional issues represent the primary dimension of competition for parties during elections. Moreover, this final empirical analysis has also allowed to observe the variation in the salience of the different strategies during the four months before the General and the European elections, and understand how parties vary the structure of their electoral strategies.

Being able to detect such variation does not represent a trivial point. Indeed, by accounting for and interpreting this evolution, we can further specify the number of novel research questions that we have advanced in the conclusion of this research. Indeed, if the dynamic analysis presented in this appendix is only related to two electoral competitions, a more generalisable framework of research could also put forward a dynamic analysis able to take into consideration more countries and more elections.

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