Split-Ticket Voting in Mixed-Member Electoral Systems: A Theoretical and Methodological Investigation

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Declaration

I declare that this thesis has not been submitted as an exercise for a degree at this or any other University and that it is entirely my own work.

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Summary

Mixed-member electoral systems give people the opportunity of voting for the same representative body by casting two votes: one for a national party under proportional rules and one for a local candidate under majoritarian rules. Today, at least 20% of voters vote under mixed-member electoral systems. In those countries where scholarly investigations exist, findings show that many voters *split their ticket* voting for a party and a candidate that are not linked. Moreover the levels of split-ticket voting have often been found to have an impact on the electoral outcome. Despite several explanations exist today, although still much debated, our knowledge of how people vote under mixed systems is still limited. This is due to methodological as well as substantive issues. This thesis examines why and how voters split their two votes. It consists of a purely methodological analysis based on the New Zealand and Scottish parliamentary elections, a comparative study across 10 mixed-member electoral systems, and also looks in depth at case studies of Japan and Italy.

The thesis begins by outlining the state of knowledge about the causes of split-ticket voting, and discusses the theoretical and methodological issues around the concept. From the outset it is explained that split-ticket voting can be studied at two different levels using electoral surveys and aggregate voting results. Both constitute an unavoidable part of its study, but both sets of data are flawed by severe methodological limitations. The first contribution of this thesis is to advance the study of split-ticket voting by addressing the issues concerning its measurement. This is done using the New Zealand and Scottish case studies for which, exceptionally, actual levels of split-ticket voting are available.

A comparative investigation is then conducted to address the fundamental limitation with the current literature in that it only provides country-based analyses. The comparative study applies an original approach based on the idea of examining the two votes separately rather than in conjunction as it is the practice in the existing literature. Scholars generally measure split-ticket voting as a deviation from a straight vote assuming that voters like a single party. Moreover the party vote, because it is cast under proportional rules, is thought to mirror voters preferences better than the candidate vote. The aim of the comparative analysis is to relax these assumptions and assess if there are substantial differences between the two votes when it comes to the influence of sincere, strategic and institutional factors. Furthermore the analysis tests whether or not substantive findings hold across countries. Some support is found for the standard argument that a vote under proportional rules is more sincere than the one under majoritarian rules. Despite this, the evidence indicates that the two votes are

used by voters to express a more nuanced electoral choice which cannot be accounted for by using a simple strategic versus sincere voting explanation.

The Japanese case allows us to investigate further the question of sincere and strategic voting because of the availability in this context of detailed survey questions able to capture the rationale behind vote choice. The analysis also focuses on the separation of sincere versus strategic preferences controlling for candidates availability on the majoritarian ballot. This is an innovation on previous analyses, which focus exclusively on voter preferences assuming that these are all available on the ballot paper. This assumption is problematic because under mixed rules, there are always fewer candidates than parties running for elections. The Japanese findings suggest that split-ticket voting is rarely a consequence of strategic behaviour as the current literature holds confirming findings from the comparative chapter. Often, when not forced by the unavailability of the candidate on the majoritarian ballot, the split depends on two sincere preferences: one for a party and one for a candidate that just happens to run for another party.

The peculiarity of the Italian case permits us to explore additional aspects of split-ticket voting. First, the Italian regional elections use a unique mixed system which allows coalitions to be displayed on the electoral ballot. Second, each region is characterized by similar but not identical mixed rules. Furthermore, Italy is a peculiar setting in which socio-geographical variation has always been directly linked to voting behaviour. These features allow a first comprehensive analysis of the influence of long-term cleavages when compared to the impact of short-term factors such as party appeal, candidate availability and districts features. The analysis shows that the electoral rules and the electoral supply play only a limited role in explaining split-ticket voting. With regard to long-term features instead, they strongly influence the way people vote.

The general conclusion to be derived from the work conducted in this thesis is that voters act upon the electoral competition and the availability of candidates and parties on the electoral ballot. Despite this however, sincere voter preferences explain most of the variation. It appears that parties still function as the principal cue for voting, but voters are increasingly more sophisticated in that they often like more than one party. Remarkable similarities are found across countries and some interesting differences across types of mixed systems and level of experience with the electoral rules. This thesis also proves that comprehensive analysis of electoral behaviour should employ both aggregate and individual-level data.

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Chapter 1

Introduction

1.1 Introduction

This introductory chapter provides a detailed definition of vote switching in mixed-member electoral systems. It then considers the significance of the topic and the reasons for studying the phenomenon. The chapter goes into detail to outline the main contributions of this thesis. It first considers the relative merits of using both individual and aggregate data for the investigation of vote switching. It then explains why using both types of data constitutes an important innovation on previous research. Subsequently, the chapter outlines why the comparative investigation conducted in this thesis represents an important departure from current studies which only provide case study analyses. The chapter will also mention how the detailed analysis of two case studies from Japan and Italy, add to the comparative investigation. Finally, the chapter looks at the third contribution of this thesis in that it carefully separates 'intentional' versus 'forced' split-ticket voting, a distinction often neglected by the current literature. The chapter concludes with an outline of the structure of the thesis.

1.2 Defining Split-Ticket Voting

It is useful to clarify from the outset what vote switching means in the context of this thesis. Voting for different parties in elections relatively close in time has been defined using different labels such as 'vote switching', 'split-ticket voting', 'ticket-splitting', 'divided voting', 'vote shifts' and 'floating voter' amongst others. All of them, however, refer to the act of a voter choosing different parties during simultaneous or non-simultaneous elections. Borrowing Burden and Helmke's (2009) general classification, vote switching can be classified as 'horizontal' or 'vertical'. Vertical, sometimes also defined 'Inter-level', ticket-splitting occurs where elections are held for offices at different levels of government in simultaneous or non-simultaneous elections. The idea of vertical voting is somewhat linked to the idea of first and 'other-order' elections but it does not necessarily entail ranking the importance of votes. Inter-level switching only refers to the circumstance in which two or more votes are used to elect representatives for

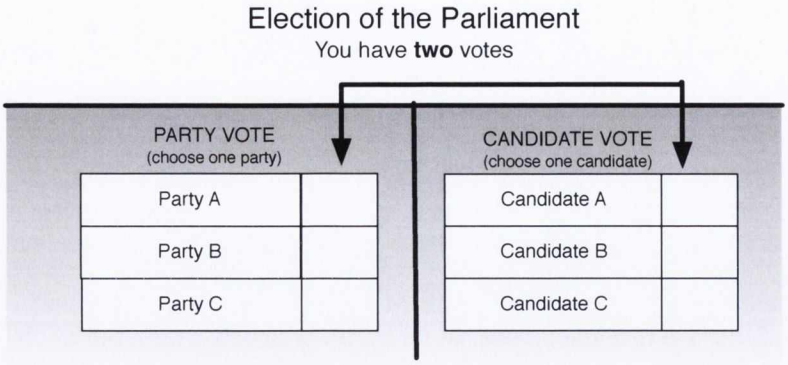
different governing bodies. In presidential systems such as in the United States (US) for example, people can split their vote across presidential and legislative elections voting for a presidential candidate and a congressman or a senator affiliated to different parties. In parliamentary systems voters can engage in inter-level ticket-splitting, choosing different parties across sub-national, national and supra-national elections.

Horizontal ticket-splitting occurs when people have more than one vote to elect the same legislative body. Under preferential systems for example, voters have many votes at their disposal and they have the ability to rank-order candidates on the ballot paper (Gallagher and Mitchell, 2005, p.8). This is the case under the Alternative Vote (AV) in Australia and under Proportional Single Transferable Vote systems (PR-STV) in use in Ireland and Malta.[1] Under preferential systems voters can chose candidates within party and across party lines. Splitting in this context means voting for a candidate from Party J and then voting for a candidate from another party before or instead of other candidates of Party J. On the other hand, voting a straight ticket entails voting for all of the candidates of Party J before voting for any other candidate (Marsh and Plescia, 2011).

This thesis looks at horizontal vote switching under mixed-member electoral systems more often defined as *split-ticket voting* (Burden and Helmke, 2009). Under mixed systems people are asked to cast a vote for a party and a vote for a candidate to elect the same legislative chamber using two formulas. The party vote is cast under proportional rules whereas the candidate vote is cast under majoritarian rules. Splitting the ticket under mixed systems means choosing a candidate and a party that are not linked (e.g. voting for Party A and Candidate B in Figure 1.1). On the other hand, casting a straight vote entails voting for the candidate endorsed by the party voted on the proportional ballot (e.g. voting for Party A and Candidate A). Under some mixed systems voters receive two separate ballot papers, one with a list of candidates and one with a list of parties (e.g. Hungary, Japan, Russia, Scotland); in some other cases voters find the parties and candidates listed on the same ballot paper (e.g. Germany, Italian regional elections, New Zealand, Venezuela). In rare cases such as in Mexico, voters cast only one vote; this, however, is subject to double counting, for the party and for the party's candidate, and voters are not allowed to split.

[1] The difference between the two types of preferential systems is that in Australia preferential voting is not optional as it is in Ireland and Malta, but compulsory and voters are required to complete all the preferences on the ballot paper (Farrell and McAllister, 2005).

Figure 1.1: A sample ballot used under mixed-member electoral systems



Notes: In the sample ballot paper in the figure, parties and candidates are listed on the same ballot paper. Note that the party can be listed on the right (e.g. Germany) or on the left of candidates (e.g. New Zealand). In some other cases (e.g. Japan) they are listed on two separate ballot papers.

1.3 Why Study Split-Ticket Voting

1.3.1 Significance of Topic

Voting is the right and duty of citizens living in democratic countries and 'elections are the lifeblood of democracy' (LeDuc et al., 2010, p.1). Therefore, it makes sense to understand why people vote the way they do and it is not surprising that voting is the central issue in the field of electoral studies. Analysing split-ticket voting under mixed systems means studying elections and electoral behaviour when people have two votes instead of one. Whereas much is known today about how people vote when they have one vote, still very little is known about how people vote when they have two votes at their disposal. The question of how people vote under mixed systems is relevant for at least three reasons.

Firstly, because many people vote under mixed systems today. Carter and Farrell (2010) estimate that at least one out of five voters votes under mixed-member electoral systems. The number of countries employing these systems has grown since the 1990s with the adoption of this typology of electoral rules in several countries in Africa, Asia, Latin America and Europe. In those countries where scholarly investigations exist, findings illustrate that many voters split their ticket voting for a party and a candidate that are not linked. Moreover, the levels of split-ticket voting have often found to have an impact on the electoral outcome (e.g. Bawn, 1999; Johnston and Pattie, 2002; Benoit et al., 2006). Thus studying vote switching under mixed systems means investigating a common electoral phenomenon that is also relevant for the election outcomes.

As well as being substantively important for election outcomes, split-ticket voting is theoretically important since the manner in which voters split their ticket offers observable implications on a wide range of theoretical explanations of voting behaviour. The study of vote switching offers the possibility of addressing several research questions

concerning voting behaviour more generally, in a natural laboratory rarely, if ever, available to social science researchers. For this reason, the study of split-ticket voting is particularly attractive to uncover regularities and patterns, and thus to suggest reasons for the observed behaviour.

To start with, an investigation of how people vote under mixed systems can add to our knowledge of the objects of electoral choice. Under several electoral systems voters can choose between candidates; under other systems voters can choose between parties. In some instances, voters can choose between candidates of the same party whereas in others they can choose between candidates of the same or different parties. Considerable research exists today that looks at whether or not voters decide on candidate-centred factors as opposed to party-centred ones when voting for candidates *or* parties (e.g. Katz, 1986; Carey and Shugart, 1995; Shugart, 2005; Marsh, 2007). Under mixed systems voters can vote for candidates and parties because they have two votes. Assessing the relative importance of candidates and parties on the two votes can add to our knowledge of the object of electoral choice by asking, for example: to what extent candidate-centred factors influence the vote for candidates and how much the vote for parties and, *simultaneously*, to what extent party-centred factors influence the vote for candidates and the vote for parties? Furthermore, because people have two votes, mixed systems offer an ideal setting to consider whether or not voters make up their mind also on the basis of how they feel about the potential coalitions that can form after the election. This is because they do not have to cast both votes for the same party.

The study of voting behaviour under mixed systems can help expand our knowledge of the impact of electoral rules on the way people vote. Many scholars have shown that the country institutional arrangement (that is proportional versus majoritarian rules) has an important independent effect on how people vote, let alone on who gets elected (e.g. Cox, 1997; Norris, 2004). Since under mixed systems voters cast two votes under opposite electoral rules, these systems allow us to assess how much different vote choice is under majoritarian and proportional rules holding the electoral context constant. This is important for instance, for our understanding of strategic voting (Bowler and Farrell, 1995). Many believe that strategic voting is weaker under proportional than majoritarian rules (e.g. Duverger, 1963; Cox, 1997). Recent analyses however, argued voters in proportional systems face similar incentives to cast a strategic vote (e.g. Hobolt and Karp, 2010; Abramson et al., 2010). In this regard mixed systems offer a natural laboratory to investigate how voters react to two opposite electoral rules in the same context and from a comparative perspective (Moser and Scheiner, 2004).

Mixed systems also enable us to investigate the effect of the local context on vote choice. It is known that the decision the voter is being asked to make matters when examining vote choice. Several studies have shown that the link between the local context (e.g. the number of parties and candidates running for elections, the competitiveness of the district race etc.) and strategic voting is an important one. Because under proportional systems people vote for parties, scholars examined the link between the

local context and the party vote (e.g. Alvarez and Nagler 2000; Meffert and Gschwend 2010). On the other hand, because under majoritarian systems people vote for candidates, scholars looked at the link between the local context and the candidate vote (e.g. Niemi et al. 1992; Blais et al. 2001). The study of voting behaviour under mixed systems allows us to consider simultaneously how much the local context influences vote choice when people vote for national parties when compared to when they vote for local candidates. These investigations aim to expand our knowledge of the role of national and local objective features of the electoral competition in shaping vote choice when compared to individual preferences.

The study of how people make up their mind when they have more than one vote at their disposal can also be regarded as important for our understanding of the contamination effects between elections. Often people have more than one vote to cast and they need to decide how to allocate their votes; this is for instance the case under preferential systems, two-rounds elections or when local, national or supra-national elections are held simultaneously. Examining contamination effects is important for our understanding of voting behaviour as well as being relevant for party politics. Specifically, when electoral contamination is at play, party elites should not longer make decisions on the basis of "only" the matter at stake, but the decision should also be informed by the presence of other tiers, districts or elections. Despite this importance, how contamination effects affect the micro foundations of voting is a neglected topic in political science. The work conducted in this thesis is intended to shed light on this issue examining comparatively to what extent, if any, a vote cast on one tier of the electoral ballot influences the 'other' vote.

Another important issue that is worth investigating in mixed systems is the question of the rationality of the voting act. Mixed systems are regarded as complicated, if not the most complicated, electoral rules (e.g. Sartori, 1999; Cox and Schoppa, 2002). This stems from the fact that voters do not have one but two, if not three votes to cast and they have to decide how to use them. Some scholars argued that split-ticket voting results from misunderstanding the electoral rules. This conclusion is based on the fact that many voters, for example in Germany, cannot accurately answer survey questions about the significance of the two votes in deciding the electoral outcome. This conclusion however is not necessarily valid. Specifically, the fact that some voters get the question on the electoral rules wrong is not proof that split-ticket voting results from misunderstanding of the electoral rules. To reach this conclusion one should be able to show that split-ticket voting is disproportionally present among those characterised by confusion about the electoral rules (Bawn, 1999). Conversely, the vast majority of the literature relying on survey data demonstrates that voters with higher levels of education and a good knowledge of the electoral system are more likely to split their vote when compared to voters with lower levels of education and/or lower levels of political sophistication (Banducci et al., 1998; Karp et al., 2002; Pappi and Thurner, 2002; Karp, 2006). This thesis attempts to shed light on this debate and its results have a broader scope. For instance, if the analysis conducted in this thesis can show

that split-ticket voting is consistent with coalition voting, this can strengthen the idea advanced by recent studies in proportional systems that voters do consider the impact of their vote on policy (e.g. Blais et al. 2006; Meffert and Gschwend 2010).

One last issue that merits attention is that the study of split-ticket voting through the investigation of its methodological issues can also be useful for the study of voting behaviour more generally. Often scholars interested in voting behaviour are prevented from investigating a specific phenomenon because of the lack of surveys. Even when available, surveys allow us to explore differences in the characteristics of voters, but they do not allow the study of the spatial variation within each country. In order to study variations between constituencies, scholars need to use district-level data. Aggregate-level electoral results are usually freely available but cannot be used directly without further manipulation due to the 'ecological fallacy' problem (Robinson, 1950). The 'ecological inference' is the 'process of using aggregate (i.e. "ecological") data to infer discrete individual-level relationships of interest when individual-level data are not available' (King, 1997, p.3).

Specifically, split-ticket voting can only be measured using net measures of the difference between a party and a candidate vote from aggregate data district variations. The problem is that these measures say nothing about either the volume of straight-ticket voting for each party or the gross pattern of inter-party ticket-splitting in each district (Gschwend et al., 2003, p.110). Ecological inference techniques which would enable one to address this problem exist but have not been tested yet through an application to large amount of data (King et al., 2004, p.78). Split-ticket voting offers an appropriate testing ground as its measurement reflects the classical ecological inference problem. At the same time, the settings in which split-ticket voting takes place offer a vast amount of data and information to be used for testing purposes. As the ecological fallacy is a common issue in the study of voting behaviour and beyond, the results of the analysis conducted under mixed systems can be regarded as useful in all other settings where researchers have only available aggregate data but they are interested in explaining the variation at a disaggregate level.

So far no one has provided a study of split-ticket voting that was comparative in nature and that used both surveys and aggregate electoral data across many years of election. The literature mostly focuses on an in-depth case study for one point in time, that is to say one election. There are a few comparative analyses but they usually examined only the aggregate level (Moser and Scheiner, 2004, 2005, 2009) or just two countries (Karp, 2006). For this reason, this thesis represents the first systematic study of split-ticket voting and more generally voting behaviour under mixed-member electoral systems.

1.4 Contribution of this Study

Chapter 3 will consider this thesis' contribution presenting the data and the cases studied in more detail. For the moment though, I limit the discussion to weighing the

suitability of using individual or aggregate data and country-based studies to answer the questions posited in the thesis.

1.4.1 Individual or Aggregate?

The components of the study of split-ticket voting, and generally of electoral behaviour, are twofold. The study of how people vote has a fundamental individual-level component because it reflects a choice based on voter preferences and motivations. At the same time, voting is an aggregate phenomenon influenced by the context in which the vote is cast. For this reason, each type of data, individual and aggregate, can answer different questions highlighting related but distinct mechanisms. Each type of data however is plagued by several methodological flaws. This is true for all voting behaviour phenomena.

For the most part, existing analyses of split-ticket voting have been using post-electoral survey data. The research using this type of data has led to important insights into the reasons that people split their ticket and to the development of different explanations for the observed behaviour. More specifically, through the use of surveys, the literature identified numerous aspects of individuals' preferences, their motivations and interest in politics as explaining whether or not they split their vote. It can surely be said that surveys are fundamental for the study of ticket-splitting and they provide the only access point to individuals' motivations.

Nonetheless, surveys suffer from a number of limitations, some of which are particularly relevant to the analysis conducted in this thesis. Firstly, surveys suffer from respondent bias. This issue has been discussed extensively in the US where the study of split-ticket voting began (Wright, 1990; Jacobson and Rivers, 1993; Burden and Kimball, 2004). In mixed-member electoral systems similar problems have been encountered. For instance, in the Scottish case Carman and Johns (2010, p.386) found sampling and response biases, that are not corrected by the population weight, with regard to overstated straight votes for small parties. The authors explain that an implausibly large proportion of respondents reported voting for a minor party's candidate despite the fact that small parties run candidates in only a small number of districts.

A second disadvantage of survey data relates to this thesis' aim to investigate split-ticket voting variation, not just between countries, but from within district to district. For example, in New Zealand and Germany existing analyses showed that split-ticket voting varies significantly across districts (i.e. Johnston and Pattie, 2002; Gschwend et al., 2003; Johnston and Pattie, 2004). This variation, however, cannot be appreciated by simply using surveys. This limitation is rooted in the fact that individual-level data do not always provide information that is representative of all the districts inside a country.

Another drawback has been discussed by Benoit et al. (2006), regarding the difficultly in linking survey data to demographic information at the district unit. Specifically, sometimes surveys do not contain information about the district in which the two

votes have been cast.[2] As Benoit et al. (2006) explain, the result is that it is impossible to link survey information with the respondent's context. This link is important as the existing literature shows that the relationship between voting and electoral context is a significant one. For instance Niemi et al. (1992) explain that the study of strategic voting cannot be conducted unless one controls for the features of the district competition in which the vote is being cast. The impossibility of linking survey data with the voting district complicates the analysis conducted in this thesis and, generally speaking, limits comprehensive analyses of voting behaviour.

Due to the aforementioned limitations of survey data, the thesis also employs aggregate electoral results. Aggregate data has the advantage of dealing with how people actually voted, rather than how they said they voted (Bernhagen and Marsh, 2010, p.460). Aggregate voting results enable a focus on the party, investigating parties' strategic actions such as the decision of running a candidate on the majoritarian ballot, and their impact on split-ticket voting. Moreover, aggregate data allow the analysis of split-ticket voting at the district level, investigating where and when split-ticket voting is more common. Despite these positive notes however, the use of aggregate data for the study of split-ticket voting is also plagued by methodological flaws. First, because aggregate data only reports the total party and candidate vote, any inference of electoral behaviour at the aggregate level is limited by the aforementioned ecological fallacy problem. Importantly, aggregate calculus can only report the minimum level that took place as cross-voting among parties and candidates on the two parts of the electoral ballot tend to cancel each other out (Cowart, 1974). It is straightforward to see that if five people voted for Party A and Candidate B and five for Party B and Candidate A in Figure 1.1, aggregate electoral data will misleadingly report no split-ticket voting.

So far the literature on vote switching based on electoral results has mostly relied on these aggregate calculus. Today several advanced techniques exist that would address the ecological fallacy problem by proving disaggregate quantities of split-ticket voting. Despite this, these techniques have never been extensively tested and/or used to study split-ticket voting. For this reason, the thesis starts with a purely methodological analysis which will explain in detail why both individual and aggregate data are needed and how to improve current use of both types of data. The simultaneous use of both types of data allows us to answer multiple questions and expands the horizon of investigation beyond the one possible with the exclusive use of either surveys or aggregate electoral results. Moreover, when using both data, one can be more confident in the findings when surveys and aggregate results match. As the issue of measurement of split-ticket voting is a common one, the methodological analysis conducted in this thesis also attempts to draw general conclusions useful beyond the study of split-ticket voting.

[2]Several country-surveys used in this thesis and derived from the Comparative Study of Electoral Systems (such as Hungary, Thailand and South Korea) do not contain information on the district where the candidate vote has been cast.

1.4.2 Why a Comparative Analysis?

Most, if not all, existing studies seeking to explain split-ticket voting under mixed rules deal with no more than one or two cases for only one election at the time. This is surely not due to a lack of curiosity because several single-country studies examined the reasons for split-ticket voting. Although country-studies provided valuable insights, especially into the preferences and motivations which influence the way people vote, country-level data is naturally of limited use when we seek to understand the variations in split-ticket voting across countries. A comparative investigation is useful to generalize the findings and facilitate the inference from these case studies to the general study of voting behaviour. The work conducted in this thesis attempts to fill this gap providing a comparative investigation covering all possible combinations of mixed rules. There are two variants of mixed systems: they can be 'compensatory' (also known as proportional or corrective) or 'parallel' (or majoritarian or independent). A few other mixed systems are hard to classify in one of these two groups and for this reason they are often defined as semi-proportional or semi-majoritarian mixed systems (Shugart and Wattenberg, 2001, p.12). This thesis compares the results across 10 countries covering all possible types of mixed rules when the same variables are used to explain the observed variation in each country.

The comparative investigation also expands our knowledge of voting behaviour with regard to sincere and strategic voting. The existing literature on voting behaviour under mixed rules focused on the question of voter sincerity across the two ballot tiers. First and foremost, voters' sincerity is measured using party attachment and this is seen as the major incentive to vote for the same party on both ballots. The existing literature has then identified two main rationales behind the deviation from a straight vote. The first one is consistent with the 'wasted vote' hypothesis on the candidate ballot. When a rational voter anticipates no chance of victory for his most preferred party's candidate he will switch by voting for a big party's candidate. The so called 'coalition voting' hypothesis instead affirms that big party's supporters can engage in strategic splitting by casting a sincere preference for a candidate and by switching strategically to a minor party and likely coalition partner on the proportional ballot to help it cross the electoral threshold.

The assessment of these hypotheses is difficult because actual vote patterns are typically compatible with a variety of alternative individual-level hypotheses. For instance both the wasted and the coalition voting hypotheses produce identical patterns of voting behaviour that is a split vote, by voting for a big party on the majoritarian ballot and a small party on the proportional ballot. Splitting is also consistent with personal voting. Thus, it is difficult to disentangle strategic from personal voting only examining vote choice, unless survey questions are structured so that they reveal true voting intentions. Unfortunately these questions are not often available in electoral surveys. The comparative analysis addresses these identification problems by employing two strategies. Both these strategies are based on the idea of examining the two votes,

both the party and the candidate vote, separately rather than in conjunction as is the practice in the existing literature. This means that instead of investigating directly the determinants of split-ticket voting, the comparative analysis examines voting predictors in each part of the electoral ballot. The comparative study starts comparing voter intentions to actual vote choice for each of the two votes separately. The analysis investigates whether and to what extent the two votes are different with regard to observed patterns between the pre and post-electoral settings. Since both votes are cast by the same voter during the same election, the general expectation is that one should not see major differences across the two votes. On the other hand, if one of the two votes is more likely to change during the electoral campaign we will wonder why by examining specific factors related to sincere and strategic voting.

The second step of the analysis looks at actual vote choice only examining the determinants of vote choice in the two parts of the electoral ballot. The aim is to assess what explains the two votes and whether or not there are substantial differences when it comes to the influence of sincere, strategic and institutional factors. The same set of variables is applied across countries and across votes. The analysis employes data reshaped into a so-called 'stacked' form in order to investigate vote choice in general rather than for a specific party or candidate. Using a stacked dataset one is able to include as independent variables the features of the individuals making the choice, the features of the parties as well as the independent variables defined for a combination of individuals and parties (Stimson, 1985; Tillie, 1995; van der Eijk and Franklin, 1996, 2009).

To sum up, the comparative analysis has a threefold purpose. It is intended to extend current investigations of split-ticket voting providing the first comparative account of split-ticket voting using survey data. This allows us to investigate voter preferences and motivations across countries, testing if findings hold across settings and controlling for institutional variation. Furthermore, the analysis provides evidence of how the two votes are cast under mixed rules and to what extent, if any, one vote appears to be more sincere or strategic than the other vote. This is done by examining the comparison between a pre and post-electoral vote and by comparing the factors influencing vote choice in two parts of the electoral ballot. The comparative analysis is also used to draw conclusions on the more general matter of the objects of vote choice and to assess the relative importance of candidates and parties on the two votes. This investigation is also important for our understanding of the contamination effects between elections by examining how people make up their minds when they have more than one vote at their disposal. Not least, the study of two votes separately, but controlling for the electoral context, adds to our knowledge of the impact of the electoral rules on the way people vote.

There are two specific issues that will be unclear from the comparative discussion. First, the comparative analysis examines voting behaviour using primarily information on parties' preferences. This limitation stems from the fact that in the majority of the countries included in the sample, questions on candidates' preferences were not

available. On the other hand, the comparative analysis cannot control for 'forced' vote. This is rooted in the fact that information on the district in which the candidate vote is cast is only available for less than half of the countries analysed. For this reason, it is not possible to control whether voters had the same party available on both electoral ballots or if they were forced to split. These additional investigations are carried out using the Japanese and the Italian cases. The detailed analysis of these two cases of study aims to unpack causal mechanisms not obvious from the comparative analysis. These mechanisms pertain the sources of 'intentional' and 'forced' split-ticket voting as discussed in the next section.

1.4.3 Intentional or Forced Voting?

Generally speaking, the existing literature on voting behaviour deals with the intentional nature of voting examining sincere voter preferences and strategic incentives offered by the electoral rules and the district competition. Current analyses do not usually consider the number of candidates on offer during an election. Forced voters are those whose preferred option is not available on the electoral ballot. Forced voters are present under many electoral systems. For instance under two-ballot run-off elections, many voters will not find the party/candidate voted for also available during the second round of the election. Specifically, under mixed-member electoral systems the majoritarian ballot is always a shorter version of the proportional ballot. This means that fewer candidates than parties always run for elections. For this reason many voters may not have any choice but to split if they still want to cast both a party and a candidate vote. Current analyses of split-ticket voting do not control whether or not the voters is forced to split; the lack of such control can lead to an overestimation of the impact of both sincere and strategic voting predictors.

Modelling forced voters represents a big challenge for scholars of voting behaviour and not least in the case of mixed systems. This problem is rooted in the fact that often information on the district in which the candidate vote is being cast is not available, thus for researchers it is impossible to control whether or not the party runs a candidate. Moreover, current studies in mixed systems usually measure split-ticket voting as a deviation from a straight vote; because forced voters can only cast a split vote, they show no variation on the dependent variable and thus cannot be included in common models of split-ticket voting. For this reason existing analyses of ticket-splitting limit their focus to non-forced voters or ignore the issue by focusing exclusively on vote preferences, assuming that all are available on the electoral ballot. This is problematic though because, as mentioned, under mixed systems, the majoritarian ballot is always a restricted version of the proportional tier. Not accounting for forced split-ticket voting may lead to biased results by overestimating the impact of voters preferences and motivations on the way people vote. This thesis addresses this limitation using the Japanese and the Italian cases. These analyses are intended to clarify the effect of intentional determinants of split-ticket voting when compared to the forced nature of

voting behaviour.

In Japan, the availability of detailed survey data permits disentangling the rationale behind split-ticket voting. In addition, because information on the district where the vote has been cast is available, it is possible to control whether or not the respondent must split. This information makes it is possible to disentangle the effects of candidates and parties feelings and candidate availability on the way people split their ticket. Moreover, because surveys ask Japanese voters why they intend or have split their vote, this data enables a comparison between the substantive conclusions inferred using surveys and aggregate data with respondents responses. This analysis is not possible in other countries where at least one piece of information is missing among candidates and/or parties feelings and/or district information. The Japanese case is also used to provide evidence for the question of sincere versus strategic voting and other questions concerning misunderstanding of the electoral rules and coalition voting.

The peculiarity of the Italian regional system permits at least two types of investigations of the forced nature of voting behaviour not possible in any other setting. Firstly, the Italian electoral system is the only instance of mixed rules where pre-electoral coalition agreements are displayed on the electoral ballot. Ticket-splitting is forced in other mixed systems as well but the Italian case represents the unique case where cartel arrangements are displayed on the ballot paper thus further restricting vote choice on the majoritarian ballot. Very little is known today about how voters respond to pre-electoral coalitions (Gschwend and Hooghe, 2008) and the Italian analysis attempts to shed light on this issue. Secondly, the Italian system allows for variation of the mixed rules across sub-national units. For this reason, even if all the regions must maintain a mixed system they can alter it by, for instance, increasing the electoral threshold.[3] This peculiarity of the electoral rules provides further evidence for the study of intentional versus forced split-ticket voting. Additionally, the study of the Italian case offers evidence on the effect of long-term voter preferences. Because in Italy the social-geographical variation has always been historically linked to vote behaviour, the analysis of the Italian case permits assessment of the extent to which macro (i.e. party loyalties and social characteristics) versus micro (i.e. party and candidate feelings) feature on the electorate affect the level of split-ticket voting.

1.5 Chapter by Chapter Summary of this Thesis

In Chapter 2, I provide a thorough account of the body of the literature on split-ticket voting. The chapter reviews the existing literature for all instances where split-ticket voting can be observed and has been studied; the main focus, however, is devoted to vote switching under mixed-member electoral systems, which represents the subject of

[3]To be sure, there are other instances, such as Germany where the Lander employ different electoral systems for the election of their regional councils. However, to the best of my knowledge, beyond the Italian case there is no other instance where all the regions use all mixed rules but they are slightly modified.

this thesis. The chapter analyses the different explanations proposed to explain split-ticket voting and introduces the independent variables of this thesis. It will soon be clear that examining the sources of split-ticket voting can be done in terms of voters' preferences and motivations using mainly surveys. Examining the aggregate level features such as the electoral rules and/or the characteristics of the district competition means identifying the structure of opportunities at the district level, which provides further reasons to explain the persistence of split-ticket voting. The two frameworks, individual and aggregate, have remained largely isolated from one another. The few analyses that merge the two levels of information, illustrated as this combination is indeed important since voting is strongly influenced by the context in which the vote is cast.

Chapter 3 lays down the research plan in more detail. It starts by reviewing how previous research has been conducted highlighting gaps and limitations and discussing how this thesis intends to address them. Chapter 3 discusses the dependent and independent variables outlining the broader research picture. Particular care is also devoted to explain the selection of the cases of study with regard to the methodological, comparative and case studies analyses. This chapter explains why all three investigations are needed and how they improve our knowledge of how people vote under mixed-member electoral systems and beyond. An exploratory analysis of the dependent variable is also provided in this chapter which illustrates the variation of split-ticket voting at the individual, party, district and country-level.

In Chapter 4, I introduce and elaborate on the methodology being used in the thesis for establishing and conceptualizing the dependent variables. Difficulties with conventional methods of measurement and how they do not satisfactorily capture the concept of split-ticket voting are discussed. Firstly, Chapter 4 discusses the dependent variable in relation to the use of surveys in existing studies and how this thesis will improve on it. This section looks explicitly at the assumptions on which the literature had to rely when using surveys; it challenges them and suggests new avenues of research. The chapter also discusses methodological issues pertaining to the use of aggregate data. This is done by introducing and testing advance estimation techniques and by highlighting their strengths and weaknesses. The testing settings are the New Zealand and Scottish legislative elections for which, uniquely, data on actual levels of split-ticket voting are available. The actual level is known in these contexts and thus the estimates provided by the estimation techniques can be empirically evaluated and their error appreciated. The investigation illustrates that despite weaknesses and limitations, estimation techniques provide reliable quantities of split-ticket voting.

In Chapter 5, I address the fundamental limitation with the current literature in that it only provides country-based analyses. This chapter provides the first comparative analysis of split-ticket voting using survey data across 10 mixed-member electoral systems covering all possible combinations of mixed rules at national and sub-national level. This work is also original because it investigates the factors affecting each vote separately. The analysis employs mixed-level datasets where individual-level data have

been combined with district-level information. This combination allows us to account for individual-level preferences and motivations as well as the conditions under which the vote is cast. Moreover the comparative study compares pre-election voting intentions with actual vote choice to further shed light on the question of voter sincerity. Survey data is drawn from the Comparative Study of Electoral Systems (CSES), which provides access to national post-electoral surveys for a variety of countries. When the data was not available through the CSES project, national sources were contacted and data collected from academic research centers as listed in Table A1.1.

A comparison of the two votes across the pre and post-electoral settings shows that they are very similar and that the party vote appears to be only slightly more sincere than the candidate vote. In addition, this investigation illustrates that split-ticket voting is to some extent a consequence of the electoral campaign. Examining post-electoral data, there is no evidence supporting the idea that the party vote reflects a more sincere voting preference. In fact the vote under mixed systems appear to be cast in a nuanced fashion by voters which weight different factors when casting the two votes. Parties and national issues play a larger role in the proportional part of the electoral ballot. On the other hand, candidate features and local matters perform better in accounting for the variation on the majoritarian ballot. Purely strategic indicators have an almost equal effect on both votes. The analysis also shows remarkable similarities across countries adopting similar mixed rules and relative differences across national and sub-state elections. On a more general level, the analysis conducted in Chapter 5 illustrates that national issues impact the vote for the local context but not the other way round: the features of the district competition matter much less when voters are asked to vote for national parties.

Chapter 6 examines personal and strategic voting versus options availability on the electoral ballot using the Japanese case study. Due to the availability of useful survey data, the Japanese analysis expands the comparative investigation by examining more explicitly the effect of candidate features on the way people split their ticket. In addition, because information on the district where the vote has been cast is known, it is possible to control whether or not the party run a candidate and compare forced and non-forced voting behaviour. The analyses of the effects of candidate features and their availability on the electoral ballot represent important innovations on current studies of split-ticket voting focused primarily on party features and non-forced voters. Chapter 6 starts by comparing the majoritarian vote for a candidate to the proportional vote in that district for the candidate's political party. This permits us to compare how strong parties are vis-à-vis candidates. Estimation techniques will then be employed to obtain disaggregated quantities of split-ticket voting and improve the analysis. This represents an important step forward from earlier investigations of ticket-splitting in Japan, and in the majority of other mixed systems, which rely solely on crude aggregate election results. The aggregate evidence suggests that parties and candidate features, as well as the characteristics of the district race, all affect the variation of split-ticket voting to various degrees. Survey data then allows a response to additional questions,

providing the possibility of separating types of split-ticket voting. Individual-level evidence supports the aggregate findings, but it clarifies that the observed patterns, which appear to be consistent with a purely strategic explanation, are indeed the result of sincere preferences.

Chapter 7 provides further evidence for the study of forced voters and the issue of the impact of the limited candidate menu on the way people cast their vote. This analysis is possible because the Italian mixed system allows pre-electoral coalitions to be displayed on the electoral ballot. Furthermore, Chapter 7 explores two additional research questions. The Italian regional elections use a unique form of mixed-member electoral system which permits the regional government to slightly modify the electoral rules for their adaptation in the local context (Pacini, 2007). This feature allows for an original analysis which accounts for the impact of slightly modified electoral rules on the way people vote across regions within the same country and over time. In addition, Italy is a peculiar electoral setting in which socio-political variation has always been directly linked to voting behaviour (Cartocci, 1990; Diamanti, 2003). This feature allows provision for the first comprehensive account of the influence of socio-political long-term features on the way people split their vote. The Italian investigation shows that the local electoral supply affects split-ticket voting more than the electoral rules. There is also strong evidence indicating that the relationship between voting and socio-political features is a simple and strong one.

In Chapter 8 the conclusions are presented. I discuss that split-ticket voting is a common behaviour under mixed-member electoral systems and its size and impact is likely to increase over time. Currently many people split their two votes across parties. The analysis conducted in the thesis indicates that relatively few voters do so in a purely strategic fashion as it is too often suggested by the existing literature. Many voters like more than one party, or dislike them to a similar degree, whereas some others choose candidates on a non-party basis. Both features lead them to cast a split-ticket vote that is not strategic but primarily sincere. Moreover, it is clear that institutional factors affect the observed variation across countries, but individual-level preferences remain paramount factors to explain voting behaviour. In addition Chapter 8 considers future lines of investigation both with regard to vote switching and beyond. In particular this chapter discusses two intriguing issues raised by the work conducted in this thesis which may deserve further investigation.

1.6 Conclusion

This project was prompted by the high number of voters that engage in split-ticket voting, by the importance of ticket-splitting for the broad study of voting behaviour and not least by the several limitations of the existing studies. The thesis will use aggregate and surveys providing both a comparative investigation alongside several in-depth case-study analyses. The purpose of the thesis is twofold. First, it is intended to provide a substantive advancement of the literature on vote switching testing assumptions and

findings of existing theories. On the other hand, the thesis has a methodological purpose with regard to the use of surveys and aggregate-level data for the measurement of split-ticket voting. This thesis' investigation is likely to provide important new insights on the causes and incidence of vote switching and contribute to the broader literature of voting behaviour.

Chapter 2

Vote Switching in Comparative Contexts

2.1 Introduction

Vote switching can occur at different levels of the representative system in various forms. For the purpose of this thesis, I broadly distinguish between 'inter-election' and 'intra-election' vote switching. The inter-election vote switching is defined as changes in party preferences, at both the aggregate and individual-level, between two consecutive general elections. Intra-election vote switching refers to the volatility between a general election and a subsequent non-general election, as indicated by local, regional, supra-national and by-elections. Trends in these two types of vote switching do not necessarily need to correlate (Crewe, 1985, p.11).

For researchers who focus on the inter-election level, and on a relatively long span of time, vote switching entails the study of 'electoral volatility' and the impact of social modernisation on electoral behaviour. Electoral volatility analysis investigates dramatic decline in support for specific parties and the plausibility of certain theories of voting behaviour in order to capture the conditions under which vote switching occurs. Among the plethora of explanations, 'post-materialism' (Inglehart, 1971) and the decline of party identification (e.g. Crewe, 1985; Dalton, 2000), in a complementary not contradictory fashion, have been employed to explain the change in party support from the late 1970s in many Western democracies. Vote switching is part of this study of party de-alignment or re-alignment (Dalton et al., 1984) as it deals with macro-level social phenomena such as economic circumstances, aspects of the national social structure and the distinctive features of the country's representative institutions. Vote switching at an intra-election level involves concepts, such as the role of party identification, similar to those employed by the literature on inter-election switching. Despite this however, intra-election switching puts a larger focus on micro-level aspects of voting and on the specificities of the particular election. Micro-level aspects refer to the long and short-term voting determinants, including but not limited to party attachment and candidate appeal. The features of the elections taken into account are

those regarding the parties on offer as well as the economic climate surrounding the election.

The focus of this thesis is on intra-election vote switching. The choice of voters to cross party lines in relatively close elections can be theoretically and empirically investigated in a multitude of contexts. This choice has a substantial and temporal dimension. The substantial dimension refers to the fact that according to the context (i.e. presidential versus parliamentary systems) and to the level (i.e. individual versus aggregate-level) in which vote switching is analysed, it involves a somewhat different phenomenon. Vote switching has also a temporal dimension, because it can be studied during concurrent and non-concurrent elections. Firstly, this chapter will provide the broad picture of intra-election vote switching in presidential and parliamentary systems to highlight the variety of proposed voting behavior explanations. The majority of the explanations have been borrowed from the United States (US) literature where the study of split-ticket voting began as early as the 1950s. Then, the chapter reviews intra-election vote switching in parliamentary systems. Subsequently, the chapter explores vote switching under mixed-member electoral systems which is the theme of this thesis. The literature review on intra-election vote switching will encorporate the broader literature aimed at explaining what people do when they vote.

2.2 Intra-election Vote Switching: The Broad Picture

The following overview will indicate that intra-election vote switching has been analysed in a variety of settings, and often its explanations overlap. Although there are many models and a relatively long list of variables, there are two main arguments to explain vote switching. One argument, centered on the nature of split-ticket voting, is focused on the intentional nature of vote choice and on the idea that some voters have a disposition to split more than others due to political, social and personal attitudes and motivations. The second argument emphasises the 'forced' nature of switching, focusing on the features of the electoral competition.

2.2.1 Existing Explanations in Presidential Elections

In US elections, the investigation of split-ticket voting associates with divided government. Divided government describes a situation in which one party controls the executive branch and another party controls one or both houses of the Congress, the legislative branch. Many scholars have examined split-ticket voting to decide whether or not divided government is an electoral consequence that reflects voters' preferences. Specifically, if voters intentionally split their vote between the parties for President and a member of the Congress to achieve a divided government. Divided government is common in the US and has many politically relevant consequences. Due to the link between ticket-splitting and divided government, split-ticket voting has been regarded one of the most important issue in studies of electoral behaviour in the US (see Alesina

and Rosenthal, 1995 and Fiorina, 2002). Among the different levels that vote switching in US can take place (local, state and federal), the overwhelmingly majority of existing studies have focused on the federal level splitting between presidential and congressional elections or between presidential and senatorial elections.

Campbell and Miller (1957) were the first to use surveys to investigate the split-ticket voting phenomenon. Previous aggregate analyses suggested that many American voters choose a Republican president and a Democratic congressman and vice versa (see Campbell et al., 1954). The lack of surveys, however, did not permit the study of the motivations behind splitting. Campbell and Miller (1957) suggested that splitters are those with a weaker partisan commitment to parties, candidates and/or issues. The data, however, indicated the presence of many straight-ticket voters with no partisan attachment. This called for an additional explanation or motivation, that is to say the 'tendency toward the least effort' (Campbell and Miller, 1957, p.310). The authors suggested that in the absence of relevant political motivation, voters cast a straight ticket, because straight voting is the easiest way for them to complete the task of voting.

After more than fifty years of research, what causes Americans to split their ticket is still open to debate (Roscoe, 2003; Burden and Kimball, 2004). Nonetheless, general agreement suggests that the steady decline of party identification has caused voting behaviour to be increasingly motivated by candidate traits, events and other short-term forces rather than by parties. Such ticket-splitting is mostly caused by contextual factors such as competitiveness of the district race and polarisation of the parties and candidates in the congressional elections (Maddox and Nimmo, 1981; McAllister and Darcy, 1992; Burden and Kimball, 1998, 2004). On the other hand, strategic motivations primarily derived from the 'policy-balancing hypothesis' (Alesina and Rosenthal, 1995; Fiorina, 2002) have found mixed empirical support (Beck et al., 1992; Mattei and Howes, 2000; Burden and Kimball, 2004, p.25–28). The policy-balancing hypothesis links to the idea that people will split their vote to achieve a specific policy outcome as they are more government-oriented than candidate-oriented (McAllister and Darcy, 1992; Alavarez and Schousen, 1993).

Campaign issues, specifically the 'issues ownership' thesis, states that ticket-splitting should occur because the salient issue in the presidential campaign advantages one party and the salient local issue advantages another party in the congressional elections (Downs, 1957; Jacobson, 1990*a*), have been considered but less extensively tested (Burden and Kimball, 2004). Structural explanations, such as the fact that presidential and congressional elections take place during different times, the presence of midterm elections, and the adoption of the Australian ballot, are also considered as having an impact on vote switching. These factors however, are not able to explain split-ticket variation over time; they do not explain why ticket-splitting became common after the 1950s, through the 1970s and then declined (Rusk, 1970; Burden and Kimball, 2004).

None of these theories is necessarily wrong, all contribute to split-ticket voting explanations in US. In this regard, Burden and Kimball (2004) have rightly pointed

out that the apparent conflicting empirical support of one theory over another may simply be an artifact of different data sources. Existing studies using surveys find higher support for intentional split-ticket voting than studies based on aggregate data. In other words, studies using individual-level data tend to highlight that vote switching derives from voters' motivations and preferences. On the other hand, investigations utilising aggregate-level data suggest that the switching is, to a large extent, forced by the structure of the electoral competition. For example, after voting for a Republican president, a Republican voter may not find a competitive Republican candidate on the congressional ballot paper and thus he is forced to split.[1] Survey data suggests that voters may have preferences but may vote against them due to the uncompetitive nature of many congressional districts, evidence better captured by using aggregate data (Burden and Kimball, 2004, p.29).[2]

In stark contrast with the studies focused on split-ticket voting in the US, the study of vote switching is scant in other presidential contexts. For instance, ticket-splitting is almost completely absent from scholarship on Latin America politics despite its centrality due to a high level of vote switching (Ames et al., 2009). The review of the literature on split-ticket voting in Latin America indicates a similar methodological issue found in current studies elsewhere. Recent studies based on electoral surveys provide evidence for similar patterns than the ones obtained using aggregate data, but these are interpreted differently by scholars.

For instance, developing a micro-level theory of split-ticket voting across presidential and legislative elections in the 2000 presidential elections in Mexico, Helmke (2009) advanced the idea that voters in new democracies act as if they were choosing to divide government in line with the policy-balancing hypothesis using aggregate data (Magaloni, 2004; Takahashi, 2004). Despite this, however, the authors explained that voters' responses indicate that their aim is to reduce the uncertainties associated with electoral change rather than balancing government policy outcomes. After years of single-party autocracies, voters not only strive to change course of politics, but they also try to minimise risks associated with electing an unknown challenger candidate (Helmke, 2009, p.71).

Similarly, split-ticket voting in Brazil is not a consequence of strategic balancing voting according to Ames et al. (2009). The authors provide evidence that the over 70% rate of splitting between the presidential and congressional elections in Brazil can be explained by an institutional approach that accounts as people vote for native sons and daughters locally and voting for the president is a national matter. Using two-city panel surveys, the authors find no support for the policy-balancing hypothesis despite the fact that aggregate results suggest a different conclusion.

[1]The non-competitiveness of the US congressional elections is indeed a fact considering for instance that 'only 39 of 435 House races were won with less than 55 percent of the vote in 2012' (Garrow, 2012).

[2]The discrepancy issue between the results provided by individual and aggregate-level data has been discussed also in other contexts (see for instance Kramer, 1983) The issue will be more extensively explored in Chapter 4 of this thesis.

2.2.2 Existing Explanations in Parliamentary Elections

Inter-level switching in presidential systems described above can also occur in parliamentary elections where voters may vote differently across national, local and/or supra-national elections. A well-known example is the European context. Individuals vote differently in European elections than in the general elections, because the former are perceived by voters as less important, 'second-order' elections (Reif and Schmitt, 1980; Reif, 1984). There are two classical propositions in this context (Carrubba and Timpone, 2005). The first one concerns the hypothesis that since European elections affect policy outcomes much less than do national elections, individuals have an incentive to use the European-wide elections as a 'referendum vote' on national government performance. A similar argument can also be made that individuals will tend to vote more 'expressively' at the European elections because their vote does not influence the formation of the government after the election (Franklin et al., 1995; van der Eijk and Franklin, 1996).

In both cases, the predicted result is that a voter is more likely to vote for a big party in national elections and for a smaller party in the European context, because 'wasted' voting considerations are weaker at the European level than at the national level. A wasted vote is defined as a vote cast for a party or candidate that has no chance of getting elected. Evidence suggests that this is indeed the case with some significant differences in patterns of vote switching among new and old Member States (Hix and Marsh, 2007; Marsh, 2009). Carrubba and Timpone (2005) also argue that the 'policy-balancing' hypothesis is much less applied to the European context than to the national context. When tested, this explanation finds mixed evidence at best. More specific findings suggest that European elections are not only a referendum on the domestic performance of incumbent parties, but are also a referendum on the issue of European integration (Hobolt et al., 2009). The authors also find that as an upward trend on the importance of European issues is occurring, we can expect the gap between the positions of governing parties and voters on European integration to become smaller over time as parties adopt positions closer to voters to avoid electoral punishment. This trend should ultimately reduce vote switching at the European level over time.

Another example of inter-level switching occurs at national and local elections in the same national setting. Local and national vote switching is less studied than European level vote switching. In this regard, Rallings and Thrasher's examination of Britain is the rare study of split-ticket voting in simultaneous elections. In 1979, 1997 and 2001 general and local elections coincided, so voters had to decide whether and how to distribute multiple votes across levels of government. Using both survey and aggregate data, the authors test almost all existing theories of split-ticket voting borrowed from the US context. The authors' analysis suggests that ticket-splitting is a product of both voters' attitudes and parties' strategies with contextual variables, such as the presence of incumbent candidates, playing an important role in vote choice (Rallings et al., 1998; Rallings and Thrasher, 2001, 2003).

Another contribution to inter-level switching is the work of Sanz (2008) which investigates why Spanish voters vote differently for concurrent local, regional and European elections. The author tests several mechanisms associated with second-order elections as well as more classic explanations of split-ticket voting borrowed from the US literature analysing both panel survey and aggregate data. The result of his comparison suggests that multiple motivational factors weigh differently at the various electoral levels and that ideology becomes an increasingly important determinant of voting for higher levels of government.

Finally, the review of the existing literature reveals a comparative study exploring voters' inclination towards inter-level vote switching. Taking advantage of the fact that in these countries national and local elections have been held simultaneously, Elklit and Kjaer (2005) use survey and aggregate data to test a 'party system' hypothesis to explain why vote switching is far more common in Denmark than in Sweden and England. They find that the differential in split-ticket voting across the three countries is due to differences in the number of parties running for elections and the discrepancy between the national and the local party systems. Specifically, in Denmark split-ticket voting is more common than in Sweden and England, because the party system is different across local and national elections. The party-level explanation however leaves much variation unexplained.

The review of split-ticket voting in parliamentary elections could not be complete without examining the case of vote switching under preferential systems. In Ireland, Malta and Australia, voters can chose candidates within party and/or across parties lines. Evidence from Ireland suggests that voters are more likely to cast a straight vote when their party attachment is stronger than voters with a weak attachment (Marsh, 2006*a*). However, despite the fact that individual-level features appear to play a critical role in behaviour, findings indicate that the effect of system-specific voting structures on voting patterns (such as the number of district candidates each party runs and their features, primarily incumbency) should not be disregarded (Marsh and Plescia, 2011). Darcy and Marsh (1994) provide evidence that, in Australia, ballot grouping of candidates by party encourages voters to cast more straight-ticket votes than in Ireland where candidates are listed regardless of party's affiliation. With regard to the Australian Senate, Bowler and Denemark's analysis (1993) indicate that much of voters split occurs in a strategic fashion to balance the presence of parties in the upper house. A comparative look between the Australian and US Senate supports this finding; voters in Australia engage more in strategic switching as predicted by the policy balancing hypothesis than US voters do (Bean and Wattenberg, 1998).

2.3 Split-Ticket Voting in Mixed-Member Electoral Systems: Previous Explanations

The discussion conducted in the previous sections illustrates that split-ticket voting is an important phenomenon, as elections frequently ask voters to make multiple, concurrent decisions. The increasing popularity of mixed member systems offers the opportunity for expanded research on this topic and assessing theories of how voters cast their ballots to fill government positions. Reasons for voter's split under mixed-member electoral systems has been the subject of much scholarly investigation. Despite this, however, several methodological and substantial issues plague the understanding of split-ticket voting. Substantive issues will be identified in this section and will be explored in more detail in Chapter 3. Methodological issues will be the subject of Chapter 4. This section provides a comprehensive review of the existing literature on split-ticket voting in mixed systems and establishes how this integrates into the broader literature on voting behaviour. It identifies the literature gaps and explains how this project is intended to fill them. Standard explanations of split-ticket voting are, for this purpose, grouped in three general models according to whether they stress 1) sincere voting preferences; 2) strategic motivations; or 3) the effect of the features of the electoral competition.

2.3.1 Sincere Voting Explanations

Sincere determinants of voting behaviour have been identified as important explanations of split-ticket voting in previous research. These determinants primarily involve individual-level preferences. A standard finding in current investigations of split-ticket voting is that voters with a commitment to a party or that at a given time strongly prefer a party over all the others, will be more likely to vote for that party on both ballots regardless of the parties ability to win the elections (e.g. McAllister and White, 2000; Karp et al., 2002; Gschwend, 2007; Carman and Johns, 2010). This finding only holds true when voters do not have contrasting feelings for parties and for candidates standing for election (Gallagher, 1998, p.209). As a matter of fact voters will be more likely to cast a split-ticket vote when they like a party and a candidate that belongs to another party.

It is commonly argued that split-ticket voting is increasing as party attachment is declining. In other words, higher levels of split-ticket voting are likely to result as party attachment, which is seen as the principal reason for straight-ticket voting, becomes increasingly less important as an anchor for voting choice (Beck et al., 1992; Marsh, 2007). Consequently, recent studies on electoral behaviour have looked at the influence on vote choice of other characteristics such as incumbency effect (e.g. Cox and Katz, 1996; Bawn, 1999; Bartels, 2000) and on personal voting (e.g Gaines, 1998; Dalton, 2000; Moser and Scheiner, 2009). Despite the fact that in almost all country-based studies, findings indicate that candidates play a strong role on vote choice under

mixed systems, the mechanisms behind the candidate-centered hypothesis as outlined by the literature are not clear. This is a common issue in studies of electoral behaviour rooted in the fact that the same observed voting behaviour is compatible with multiple mechanisms at the individual-level. As a result scholars not rarely provide different explanations for the same phenomenon. Some have stressed the importance of ideological candidates features; others point to non-ideological aspects, such as candidates' prospects of winning the single-member district seat, thus stressing the importance of strategic electoral behaviour.

For example, in Germany, the recent literature often uses the strategic voting hypothesis rather than a personalistic argument to explain split-ticket voting. In this regard, Gschwend et al. (2003) suggest that voting in German districts correlates with patterns of party strength at the district level. Therefore, the stronger a party's performance at previous election, the better its ability to retain the support of straight-ticket voters and to attract split-ticket voters who supported another party with the party vote. Similar findings have been highlighted in the case of New Zealand, where studies suggest that the overall impact of candidate personal features appears small and other variables, primarily candidate viability have a more substantive effect (Karp et al., 2002; Karp, 2009). The evidence across various studies suggests that the effect of party's spending is stronger than that of candidate features; when parties spend more, voters are more likely to cast a straight vote as they believe that this is a 'sensible' strategy (Johnston and Pattie, 2002, 2003, 2004; Elff et al., 2008). On the other hand, Burden (2009) analysis of the 2000 Japanese election indicates it is not the centrality of ideology but the importance of non-ideological candidate features that matter the most in explaining the levels of split-ticket voting. As such, the author suggests that much ticket-splitting can be explained simply by the presence or absence of strong candidates (such as incumbents) at the district level. Similarly, utilising aggregate data, Moser and Scheiner (2005) argue that, in some countries, including New Zealand and Japan, with the exception of Germany, patterns of split-ticket voting are more consistent with a purely personal hypothesis rather than strategic voting.

The problem of conflicting results stems from the use of independent variables which do not uniquely distinguish between diverse individual-level explanations. Specifically, the effect of incumbency has proved to lower levels of split voting in a variety of contexts ranging across national (Reed, 1999; Karp et al., 2002) and sub-state elections (Curtice, 2006; Carman and Johns, 2010). However, the use of incumbency is problematic as it does not disentangle strategic motivations from more sincere ones. Thus, elevated support for incumbent candidates at the district level may derive from their personal qualities or from the fact that they represent a more 'viable' alternative, that is they are more likely to get elected. It is hard to assess if the single-member district vote for a candidate has been sincere or strategic based on incumbency unless specific survey questions are available to map voter preferences on both ballots. A similar problem is encountered using candidate spending at the district level as spending by parties is highly correlated with incumbency status as also discussed below.

It is clear that incumbency is not a good indicator if one wants to disentangle the effect of sincere from strategic voting behaviour. Furthermore, it appears that studies tend to support one explanation over another depending on the type of data analysed. When using aggregate data, the existing literature stresses the strategic aspect of split-ticket voting as it finds that incumbent and strong candidates receive less split-ticket voting than non-incumbent candidates. On the other hand, surveys reveal that at least part of what is considered to be strategic splitting is due to sincere preferences. Identification issues, due to the fact that patterns can be consistent with multiple explanations at the individual level, are at the heart of this problem. As a consequence, we do not know whether or not it is candidates' features or their viability that determines split-ticket voting. Also, we do not know if parties and candidates are 'judged' differently by voters.

2.3.2 Strategic Voting Explanations

Current investigations focusing on strategic voting incentives often examine the effects of the electoral rules on the two parts of the electoral ballot. Strategic voting is based primarily on short-term voters' motivations and the primacy of considerations of the impact of vote choice on the electoral outcome. For this reason, if voters are strategic, they should support only parties and/or candidates that have a reasonable chance of getting elected (Cox, 1997, p.124). Applying Duverger's (1963) classical arguments to mixed-member electoral systems, a rational voter may support the same party with his two votes because voting considerations are different in the two parts of the electoral ballot. It is often assumed that a vote under majoritarian rules is wasted when cast for a party with no chances of getting elected. The vote under proportional rules can also be considered wasted if cast for a party that has a sure chance of getting elected (Abramson et al., 2010).

The current literature highlights two strategic split-ticket voting hypotheses. The first one is known as the wasted vote hypothesis which states that voters will split their vote if the candidate of the party supported on the proportional ballot has no chance of winning the district seat (Reed, 1999; Bawn, 1999; Karp et al., 2002). This strand of the strategic literature relies on the problematic assumption that the vote under proportional rules is more sincere than the vote cast under majoritarian rules. Under this hypothesis the voter tends to vote more sincerely on the proportional ballot than on the majoritarian ballot as wasted vote considerations are lower under proportional than majoritarian rules.

Wasted vote strategic theories have been under attack by those who points to the complexity of the mixed systems. Cox and Schoppa (1998), for example, contend that the complexity of the mixed rules leads to 'sticky voting', where confused individuals vote for the same party on both ballots even when strategic incentives suggest that they should split their votes. Some scholars claim that the high level of split-ticket voting in countries such as Germany results from voters misunderstanding of the electoral rules

rather than voting strategically (Jesse, 1988; Schoen, 1999). The main limitation of these studies challenging the strategic hypothesis is that they are not able to provide alternative explanations for the the fact that split-ticket voting remains elevated even when the electoral system has been used for several elections.

In an attempt to challenge the hypothesis of confused split-ticket voting, the wasted vote strategic literature utilises survey data to demonstrate that voters with higher levels of education and a good knowledge of the electoral system are more likely to split their vote than voters with lower levels of education and/or political sophistication (Banducci et al., 1998; Karp et al., 2002; Pappi and Thurner, 2002; Karp, 2006). This finding is interpreted as a confirmation that split-ticket voting is strategic and as a sign that the split is the realm of sophisticated voters rather than a consequence of misunderstanding of the electoral rules. The wasted vote strategic literature also looks at several objective features of the district race considered as important to explain a strategic reaction to the electoral rules by the general literature on electoral behaviour. The literature indicates two ways of assessing the link between district outcome and strategic voting.

The first method to assess the link between distinct outcomes and strategic voting is to ask respondents directly. The second way is to use aggregate district indicators. Ideally, one would use individual-level pre-electoral expectations to measure district competitiveness and voters waste vote considerations. However, as these measures at the individual-level are not often available, the literature on strategic voting uses district-level features. For instance, Karp et al. (2002) show that during the 1996 elections in New Zealand, higher the difference between the vote for ones' most preferred candidate and for the lower of the two top contenders in the previous elections, the more likely an individual is to split from his party and vote (presumably strategically) for one of the two top contenders. The existing literature also shows that the level of competitiveness of the district race is likely to affect the probability of casting a strategic vote (Niemi et al., 1992, p.232). The expectation, as originally suggested by Cox (1997) and confirmed by subsequent analyses in mixed systems (Bawn, 1999; Reed, 1999), is a negative effect of the level of competitiveness on split-ticket voting: the smaller the difference between the two top contenders in a district, the greater the probability of casting a split vote. In close district races fewer voters should be willing to waste their votes than in less competitive districts.

In a subsequent study, Moser and Scheiner (2005) suggest that the relationship between split-ticket voting and competitiveness of the district race is complex and such relation should help differentiate between personal and strategic voting. As the authors explain, the variable measuring district competitiveness impacts the level of split-ticket voting differently according to the candidate rank at the previous elections (if the candidate won the elections, or ranked second or lower at the district level). The authors, as well as all the majority of current studies, use the candidate vote gap measured as the difference between the vote for the candidate and the party's candidate vote, as dependent variable. This measure is problematic in many regards as it only

reveals the minimum level of splitting taking place, and it is not able to account for all the cross-voting among parties and candidates contesting the elections (Cowart, 1974). Despite this issue, Moser and Scheiner's (2005) intuition on the effect of the district competitiveness on split-ticket voting holds true.

The mechanism is as follows: in competitive districts supporters of the top-ranked candidates should stick with their candidates in order to guarantee their victory. In other words the variable measuring district competitiveness should have a positive effect for the first and second-ranked candidate in that district (that is lower levels of split-ticket voting are expected when the difference between first and second-best placed candidate is lower) if strategic voting occurs. On the other hand, if a negative relationship is found, this may indicate the presence of personal vote, particularly so for the second-placed candidate because, all else being equal, there is no reason to support a candidate that has no chance of winning. For lowest-ranked candidates, the matter is more complicated as a more competitive race should encourage strategic split-ticket voting in order to guarantee the victory of the least-worst option among the two top-ranked candidates. At the same time, high splitting can be entirely consistent with personal voting.

Recent analyses of vote choice argue that voters in proportional systems face similar incentives to cast a strategic vote than do voters under majoritarian rules (e.g. Bargsted and Kedar, 2009; Hobolt and Karp, 2010). Investigations in several countries adopting proportional rules (e.g. Blais et al., 2006; Meffert and Gschwend, 2010) suggest that a good proportion of voters cast their vote to maximise the probability that a preferred coalition will be formed post election. With regard to split-ticket voting, the so-called 'coalition voting' hypothesis suggests that supporters of large parties can engage in strategic splitting when the proportional vote is at risk of being wasted on a party guaranteed of victory. Voters preferring a big party, if rational, should split their vote and vote for a (minor) party as likely coalition partner on the proportional ballot to help it cross the electoral threshold. Such strategic voting is possible when voters prefer a coalition government after the election and when the main parties signal their coalition preferences relatively unambiguously prior to the election (Saalfeld, 2005, p.222).

Evidence in Germany suggests that some voters will split their vote in a manner consistent with a coalition outcome (Pappi and Thurner, 2002; Gschwend, 2007). Specifically, in Germany, Christian Democratic Union (CDU) voters may strategically split, voting for the smaller Free Democratic Party (FDP), in the proportional vote to obtain seats in the Parliament if they see as favorable a coalition between CDU and FDP. Compared to Germany, there is a low support for the coalition voting hypothesis in the few other countries where the matter has been considered, such as New Zealand (Bowler et al., 2010) and Scotland (Carman and Johns, 2010). The investigation of the coalition voting hypothesis is difficult due to the lack of proper data. Studies focusing on coalition voting generally use a dependent variable that takes into account possible coalition outcomes or the rank of voter preferences for parties. In both cases, pre-electoral data is needed, which is not often available in national election studies.

The previous section discussed as the disentanglement of the personal and strategic voting hypotheses is plagued by the unavailability of information about voters' preferences for all candidates and parties running for elections. A split towards a large party's candidate, which is usually seen as strategic, is entirely consistent with personal voting. A similar problem is encountered when one tries to disentangle the coalition voting from the wasted vote hypothesis. A disentanglement of the two strategic hypotheses is impossible using aggregate data as this data provides the same joint distribution for both hypotheses, that is a vote for a big party candidate and for a small party on the proportional ballot. At the same time, it is difficult to use surveys unless one is provided with specific questions on the rationale of vote choice. As these various issues face also scholars interested in electoral behaviour beyond mixed systems, addressing such questions in the context of mixed systems provides a general contribution to the study of voting behaviour.

2.3.3 Forced Split-Ticket Voting Explanations

Both sincere and strategic voting focus on voters' motivations and preferences. Another voting option, beside, the sincere and strategic, deserves attention when examining vote behaviour. This third option is linked to the idea of forced split-ticket voting. Under mixed systems, the two ballots are not contested by the same number of parties on each ballot. As a matter of fact, whereas big parties typically contest both electoral tiers, small parties usually run candidates only in a few selected districts. Therefore, voters do not always find the party for which they have voted on the proportional ballot also 'available' on the majoritarian ballot; and as a result they are often forced to split if they want to cast two votes. This phenomenon is common under mixed systems but also under several other electoral settings. Using Pierce (2003, p.265) words, "The world is full of thwarted voters". For instance, in run-off elections vote choice is more restricted in the second round than in the first round. There are at least two reasons why forced voters merit attention. First, forced voters pose the problem of how, in an electoral context, people make second choices. Much is known today about how people make their first choices, but the literature rarely addresses the question of how people adjust to the limited party or candidate menu. This lack of knowledge is due to analytical problems in measuring those voters classified as forced voters. The second reason for investigating forced voters is because how they decide to divide their votes will have an impact on the election outcomes.

Under mixed systems it is relatively easy to measure forced votes. These are voters who, after having voted for a party, do not find their preferred party available on both ballots. It is however complicated to establish whether or not the condition of forced voters is correlated with voters willingness to split their vote. Without assuming vote choice is party-centered, forced voters are faced with a choice among two alternatives: abstaining from the candidate ballot or switching to a candidate of a different party. The second choice, split-ticket voting, is more common than abstention among forced

voters. This thesis investigates whether or not and to what extent forced voters distribute their two votes differently from non-forced voters. So far, knowledge of the impact of candidate availability on the levels of split-ticket voting remains limited, because except for the studies provided by Benoit et al. (2006) and Johnston and Pattie (2002), the existing literature does not account for the issue of candidate availability on the electoral ballot.

Benoit et al. (2006) investigated the 1996 national election in Italy, where the mixed system, in use until the 2001 elections, permitted the formation of pre-electoral coalitions on the majoritarian tier. The authors showed that Italians were more prone to split their ticket when the coalition candidate was further away, in policy terms, from the most preferred alternative on the majoritarian ballot; this study relies on the balancing model (Fiorina, 2002), which adds a number of assumptions about voters sophistication which are still matter of discussion in the literature (Alesina and Rosenthal, 1995; Rabinowitz and Macdonald, 1989; Bargsted and Kedar, 2009). With regard to Johnston and Pattie (2002), the authors test how forced voters in New Zealand and Scotland reacted to the spending of parties contesting the candidate ballot. The findings suggest that, especially in Scotland, the more a party spends, the more able it is to attract forced voters on the candidate ballot. Johnston and Pattie (2002) interpret this result as a sign of strategic voting. However, the discussion provided in previous sections of this chapter explained as the correlation found between split-ticket voting and party spending can be entirely consistent with personal voting.

Beside these two analyses, current studies on voting behaviour under mixed systems, exclude all individuals voting for a party which do not also run a candidate on the majoritarian ballot or include all voters while ignoring the issue of candidate availability. The exclusion of all forced voters from the analysis is problematic, because it assumes that all these voters would have cast a straight ticket if their party's candidates were available. This assumption is unrealistic as many voters, who find their party available on both ballots split their ticket anyway. On the other hand, ignoring the issue assumes that all voter preferences are available to voters on the candidate ballot. This is problematic, as fewer candidates than parties run for elections under mixed rules. If candidate availability is not controlled, we are at risk of overstating the impact of sincere and strategic voting determinants on voting behaviour.

The issue of forced split-ticket voting is considered in the thesis through two case of studies, Japan and Italy. In the first case of Japan, the availability of detailed survey data permits the disentanglement of the rationale behind split-ticket voting and the controlling of whether or not voters find both the party and the candidate on the electoral ballot. On the other hand, the Italian case represents a peculiar mixed-member electoral system as pre-electoral coalitions are displayed on the electoral ballot. Consequently all parties contest the proportional ballot, but they run common candidates on the majoritarian ballot. For this reason, voters have more options then to simply cast a split or a straight vote. Italian voters can cast a straight or split *party* vote when the party is available on both ballots; when the party does not run a

candidate, the voter can cast a straight or split *coalition* vote supporting the candidate endorsed by the coalition to which his most preferred party belongs. Such peculiarity of the Italian electoral rules allows the testing of additional voting hypotheses while controlling for option availability on the electoral ballot. By examining forced voters, the thesis advances the general literature on vote choice, which rarely addressed the question of how people adjust to the limited electoral menu.

The last issue considered by this thesis is the effect of the institutional features of the electoral campaign on the way people split their vote. Different combinations of the electoral rules will diversely impact the way people vote; these outcomes occur as distinct electoral rules impact voting and party behaviour differently. As mentioned in the previous chapters, there are two main variants of mixed systems, 'compensatory' or 'parallel' as well as a third group of systems difficult to classify and often defined as semi-proportional or semi-majoritarian mixed systems (Shugart and Wattenberg, 2001, p.12). In a compensatory mixed system, the final composition of the parliament will resemble the composition obtained under pure proportional rules. In these systems the party vote is the most important determinant of the number of seats a party obtains after election (Vowles, 2005). Under parallel mixed systems, no compensation exists between the two electoral tiers and the candidate vote is considered the most important vote as it has a great leverage on the final composition of the parliament (Reed, 2005).

The combination of mixed rules impacts vote switching. For instance, proportional mixed systems, offer strong linkage mechanisms between the two tiers so, some scholars have suggested that voters should have comparatively few incentives to split strategically deserting their most preferred small party's candidate (Jesse, 1988; Schoen, 1999). Some others, on the other hand, have argued that this strong linkage of the system encourages voters to engage in a personal vote for a candidate with little risk to their preferred party's success in gaining seats overall (Karp et al., 2002). On the other hand, under parallel rules, where such compensation does not exist, parties have a strong incentive to focus on winning as many single-member districts as possible, because each district seat won will add on to the national party seat total. Candidates in these systems will be more likely to behave personalistically than their counterparts in compensatory systems (Moser and Scheiner, 2005). Thus voters should be more likely to split under parallel rules than in compensatory systems. Evidence across countries is limited as comparative investigations of split-ticket voting are an exception. This thesis uses the comparative analysis to shed light on this gap in the literature.

2.4 Summary & Concluding Remarks

Free and fair elections are regarded as one of the most, if not the most, important institutions in a democracy. The importance of elections is seen through the opportunity citizens are given to pick leaders of their choice representing them in governance structures, such as parliaments. The study of how people vote in elections has occupied political scientists for decades. A peculiar but common instance of voting behavior is

split-ticket voting. In the outset of this chapter, a broad distinction was drawn between inter-election (often defined as electoral volatility) and intra-election vote switching (often defined as split-ticket voting). The present thesis focuses on the latter which is not seen has a consequence of social-structure variables, but rather as a result of political, attitudinal and strategical forces characterising a specific election.

The review of the existing literature has highlighted that vote switching can be studied across various dimensions. In several countries, scholars have focused on disparate aspects of the phenomenon. It is clear that vote switching is complex and reflects the interaction between individual-level features and the context in which voters cast their vote. This chapter provided a long analysis of split-ticket voting in mixed-member electoral systems, the focus of this thesis. When explaining ticket-splitting under mixed systems, existing theories can be summarised in two broad different types: those emphasising the intentional and those focusing on forced sources of vote switching. The former group is the predominant focusing on voters' sincere and/or strategic motivations, and the latter stresses the importance of formal institutional factors on the levels of split-ticket voting. Although several studies on ticket-splitting in mixed systems exist, several unanswered questions still exist as to why and how people split their vote crossing party lines. This issue exists due to the complexity of the matter as well as due to the limited availability of data. Studies using different types of data have not rarely provided alternative explanations for the observed variation. Furthermore, current analyses have not attempted to generalise their results across elections in the same country nor in a comparative fashion.

This thesis addresses an important question in the political science literature, and the research itself will raise many questions warranting further study. The large number of cases in this investigation allows for the testing of a more general, robust theory of split-ticket voting. This study uses two types of data and incorporated additional independent variables to better understand vote switching.

Chapter 3

Research Design

3.1 Introduction

Previous studies into split-ticket voting used either surveys or aggregate data and have predominantly been limited to the country-level of analysis. Although such research has provided valuable insights, country-level data is naturally of limited use when one seeks to understand the variation in split-ticket voting both across countries and within countries. Moreover the exclusive reliance on one type of data, individual or aggregate, has provided a necessarily incomplete picture of the phenomenon. To address these limitations, the current thesis includes several elections across different countries, allowing us to systematically investigate any difference in the influence that each of the variables may have from one country to another, whilst maintaining the same set of measures for each of the independent variables.

This thesis uses existing survey datasets and merges them with aggregate-level indicators. This is done to take into account the impact of voters' preferences and motivations as well as the effects of district and institutional-level factors on the way people vote. Furthermore, this thesis applies new methods of estimation to aggregate voting results to explore the variation of split-ticket voting across parties and sub-national geographical units. This research project comprises a comparative analysis and it also looks in depth at case studies in New Zealand, Scotland, Japan and Italy.

Firstly, a methodological investigation uses the New Zealand and the Scottish cases to discuss in detail methodological issues pertaining to the measurement of split-ticket voting. The legislative elections in New Zealand and Scotland are chosen as testing settings because for them, uniquely, data on actual levels of split-ticket voting are available. Because in these contexts the true level of vote switching is known, it is possible to empirically evaluate the estimates provided by the estimation techniques and before applying them to other countries. The comparative investigation draws upon 10 country-studies including national elections in Albania, Germany, Hungary, Italy, Japan, New Zealand, Thailand, South Korea, and two sub-state elections in Scotland and Wales. These countries enable us to cover all possible instances of mixed rules and allow variation on several additional dimensions such as familiarity with the electoral

rules. The thesis focuses subsequently on two case of studies, the Japanese lower house elections and the Italian regional elections since the introduction of the mixed rules. These two cases enable us to respond to additional questions left unanswered from the comparative analysis.

The present chapter starts by introducing in detail the measurement of the dependent variable. This is done to outline how split-ticket voting has been measured so far and how this thesis improves on existing measurements. Next, the chapter presents the operazionalization of the independent variables that will be used in subsequent chapters to account for the observed variation of split-ticket voting. Subsequently, section 4 presents the case of studies, their selection and the data employed to fulfill the aims of the thesis. Summary statistics for split-ticket voting is provided in this section to indicate substantial variation within countries and across countries. Concluding remarks sum up the main points and introduce the analytical chapters of the thesis.

3.2 The Dependent Variable

3.2.1 Individual-level dependent variable

Surveys in mixed-member electoral systems ask respondents about their party and their candidate vote choice using two separate questions: 1) 'For which party have you voted in the proportional election/ballot?'; and 2) 'For which party's candidate have you voted in the majoritarian election/ballot?'. When relying on surveys, scholars have usually measured split-ticket voting as a deviation from a straight vote. In current studies, the dependent variable takes a value of '0' each time the respondent has cast a straight vote and a value of '1' otherwise. The first dependent variable is thus dichotomous and represents the probability of observing a split rather than a straight vote. Concerning independent variables, they are built as if the vote in mixed systems is party-centered. For instance, with reference to party identification, this is set at 1 if the respondent has a party identification for the party voted on the proportional ballot and 0 otherwise. The measurement of independent variables using only preferences for parties is rooted in the fact that surveys often lack questions about respondents' preferences for the candidates running on the majoritarian ballot.

In addition, the current literature on split-ticket voting based on surveys, usually relies on two voting behaviour assumptions that have never been empirically tested. The first assumption is that the party vote, because cast under proportional rules, is generally more sincere than the candidate vote which is cast under majoritarian rules. The second assumption is that voters generally like a single party, that is they have a one-party preference (Pappi and Thurner, 2002; Gschwend, 2007; Rich, 2012). Based on these two assumptions, the current literature considers the straight vote behaviour as sincere and the split choice as representing some form of strategic voting. However, both these two voting behaviour assumptions are problematic. First, split-ticket voting choice can be entirely consistent with sincere voting since it is straightforward to assume

that voters may genuinely prefer a candidate that happens to run for a different party than the one voted with the proportional vote (Gallagher, 1998, p.209). Moreover, as suggested by Pappi and Thurner (2002, p.212), 'the direct identification of a strategic vote requires information on party preference for which the second vote [party vote] can be misleading'. Straight vote, which is usually regarded as sincere, can be indeed strategic. For instance, when a voter truly prefers a small party but he knows that this party has no chance of crossing the electoral threshold in the proportional context, the voter can decide to strategically split voting for another party also in the party vote (Thurner and Pappi, 1998, p.228).

More recent analyses of vote choice argue that voters in proportional systems face similar incentives to cast a strategic vote as voters in majoritarian systems do (see for instance Hobolt and Karp, 2010 and Abramson et al., 2010). In the case of mixed systems, the proportional vote can be strategic when cast for a smaller and likely coalition partner to help it cross the electoral threshold, when the most preferred party is sure of victory. In this regard, a smaller fraction of the existing literature has measured split-ticket voting as a multi-level dependent variable which takes into account whether or not the split is consistent with different coalition outcomes (Pappi and Thurner, 2002; Gschwend, 2007; Bowler et al., 2010; Carman and Johns, 2010). The limitation with this last strand of the current literature is that it usually excludes small parties voters from the analysis. Such exclusion is often a consequence of the adoption of multinomial logistic (MNL) models to analyse the data at hand. MNL models do not allow the inclusion of categories of the dependent variable chosen by only a handful number of respondents such as small parties supporters. The non-inclusion of smaller parties may bias the results and it is likely to underestimate the level and impact of split-ticket voting on the overall electoral outcome.

An improvement to this situation consists in investigating the two votes, the party and the candidate vote, separately and by including as many parties as possible. The comparative analysis of the two votes permits assessing voting determinants in the two parts of the electoral ballot without the need to consider one of the two votes a priori more sincere than the other one. When the two votes are examined separately, the focus of the analysis is not directly on the determinants of split-ticket voting; instead the analysis investigates comparatively the voting predictors in the two parts of the electoral ballot. The comparative investigation of the two votes is useful for the study of ticket-splitting because it allows us to consider how voters cast the party and the candidate vote more broadly. This for instance enable us to reason about the impact of sincere and strategic voting predictors on the two parts of the electoral ballot. To conduct this analysis this thesis employs a 'stacked' dataset (Stimson, 1985; Tillie, 1995). A broad investigation of the dependent variable measurement is provided in Chapter 4 of this thesis where the use of the stacked dataset is discussed in detail. For the time being it is sufficient to mention that this thesis uses surveys in two different ways. First, for the comparative analysis, this study looks at surveys using a stacked data format. This investigation is specifically intended to relax existing literature's

assumptions and to provide additional evidence about sincere and strategic voting. The use of stacked data also eases comparisons across countries allowing us to systematically investigate any difference in the influence that each of the independent variables have on the two votes.

The case of studies of Japan and Italy examine split-ticket voting using both aggregate data at the district level and surveys using a stacked and non-stacked data format. Whereas the more common non-stacked dataset enables to compare this thesis's findings with previous studies, the use of the stacked dataset allows us to provide further evidence on the way people cast the two votes. Furthermore, in both instances, non-stacked and stacked data, this thesis merges individual-level information with aggregate level indicators at the level of the district creating original mixed-level datasets. As mentioned already this mixed-level data allows us to investigate the impact of individual-level determinants while controlling for the features of the district in which the vote is cast.

3.2.2 Aggregate-level dependent variable

Even if less frequently, the current literature use official electoral results to measure split-ticket voting as the 'candidate vote gap'. The candidate vote gap is obtained by measuring the difference between the votes for the party and those for the linked candidate in a certain district. A negative vote gap has always been understood as meaning that the candidate did worse than his party and a positive gap as the candidate did better. Although this 'net' measure of split-ticket voting is still the most common approach, it suffers from major problems. Indeed the candidate vote gap can only reports the minimum level of vote switching that actually takes place because all the cross-voting among parties and candidates cancel each other out. Specifically, although a substantial amount of net split-ticket voting at the party level must reflect at least an equally large switching at the individual level, the reverse does not hold: a small, even zero, net split-ticket voting can be the product of considerable, but self-cancelling vote switching at the individual level.

When relying on this net measure, the existing literature uses Ordinary Least Squares (OLS) regression models to regress the quantities of interest on a number of factors, such as incumbency, competitiveness of the district race and so on (Bawn, 1999; Kostadinova, 2002; Moser and Scheiner, 2005). Because of the methodological limitations of the net measure of split-ticket voting, for the most part existing analyses based on aggregate data provide substantively limited results. One possible solution to this puzzle is using indirect methods to obtain estimates of split-ticket voting. Scholars have tried to develop methods to obtain disaggregated quantities from aggregate data (see for example Achen and Shively (1995) and King (1997) for a review). A few analyses of split-ticket voting exist which apply advanced techniques to country-election data (Johnston and Pattie, 2002; Benoit et al., 2006; Elff et al., 2008; Burden, 2009). Despite this however, advanced methods have never been tested using large amount of

data (King et al., 2004, p.78).

This thesis uses the comparison of the candidate vote for a candidate and the proportional vote in that single-member district for the candidate's political party/ies as a starting point of the analysis. Subsequently the thesis provides a test for three of the most recent estimation techniques proposed to tackle the ecological inference issue. The purpose of the methodological investigation is to test existing estimation techniques in order to assess which is the best approach to overcome the limitation of the data. Specifically, the techniques tested are two parametric ecological inference methods, the Multinomial-Dirichlet model proposed by Rosen et al. (2001) and the Multinomial-Logistic model advanced by Greiner and Quinn (2009) and a mathematical procedure known as Maximum Entropy originally applied to electoral data by Johnston and Hay (1982, 1983). These methods are tested using two real-world settings, the New Zealand national legislative elections since the introduction of the mixed system in 1996 and the 2007 Scottish Parliament elections.[1] The New Zealand and Scottish cases are useful testing grounds for several reasons.

First because they provide, exceptionally, the *actual* levels of split-ticket voting allowing for the comparison between estimated and true values. This data is unique, because actual levels of split-ticket voting are not normally known to researchers. In addition, polling station electoral data representing the best level of disaggregation to which estimation techniques may be applied are freely available for these two settings. Furthermore, the New Zealand and Scottish cases allow significant diversity across settings, among sub-units and across time, providing the variation needed to fully explore the performance of the estimation techniques. After testing, the estimation techniques will be employed to obtain disaggregate quantities of split-ticket voting. In this case the dependent variable is the proportion of split-ticket voting obtained by each party in a certain district and the total amount of split-ticket voting at the district level.

3.3 Operazionalization of the Independent Variables

The review of the existing literature in Chapter 2 has differentiated between three groups of variables linked to sincere, strategic and 'forced' split-ticket voting. Recalling that discussion, this section examines how the independent variables are operazionalized in the context of this thesis and used to investigate substantively the variation of split-ticket vote.

3.3.1 Sincere Voting Predictors

The first group of variables includes individual preferences such as political and social values which are deemed to be sincere when independent from the outcome of the

[1] Unfortunately the actual level of ticket-splitting and polling station data in the Scottish case are only available for the 2007 elections when exceptionally ballots were counted electronically. An extensive discussion of these issues is provided in Chapter 4 of this thesis.

election. Party attachment in addition to feelings for candidates contesting the majoritarian tier are by far the most used variables to measure sincere voting. Concerning party attachment, the finding that identifiers are less likely to split than non-identifiers is a well established finding in the literature on ticket-splitting (e.g. Banducci et al., 1998; Karp et al., 2002; Curtice, 2006). On the one hand, party identification represents a standing commitment to one party that can be expected to persist over time, and serves to insulate a voter from potential cross pressures. This commitment to a specific party can be assessed using the traditional Eurobarometer question about party attachment: 'Do you usually think of yourself as close to any political party?' On the other hand, party identification can be seen as simply a decision to vote for a party at a particular time; a perception that the election is party-centered.

A measure of this second 'face' of party identification is a question asking score for parties running for elections, usually on a scale from 0 to 10 where 10 means 'like the party very much'. This question provides an indication of how much utility a voter can expect to receive from his support for each party. There are two possible indicators of partisanship to be derived from this score question: the absolute score for each party and the difference between the best score and the score for next best party. It can be that some voters like only a single party whereas other voters score multiple parties equally, or nearly equally high (Marsh, 2006*b*). It is straightforward to see that voters who like more than one party similarly will be more likely to split their vote than those who have a strong commitment to one party above all the others.

Strong partisanship serves to reduce the appeal of individual candidates from other parties and the appeal of parties with different issue positions or salience. However stronger feelings for candidates are likely to increase split-ticket voting when in contrast with feelings for parties; that is when the most preferred candidate is not running linked to the most preferred party. There is no doubt that in the case of mixed systems one would prefer the feeling thermometer questions, as well as all the other questions used to measure sincere determinants of vote choice, to be asked separately for *all* parties and candidates running for elections. Unfortunately however, surveys only contain questions about preferences for parties; they rarely ask similar questions for the candidates running for elections. Admittedly, without survey questions able to capture voters' feelings for candidates, the effect of personal voting is empirically difficult to disentangle from strategic voting considerations. For instance, strong candidates by incumbency status are usually found to obtain more votes than their party (e.g. Bawn, 1999; Reed, 1999; Moser and Scheiner, 2005). As already discussed however, a larger vote gap for incumbent than for challenger candidates can indicate both personal and strategic voting.

3.3.2 Strategic Voting Predictors

Strategic voters are those voters likely to support only parties and/or candidates that have a reasonable chance of getting elected. There are several ways of examining the

determinants of strategic voting. I look at the relevant factors by category dividing them into factors pertaining mostly to the voters (individual-level factors), to the features of the district race (district-level factors), and to the more or less stable features of the parties and candidates running for elections (party-level factors). These voting behaviour predictors are not independent from each other and as such should be considered. For instance, sophisticated or highly educated voters are more likely to be aware of the features of the electoral race and more likely to react strategically to those features than non-sophisticated or low educated voters (Banducci et al., 1998; Johnston and Pattie, 2002). For this reason when investigating split-ticket voting it makes sense to control for education and political sophistication as well as for those district-level features that encourage strategic voting. The strategic literature has often showed that voters with higher levels of education and a good knowledge of the electoral system are more likely to split (Karp et al., 2002; Karp, 2006; Carman and Johns, 2010).

It is reasonable to expect that a voter's strategic decision to split depends upon the competitiveness of the district race and the distance between his preferred candidate and the one in second place (Niemi et al., 1992, p.232). Specifically it makes less sense for a voter to abandon its most preferred party when he prefers a candidate in third position which is very close to the second-placed candidate and the two top contenders are only separated by a few votes. Concerning the difference between the votes for a voter's most preferred candidate and the lowest of the two top contenders, the expectation is a positive effect: the higher this difference, the more likely an individual should be to switch from his party and vote strategically for one of the two top contenders (Karp et al., 2002). Less straightforward is the effect of the level of district competitiveness on the probability of casting a strategic split vote.

District competitiveness measures the closeness of the district race as the difference between the first and second-best candidates. In general terms, a negative effect of district competitiveness on split-ticket voting is expected. This negative effect is a consequence of the fact that when the top two contenders are separated by a wide margin, a strategic vote makes less sense than if they are neck and neck. In other words, when the district race is competitive there should be fewer voters willing to waste their vote voting a candidate with no chances of getting elected (Cox, 1997; Bawn, 1999; Reed, 1999). At the same time however, the level of competitiveness should have a different impact according to the rank of each candidate at the previous election (that is if the candidate won the election, ranked second or lower). Specifically, if strategic voting is present then district competitiveness should have a positive effect for the first and second-placed candidates: from a strategic point of view, it makes sense that supporters of the top two candidates are more likely to support them when the race is close. Conversely, a negative relationship indicates the presence of personal vote, especially so for the second-placed candidate, because there is no reason to support a candidate that has no chance of winning. On the other hand, for lowest-ranked candidates the matter is complicated. Lower ranked parties supporters should be more likely to cast a strategic split-ticket voting in closer district races in order to guarantee

the victory of the least-worst option between the top two candidates; at the same time however, higher splitting can be entirely consistent with personal voting (Moser and Scheiner, 2005).

Another way of measuring candidate and party ability to get elected is by using objective party size, such as votes or seats, or party and candidate expenditures. For instance a substantial body of evidence illustrates that the more a party spends in the majoritarian election, less split-ticket voting it receives. The argument is that spending is used by parties to convince voters of the electorate viability of their candidates (Johnston and Pattie, 2002, 2003, 2004; Karp et al., 2002). Spending however is not useful to disentangle strategic from sincere voting. This problem stems from the fact that spending is highly correlated with features of the district race and candidates features. The case studies under investigation in this thesis look specifically at the interaction between several strategic indicators, such as spending and incumbency, and their effect on the way people split their vote.

A less explored issue is the effect on split-ticket voting of a coalition preference. The 'coalition voting' hypothesis suggests that both big and small party supporters can be strategic in a way consistent with a post election coalition outcome. Everything else constant, a big party supporter may support a least favored party but likely coalition partner on the proportional vote when his most preferred party is sure of a victory. On the other hand, the split of a smaller party supporter towards a big party candidate on the majoritarian vote can be strategic also when cast with a coalition preference in mind. The analysis of the impact of coalition preferences on the way people vote is usually carried out using pre-electoral survey data. The existing literature used a multinomial dependent variable which takes into account different split voting outcomes. This measures whether or not the way people split is correlated with voters' preferences of specific coalition governments after the election (see Pappi and Thurner 2002; Gschwend 2007; Bowler et al. 2010; Carman and Johns 2010). When available, this thesis employs pre-electoral data to provide evidence on this matter. More often however, I build a variable measuring whether having a preference for a coalition rather than for a single-party government impact the likelihood of casting a split-ticket voting.

3.3.3 Forced Voting Predictors

The last group of variables focuses on the forced nature of split-ticket voting. First, the lack of competition at the district level creates the basis for forced split-ticket voting. In other words, because many parties under mixed rules do not run candidates, often voters must split if they still want to cast both votes. As already discussed in Chapter 2, beside a few exceptions (i.e. Johnston and Pattie, 2002; Benoit et al., 2006) the current literature fails to provide a proper account of the impact of candidate availability on the way people split. Controlling for the presence of the candidate on the electoral ballot is possible when information on the district in which people vote is available. This information is missing for instance in some of the countries analysed

in the comparative investigation of this thesis such as Albania, Hungary, South Korea, Thailand and Wales. For this reason, the results presented in that session will not directly consider the matter of forced voters. A direct investigation of the issue is provided in the two country-based studies. In the case of Japan, surveys are analysed using classical models of split-ticket voting by looking only at non-forced voters but including features of the party and those of candidates. This analysis clarifies to what extent the splitting is due to strategic motivations or to two sincere preferences for a party and a candidate that just happens to run for a different party.

Subsequently data are analysed using a stacked data file in order to address the issue of forced and non-forced voters. The stacked data analysis intends to illustrate to what extent the presence or absence of certain candidates influence the way people vote under mixed rules. The Italian setting provides a context for an additional investigation of forced voters. First, the Italian regional elections are the only instance of mixed systems where pre-coalition agreements are displayed on the electoral ballot. Ticket-splitting is forced in other mixed systems, but Italy represents the unique case where voters can be *party* or *coalition* splitters, thus allowing for interesting considerations on forced voting behaviour. Moreover the fact that the party supply and the electoral rules can change across sub-national units inside the same country allows us to provide further evidence on the question of forced split-ticket voting.

This thesis also looks at the effect of different combinations of mixed rules on vote switching. The sample of countries employed in the comparative analysis in Chapter 5 covers all possible combinations of mixed rules, majoritarian and semi-majoritarian, proportional and semi-proportional, allowing us to test whether the variation on the level of vote switching correlates with the type of electoral rules employed. In addition, some of the countries included in the analysis had mixed systems in place for several elections whereas mixed rules are relatively new in others. Finally the sample includes established democracies and newly established ones. Voters experience with the electoral rules is likely to influence their strategic coordination (Cox and Schoppa, 2002). Furthermore, existing works suggested that the lack of party system institutionalization is probably the reason strategic voting is very low in less developed democracies (Kostadinova, 2002; Moser and Scheiner, 2009). The effect of the country institutional setting on split-ticket voting is still unknown as the current literature on split-ticket voting is predominantly focused on case studies.

3.4 Selection of Relevant Case of Studies

This research project comprises a purely methodological study based on New Zealand and Scotland, a cross-country analysis across 10 mixed-member electoral systems and two in-depth case studies. The methodological investigation is primarily focused on the discussion of the methodological issues pertaining to the measurement of split-ticket voting; the rest of the analysis is devoted to explain substantively the observed variation.

3.4.1 Methodological Analysis

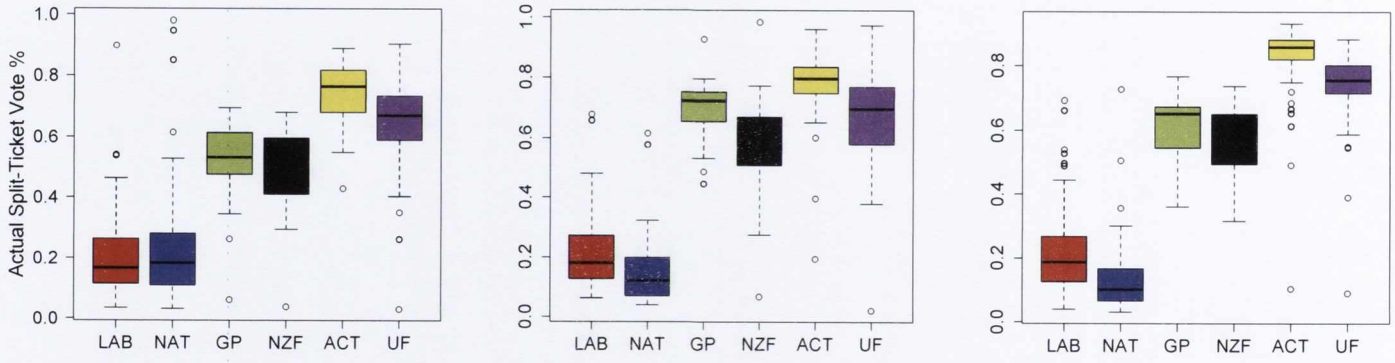
To address methodological issues, this thesis employs the legislative elections for the lower house in New Zealand since the introduction of the mixed-member electoral system in 1996 and the 2007 Scottish Parliament election. These settings are chosen for several reasons. Firstly, for these two countries, uniquely, data on actual levels of split-ticket voting are available. Usually researchers have to infer levels of split-ticket voting as the secret ballot hinders the possibility of measuring vote switching directly. Because the actual levels are known in New Zealand and Scotland, the inference using both individual and aggregate data can be empirically evaluated.

The methodological analysis focuses on the use of aggregate data which have been less employed for the study of voting behaviour. The analysis presents and tests advanced estimation techniques highlighting their strengths and weaknesses. The methods tested use the Multinomial-Dirichlet (Rosen et al., 2001) and the Multinomial-Logistic (Greiner and Quinn, 2009) parametric models. To the best of my knowledge these are the only available techniques that permit the estimation of disaggregated levels of split-ticket voting by using exclusively aggregate voting results. A third technique tested is the Maximum Entropy originally applied to electoral data by Johnston and Hay (1982, 1983); this method uses both aggregate and individual-level data. Since the estimation techniques are best applied to data at the lowest possible level of aggregation, polling station data have been collected and Python codes and advanced R syntax used to deal with this vast amount of data.

The New Zealand and the Scottish settings are appropriate testing grounds for additional reasons. The problem with the rare methodological investigations of ticket-splitting lies on the fact that they only apply existing methodologies to partial sets of data, that is one year of election in one country. For this reason doubts can be cast on the possibility that these methods work equally well when used in other contexts. New Zealand and Scotland provide large amount of data for which the true values of ticket-splitting are known. Furthermore, these two countries feature substantial variation both within and between settings. This variation is important because it allows us to test whether and how the methods perform when applied to various settings.

Concerning the variation within each country, for New Zealand this variation is displayed in Figure 3.1 and Figure 3.2. Figure 3.1 illustrates the actual amount of split-ticket voting by party at the district level. It shows that the two biggest parties (Labour and National) are characterised by the lowest levels of split-ticket voting. At the same time the figure illustrates that the actual percentage of ticket-splitting received by each party varies significantly across years of election and across districts. For instance, in the 2008 election the levels of split-ticket voting for the Labour party ranged from as low as 4% to as high as 70%. Similarly, in 2008 values for the National party ranged from about 3% to more than 60% in some districts. The range of values appears to be slightly narrower in the case of small parties.

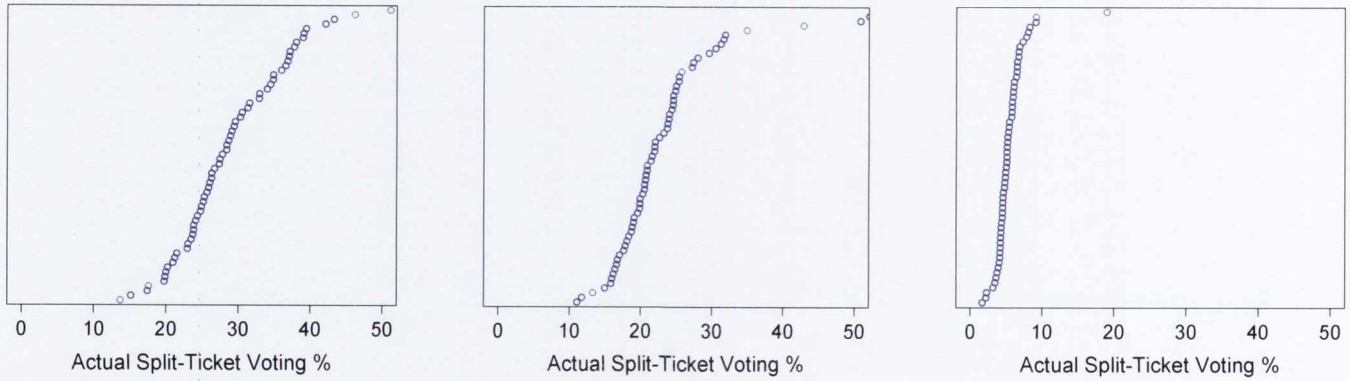
Figure 3.1: Actual level of ticket-splitting: Party-level variation (%), New Zealand



(a) 2002 (b) 2005 (c) 2008

Notes: The unit of analysis is the amount of split-ticket voting received by party at the district level. Key to parties: LAB-Labour; NAT-National; GP-Green Party; NZF-New Zealand First; ACT-Association of Consumers and Taxpayers; UF-United Future.
Source: own elaboration from data available at `http:www.electionresults.org.nz` (Accessed 3 July 2013).

Figure 3.2: Actual level of ticket-splitting: District-level variation (%), New Zealand



(a) 2002 (b) 2005 (c) 2008

Notes: Each dot represents the amount of ticket-splitting at the district level. *Source*: see Figure 3.1.

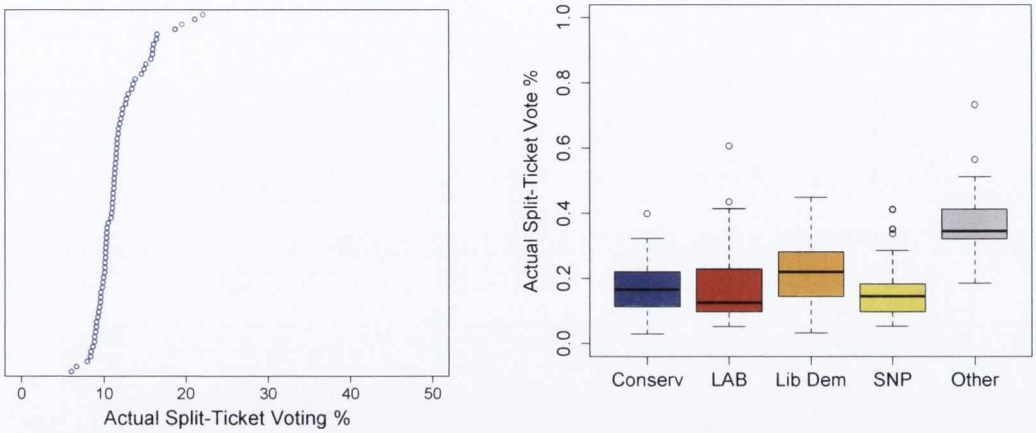
In New Zealand the number of parties and candidates contesting the election is different across districts and years of election. In other words, the estimation tables used by the techniques to estimate the levels of split-ticket voting will have different rows and columns across districts and they will also change over time. Figure 3.2 displays the total amount of ticket-splitting at the district level in New Zealand. This is calculated as the difference between the total amount of valid votes cast in a certain district and the sum of straight votes that each party receives in that district. This definition automatically excludes from the calculation all the parties that did not run a candidate on the majoritarian ballot. Figure 3.2 shows that the total amount of split-ticket voting changes across districts and elections. Concerning the variation across districts, the figure indicates a high variability with rates of defection ranging from 10% to more than 40%. Outliers in the figures usually represent the maori electorates as extensively discussed in Chapter 4 of this thesis.

Concerning the variation across elections, it is worth noticing the difference between the 2008 and the other two elections. In 2002 and 2005, a high number of small parties contested both parts of the electoral ballot and they were often characterised by high levels of vote switching. This high level of split-ticket voting for small parties led to an overall high level of the total amount of ticket-splitting in some districts in 2002 and 2005. Conversely, in 2008 very small parties either did not run the election or did not run a candidate and for this reason they are not included in the aggregate calculus displayed in Figure 3.2. For this reason, levels of split-ticket voting at the district level are lower in 2008 when compared to 2002 and 2005. This is also the reason why Figure 3.2c is quite similar to the Scottish case as displayed in Figure 3.3a. Similarly to the 2008 election in New Zealand, total levels of ticket-splitting during the 2007 election in Scotland are quite low since only big parties run candidates on the majoritarian ballot and these parties were often characterised by low levels of split-ticket voting.

For the Scottish electoral context, Figure 3.3a displays the total amount of split-ticket voting across districts. Figure 3.3b shows this variation at the party level. Scotland is different from New Zealand for several reasons. First, the two settings differ with regard to the number of parties and their relative strength as noted comparing Figure 3.1 and Figure 3.3b. In Scotland there are generally fewer parties running for elections and in contrast to New Zealand, these parties form two internally more homogenous groups. The first group is formed by big parties such as Labour, Scottish National Party (SNP), Liberal Democrats and Conservative whereas the second group is formed by parties obtaining less than 1% of votes. Usually, big parties contest both electoral tiers while small parties only run for the party vote. This means that the estimation tables are generally smaller in Scotland than in New Zealand and they display more homogenous values across their internal cells. Furthermore, split-ticket voting in Scotland is generally lower and there is less variation across districts as displayed in Figure 3.3a. This figure is quite similar to the 2008 election in New Zealand displayed in Figure 3.2c where also the relatively low number of parties and candidates running for elections led to the lower levels of split-ticket voting across districts when compared

to the 2002 and 2005 elections.

Figure 3.3: Actual level of ticket-splitting: Party-level and district-level variation (%), Scotland



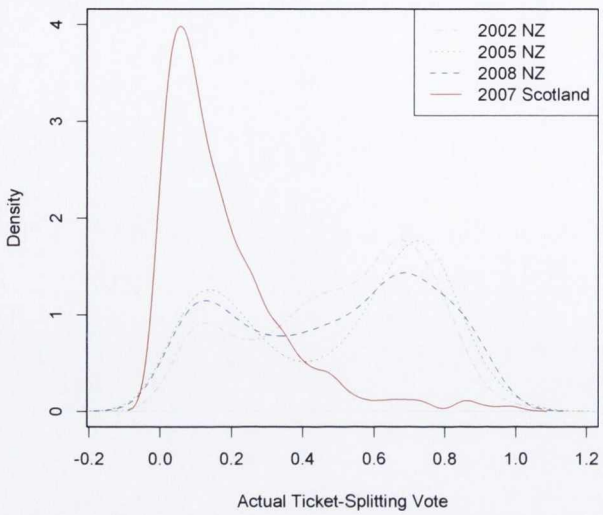
(a) Variation by district

(b) Variation by party

Notes: In Figure a, each dot represents the actual amount of split-ticket voting at the district level. In Figure b, the unit of analysis is the amount of split-ticket voting received by party at the district level. Key to parties: Conservative-Conserv Party; LAB-Labour; Lib Dem-Liberal Democrats; SNP-Scottish National Party; Others-Parties receiving less than 2% of the total vote which run on both electoral ballots. *Source*: own elaboration from data available at `http://www.scotlandoffice.gov.uk/scotlandoffice/10202.html` (Accessed 3 July 2013).

Finally, Figure 3.4 indicates that the two countries are also very different when it comes to the distribution of the dependent variable and thus the estimation of the actual values. In New Zealand the distribution is always bimodal whereas in Scotland it is essentially unimodal. In New Zealand the bimodal distribution is due to the pronounced difference between the splitting obtained by big parties (usually below 20% of the total party vote) and small parties (usually above 50% of the total party vote). In the Scottish case, the four biggest parties are generally the only ones contesting both electoral tiers and they receive on average low percentages of defection (usually below 20%). On the other hand, small parties rarely contest both tiers and when they do, they are characterised by high levels of vote switching. The overall goal of the methodological study is to determine which is the best method to estimate ticket-splitting when using aggregate data. The analysis conducted will provide the basis for subsequent applications of these methods in all other instances where actual levels of split-voting are not available.

Figure 3.4: Dependent variable distribution in the two testing settings (%)



Notes: The figure displays actual party-level quantities of split-ticket voting in the two countries. For data source see Figure 3.1 for New Zealand and Figure 3.3 for Scotland.

3.4.2 Cross-Country Analysis

The thesis provides the first comparative individual-level investigation of split-ticket voting. The analysis draws upon 10 countries as listed in Table 3.1: the national elections in Albania, Germany, Hungary, Italy, Japan, New Zealand, Thailand, South Korea, and two sub-state elections in Scotland and Wales. The sample includes all mixed systems for which electoral surveys are available.[2] Table 3.1 shows that this relatively large set of countries enables to cover all possible instances of mixed rules: mixed-proportional, mixed-majoritarian, semi-proportional and semi-majoritarian. The table also illustrates that the levels of split-ticket voting vary across elections within countries and across countries. For instance, the second column of the table displays the minimum and maximum level of split-ticket voting across elections within each country as calculated using survey data. This column shows that there is less variation across elections in countries such as Hungary, Scotland, Wales when compared to some other countries such as Italy, Japan and New Zealand. There is also a conspicuous variation across countries where split-ticket voting appears to be higher in New Zealand, Albania and other mixed-proportional systems when compared to mixed-majoritarian systems such as South Korea and Thailand. The analysis conducted in Chapter 5 of the thesis attempts to explain the observed variation.

[2]Other countries adopting mixed rules not included in this work because of lack of survey data are, in Europe, Lithuania, Ukraine, and Russia; in Asia, Taiwan, Armenia, Azerbaijan, Georgia, Kazakistan, Pakistan, Philippines, Taijikistan, and Timor-Este; Bolivia and Venezuela in Latin America and Lesotho, Guinea, Senegal, Seychelles in Africa. For these two last groups of countries the LatinoBaromether and the AfroBaromether respectively record the vote in recent elections but these data cannot be used in this thesis as they are usually conducted several months after the elections and they lack many of the questions needed to build the indicators used in this thesis.

Table 3.1: Countries, Rules & Variation

Country	**Ticket-Splitting** (Min-Max[1] %)	**Tiers Combination**	**Period of application**
Albania	40-50	Mixed-Proportional	1997-2007
Germany	25-35	Mixed-Proportional	1949-present
Hungary	15-20	Mixed-Semi-Majoritarian	1990-present
Italy	20-45	Mixed-Semi-Majoritarian	1994-2001
Japan	25-40	Mixed-Majoritarian	1996-present
New Zealand	25-50	Mixed-Proportional	1996-present
Scotland	20-30	Mixed-Semi-Proportional	1999-present
South Korea	10-30	Mixed-Majoritarian	1988-present[2]
Thailand	10-20	Mixed-Majoritarian	2001-present
Wales	20-30	Mixed-Semi-Proportional	1999-present

Notes: [1] Calculated using surveys. Minimum and Maximum calculated across elections at the national level. [2]Only in 2004, after the Constitutional Court ruled against the one-vote system South Korea implemented the more common two-vote variety of mixed system. Before that the country adopted a one-vote mixed system with a strong majoritarian thrust. See Table A5.1 for parties and years of election included in the analysis.

The sample of countries analysed allows variation on several additional dimensions, such as familiarity with the electoral rules (see also the last column in Table 3.1). There are three additional innovations in this analysis as compared to the previous literature. First, the comparative study merges individual with district-level data, thus creating mixed-level data sets. This allows us to take into account voters' preferences as well as the district and institutional-level factors deemed important to explain vote choice. Second, the data sets are analysed for the first time for the study of split-ticket voting using a stacked data format (Tillie, 1995; van der Eijk and Franklin, 1996). This analytical approach enables to include simultaneously all parties and their features in the analysis and permits the investigation of the two votes separately. Moreover, to provide additional evidence for the test of existing voting behaviour assumptions, the comparative analysis looks at pre and post-electoral surveys comparing intentions to actual vote choice in the two parts of the electoral ballot.

There are two limitations with the comparative analysis. Firstly, the comparative analysis uses exclusively individual-level information on parties' preferences. This limitation stems from the fact that questions on candidates' preferences are not available for the majority of countries included in the sample. This issue mirrors a common limitation of existing studies of split-ticket voting which rarely have available information on candidates' preferences. Furthermore, the comparative analysis is unable to control for forced split-ticket vote. This problem stems from the fact that information on the district in which the candidate vote is cast is only available for less than half of the countries included in the comparative study. For this reason it cannot be controlled whether or not the voter is forced to split. These two additional investigations are carried out using the country-studies of Japan and Italy. As explained below, these two cases are employed to unpack specific causal mechanisms pertaining to the way people split.

3.4.3 Case Studies Analysis

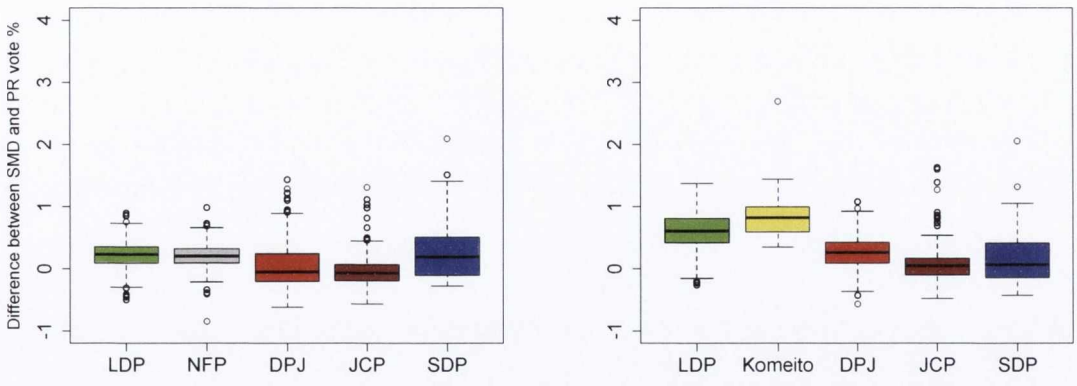
Japan

The first case study this thesis explores is Japan where a mixed system was introduced for both the lower (*House of Representatives*) and the upper house (*House of Councillors*) of the Japanese Parliament (*Diet*) for the 1996 election. Concerning the lower house which is the focus of this thesis, under the new electoral rules voters elect 300 members using single-member districts and 180 members using proportional rules. In terms of the allocation of seats the two tiers of the electoral ballot are completely separated (Reed, 2005). The investigation of the Japanese case serves the purpose of providing additional evidence for the question of sincere versus strategic voting. In addition, it enables to disentangle different types of split-ticket voting in relation to candidate availability on the majoritarian ballot. These analyses are possible in Japan because of the availability of survey data structured in such a way to reveal sincere and strategic voter considerations for all candidates and parties running for elections. Furthermore, because Japanese surveys contain information on the districts where both votes are cast they enable us to control for forced split-ticket voting.

In Japan the electoral competition is usually strongly bipolar at the district level where two candidates have much higher chances of getting elected when compared to the list of available candidates. For this reason, the district-level competition provides strong incentives for voters to behave strategically. On the other hand, the firm personalistic Japanese culture suggests that voters will engage in vote switching for personalistic reasons too (McKean and Scheiner, 2000; Reed, 2003). At the same time, parties' strategies after the 2000 election, should keep strategic voting at bay through formal pre-coalition agreements on the candidate ballot (Burden, 2009). That is, since the 2003 elections parties frequently enter into formal pre-electoral coalitions in many districts by presenting common candidates. This is true for instance in the case of the Liberal Democratic Party (LDP) and the junior coalition partner the Clean Government Party-Komeito (CGP-Komeito).

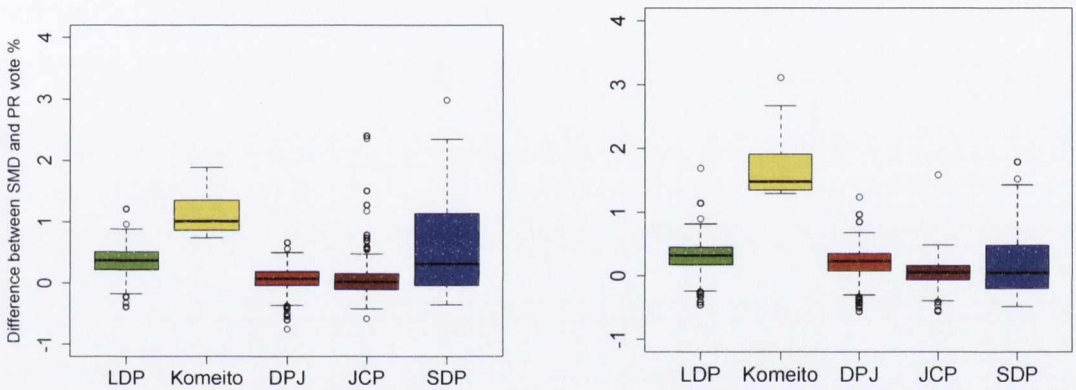
The effect of parties' coordination strategies on the candidate ballot is clear in Figure 3.5 and Figure 3.6 which display values of the candidate vote gap calculated as the difference between the vote for the party and the vote for the party's candidate in a certain district. The figures report that, from 2003 onwards, the LDP usually receives slightly lower candidate vote gaps. At the same time, candidates of smaller parties, especially the CGP-Komeito, perform particularly well. This is because in the few districts where the CGP-Komeito run candidates, it receives votes also from those who support the LDP on the party ballot as a result of the strategic coordination among these two parties on the majoritarian ballot.

Figure 3.5: Candidate vote gap: Party-level variation (%), Japan (1996-2000)



(a) 1996 (b) 2000

Figure 3.6: Candidate vote gap: Party-level variation (%), Japan (2003-2005)



(a) 2003 (b) 2005

Notes: The unit of analysis is the aggregate difference between the vote received by the party's candidate and the party at the district level. Key to parties: LDP-Liberal Democratic Party; NFP-New Frontier Party; Komeito-CGP-Komeito Party; DPJ-Democratic Party Japan; JCP-Japanese Communist Party; SDP-Social Democratic Party. *Source*: own elaboration from data provided by (Asano and Yanai, 2013).

The figures show that big parties (LDP and Democratic Party of Japan-DPJ) usually obtain higher candidate vote gaps but, as suggested earlier, this may be a sign of personal as well as strategic voting. Big parties usually run incumbent and well-known candidates that are able to capture more votes than the party that supports them. On the other hand, voting for those candidates can also be considered strategic since bigger parties' candidates are those with higher chances of getting elected. As also explained earlier, the candidate vote gap fails to provide a clear picture of vote switching as it suffers from several methodological limitations. For this reason, it is only used as a starting point for the analysis conducted in Chapter 6. Advanced techniques will be employed to properly estimate the amount of straight and split-ticket voting for each party at the district level alongside the use of Japanese survey data.

Italy

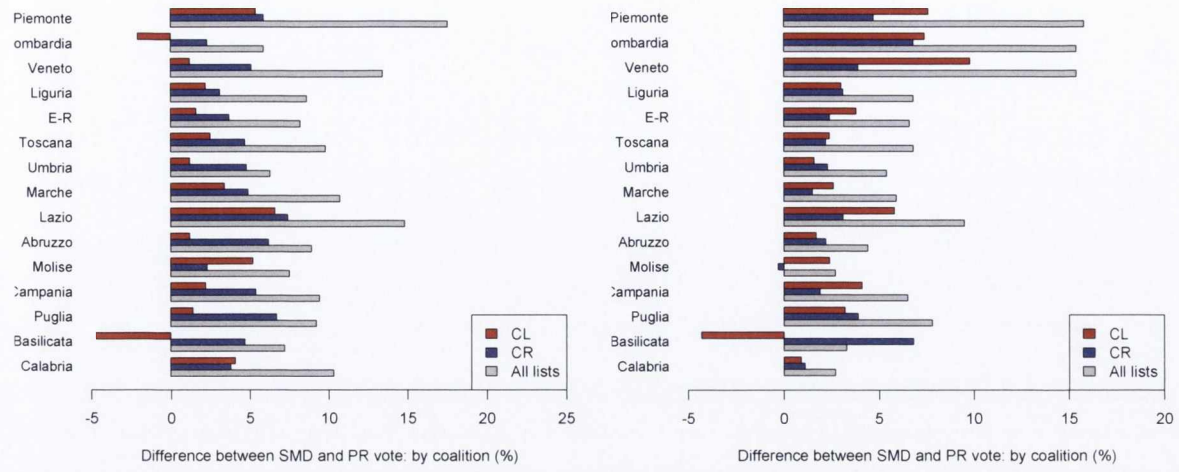
A more complicated version of mixed rules was introduced for the Italian regional elections in 1995. The Italian semi-majoritarian mixed system has a strong majoritarian thrust due to the fact that no real compensation between the two tiers of the electoral ballot takes place (Chiaramonte and D'Alimonte, 2000). The investigation of the regional elections in Italy is worthwhile for at least three reasons. First, the Italian case is important because it offers a rare quasi-experimental setting in which several forces (such as social, cultural and political) are at work in the different regions specific to each geographic area of the country (North, South and Centre). Adopting a geographical approach for the study of voting behaviour to the Italian case is worthwhile because Italy's electoral behaviour has always been very geographical, and each area of the country is characterised by specific electoral and social preferences (Cartocci, 1990; Agnew, 2002; Diamanti, 2003). This allows us a first comprehensive analysis of the influence that long-term features have on split-ticket voting when compared to short-time voting predictors such as party and candidate appeal.

Furthermore, although the mixed system has to be the same across regions, the Italian constitution allows the regions to slightly modify the electoral rules to adapt them to the local context for instance by increasing the electoral threshold. Comparisons of the levels of split-ticket voting across sub-national units using slightly modified electoral rules are not possible in any other country where the electoral system remains constant across regions. More importanly, the Italian regional elections are the only instance of mixed rules where pre-coalition agreements are displayed on the electoral ballot. In this regard the thesis tests the impact of these arrangements on the probability of splitting the ticket. These features of the electoral system allow for an unconventional and original analysis which takes into account the impact of slightly modified electoral rules and electoral competition in the same country.

Figure 3.7 and Figure 3.8 show the candidate vote gap measured as the difference between the candidate vote and the sum of the votes received by the parties running linked to that candidate in a certain district. The figures illustrate the Italian regions listed from the north to the south of the country. There are usually two big coalitions, namely, the centre-left (red in the figures) and the centre-right coalitions (blue), each of which includes one of the two biggest Italian parties[3] plus several coalition allies. On average the vote gap is always positive except in a few cases. Overall, it appears that this vote gap is larger in the north of the country (such as Piemonte, Lombardia, Veneto) and relatively lower in the south (such as Campania, Basilicata, Calabria). To account for this aggregate variation, existing studies have offered some explanations based mostly on social-structure and psychological features of different portions of the electorate (D'Alimonte, 1995; Vassallo, 2006).

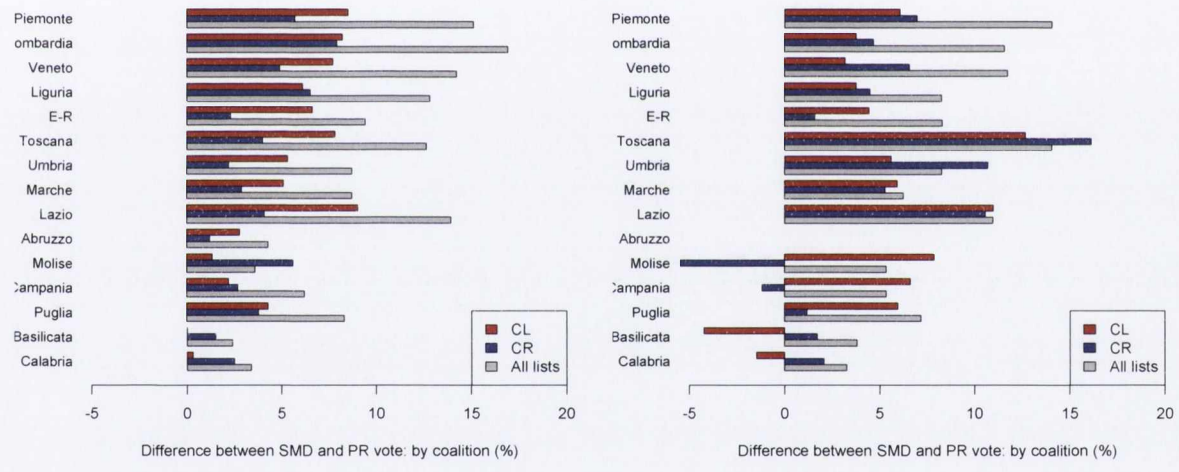
[3]Since the 1995 when mixed rules were introduced, the two biggest parties are: on the left *Partito Democratico* (PD), before 2007 named as *Democratici di Sinistra* (DS) and before 1998 named as *Partito Democratico della Sinistra* (PDS); on the right *Il Popolo della Libertà* formed in 2009 by the fission between *Forza Italia* (FI) and *Alleanza Nazionale* (AN).

Figure 3.7: Candidate vote gap: Party-level variation (%), Italy (1995-2000)



(a) 1995 (b) 2000

Figure 3.8: Candidate vote gap: Party-level variation (%), Italy (2005-2010)



(a) 2005 (b) 2010

Notes: The unit of analysis is the aggregate difference between the vote received by the party's candidate (SMD vote) and the sum of parties in the proportional vote at the regional level (PR vote). Key to parties: CL-Centre-Left coalition; CR-Centre-Right coalition; All lists-All coalitions running for elections by region. *Source*: own elaboration from data available at `http://elezionistorico.interno.it/` (Accessed 3 July 2013).

According to these studies, supporters of different coalitions (that is centre-left or centre-right) and voters from different regional contexts should display dissimilar voting attitudes and ultimately, these attitudes should be able to explain voting choice. Another explanation concerns the social differences between voters from the northern and southern regions (De Luca, 2004; Chiaramonte and Barbieri, 2007). In no case scholars have empirically tested these hypotheses which is indeed the aim of this thesis. Preliminary statistics in Figure 3.7 and Figure 3.8 shows that these explanations perform differently in each region and while they seem to be suitable in explaining

patterns of variation in some cases, they completely fail in others. Moreover, these aggregate analyses are not able to account for the variation observed at lower levels of aggregation such as at the district level and they do not allow us to investigate the variation at the party level. This thesis uses the candidate vote gap only as a starting point for an analysis of ticket-splitting using advanced statistics and survey data.

3.5 Summary & Concluding Remarks

The foregoing chapter provided an overview of the dependent and independent variables outlying the existing literature's assumptions and limitations. The chapter indicated also ways in which this thesis will address gaps in current studies of split-ticket voting. The discussion emphasized that the combined use of individual and aggregate-level data for the study of split-ticket voting is an important one. The chapter presented also the case of studies and found significant differences in average levels of vote switching across countries, districts and parties.

To sum up, the purpose of the thesis is twofold. First, it is intended to provide a substantial advancement of the current literature on vote switching, testing its assumptions and findings. In addition, the thesis has the methodological purpose of testing the use of surveys and aggregate-level data for the study of split-ticket voting. The results of this investigation are likely to provide important new insights on the causes and incidence of vote switching and contribute to the broader literature on voting behaviour.

Chapter 4

Research Methodology

4.1 Introduction

To study split-ticket voting, usually, if not always, researchers have access to electoral results. Additionally, in some cases, researchers have available survey data asking respondents about their vote choice and preferences. These two types of data permit the study of different dimensions of split-ticket voting; both, however, are plagued by several methodological limitations. This chapter addresses methodological issues characterising the study of split-ticket voting. To this end, the chapter reviews the use of both individual and aggregate data in the existing literature, identifies gaps and limitations and proposes improved alternatives.

With regard to surveys, this chapter will show ways of corroborating their current usage by employing additional data formats and through the merging of aggregate-level district features and individual-level information. Concerning official voting results, significant attention in this chapter is given to the application of estimation techniques as they represent an underused resource for the study of ticket-splitting. Specifically, the techniques tested are two parametric ecological inference methods, the Multinomial-Dirichlet model (Rosen et al., 2001) and the Multinomial-Logistic model (Greiner and Quinn, 2009), and a mathematical procedure known as Maximum Entropy originally applied to electoral data by Johnston and Hay (1982, 1983).

To fulfill these aims, the chapter uses two real-world testing grounds: the New Zealand legislative elections since the introduction of the mixed system in 1996 and the 2007 Scottish Parliament election. As extensively discussed below, the New Zealand and Scottish cases are useful testing grounds for several reasons. First and foremost, they provide actual levels of split-ticket voting allowing the comparison between estimations and actual data. This information is unique as actual levels of split-ticket voting are not normally known to researchers. In addition, polling station data are also freely available in these contexts. Polling station electoral data represents the best level of disaggregation to test the estimation techniques. Furthermore, the New Zealand and the Scottish cases allow significant diversity across settings, among sub-units and over time, providing the variation needed to explore and assess the performance of the

estimation techniques. Additionally, survey data are available in these two countries.

It needs to be emphasised that this chapter is not intended to settle on a perfect set of data or model, but rather aims to highlight both their weaknesses and their strengths. Substantive investigations of split-ticket voting in subsequent chapters of the thesis will build heavily upon the methodological findings developed in this context. This chapter is structured as follows. Next section introduces the classical ecological inference problem and shows how it applies to the study of split-ticket voting. Section 3 reviews the use of surveys, and it is followed by section 4 which introduces and tests the available estimation techniques using aggregate data. Finally, section 5 provides an exploratory analysis of how surveys and point estimates will be employed in the broader thesis project. Concluding remarks summarise the main findings of this chapter.

4.2 The Problem: How to Measure Split-Ticket Voting

The study of split-ticket voting is plagued by the ecological fallacy problem inherent when extrapolating disaggregate quantities from aggregate data. This problem occurs when a researcher makes an inference about an individual based on data for a group. This issue affects a multitude of disciplines (Robinson, 1950; Achen and Shively, 1995). Split-ticket voting estimation resembles the ecological inference problem as depicted by King (1997) and presented in Table 4.1 (hereafter referred to as estimation table).[1]

Table 4.1: The general case of ecological inference

		Candidate Vote Decision				
		Cand A	Cand B	Cand C	Other(s)	
Party	Party A	β^i_{AA}	β^i_{AB}	β^i_{AC}	1-$\sum^c \beta^i_{Ac}$	X^i_A
Vote	Party B	β^i_{BA}	β^i_{BB}	β^i_{BC}	1-$\sum^c \beta^i_{Bc}$	X^i_B
Decision	Party C	β^i_{CA}	β^i_{CB}	β^i_{CC}	1-$\sum^c \beta^i_{Cc}$	X^i_C
		T^i_A	T^i_B	T^i_C	1-$\sum^c \beta^i_c$	

In mixed-member electoral systems voters can cast two votes, one for a party and one for a candidate during the same election often on the same ballot paper. In Table 4.1 row entries represent the votes gained by the parties running for election whereas the values in the columns represent the votes obtained by the candidates. The table summarises the general situation where the superscript i refers to the lowest level of aggregation for which the electoral data are available. Subscripts refer to the position in the table. For instance, β^i_{AA} is the fraction of voters who voted for Candidate A in the candidate vote after casting a ballot for Party A in the party vote. In the case of a straight vote, the voter chooses a candidate linked to his most preferred party (e.g. Party A and Candidate A). In contrast, in the case of a split vote, the voter chooses a party and a candidate that are not linked (e.g. Party B and Candidate A).

[1]Please note that I retain here all the notation from King (1997) and subsequent works to allow the interested reader to refer to the original literature for further details.

In addition, a third vote choice is possible in which the voter casts only one vote either for a candidate or a party. Usually this third option represents only a tiny fraction of the total vote cast during an election. In the context of this thesis, this voting option is defined as 'incomplete' voting and it will not be examined. Since the secret ballot hinders the possibility of measuring the phenomenon directly, it is possible to know how many people voted for Party A (X_A^i) and how many for Candidate A (T_A^i) but it is not known how many voters have chosen to vote simultaneously for both of them (β_{AA}^i). Specifically, for each electoral unit i, the marginals T_A^i, T_B^i, T_C^i and X_A^i, X_B^i, X_C^i are known while all the β_{rc}^i need to be estimated. Researchers have available two sources of data and each allows to investigate a different dimension of split-ticket voting.

4.3 Inference from Survey Data

For the most part, existing analyses have been using post-electoral surveys which represent the unique access point to individual-level motivations. Previous chapters of this thesis have highlighted the general strengths and limitations with the use of surveys for the study of electoral behaviour. In this section I focus primarily on how surveys have been employed for the study of split-ticket voting and how this thesis is intended to improve on current uses.

Surveys in mixed-member electoral systems usually ask respondents about their party and their candidate vote choice using two separate questions. When relying on surveys, scholars measured split-ticket voting as a deviation from a straight vote. The first dependent variable is dichotomous and takes a value of '0' each time the respondent has cast a straight vote and a value of '1' otherwise.[2] With this dependent variable, logit models are employed in order to measure the probability for a voter to cast a split rather than a straight vote. The existing literature relied on two problematic voting behaviour assumptions. First, a vote cast under proportional rules is considered as reflecting a more sincere voting preference than the vote under majoritarian rules. Second, it is generally thought that voters are characterised by one-party preference. Based upon these two assumptions, the current literature usually considers the straight vote as sincere and the split-ticket voting as representing some form of strategic voting (see also Karp et al., 2002; Pappi and Thurner, 2002; Gschwend, 2007).

With an aim to summarise, Table 4.2 lists hypotheses and voting outcomes under mixed rules. The table shows my additions in italics. First, because the one-party preference is assumed, according to the current literature, the observed straight vote must reflect a sincere voting choice (Voting option 1). However, since the vote under proportional rules is for a party, and the vote under majoritarian rules is for a candidate, voters can genuinely have two sincere preferences for a candidate and a party that do not run linked (Gallagher, 1998, p.209). This means that the sincere voting hypothesis

[2]Karp et al. (2002) represents an exception when they use the baseline dependent variable just described and an additional one measuring the likelihood of defecting to a competitive ideologically proximate party.

can indeed lead to a split voting outcome (Voting option 2). Second, since it is assumed that the vote under proportional rules is more sincere, a split to a party's candidate with higher chances of getting elected is considered to be in line with the strategic 'wasted vote' hypothesis (Voting option 3). This is problematic though because the recent literature shows that the vote under proportional rules can be subject to strategic incentives at least as much as a vote under majoritarian rules (e.g. Hobolt and Karp, 2010; Abramson et al., 2010).

Table 4.2: Split-ticket voting, Hypotheses & Preferences

Voting Option	Hypothesis	Outcome	Type of Vote	
			PR vote	SMD vote
(1)	'sincere vote'	Straight-vote	Sincere	Sincere
(2)	*'sincere vote'*	*Split-vote*	*Sincere*	*Sincere*
(3)	'wasted vote'	Split-vote	Sincere	Strategic
(4)	'coalition voting'	Split-vote	Strategic	Sincere
(5)	*'coalition voting'*	*Split-vote*	*Sincere*	*Strategic*
(6)	*'strategic vote'*	*Straight-vote*	*Strategic*	*Strategic*

Notes: Italics identifies own additions. PR vote refers to the party or proportional vote. SMD vote refers to the candidate or majoritarian vote.

As a matter of fact, the 'coalition voting' hypothesis considers a switch to a smaller party in the proportional vote as strategic after a (presumably) sincere vote has been cast for a big party's candidate (Voting option 4). It is also possible that the candidate vote is cast in line with a post-coalition outcome (Voting option 5). It is straightforward to see that strategic and sincere preferences produce observationally equivalent patterns, that is a vote for a big party's candidate and a vote for a small party on the proportional ballot. For this reason, unless survey questions measure voters preferences, the identification of a strategic vote is impossible even using survey data. Studies focused on coalition voting generally use a dependent variable which takes into account possible coalition outcomes. This dependent variable uses rarely available questions in pre-electoral surveys asking respondents to score the preferred coalition government after the elections (Pappi and Thurner, 2002; Gschwend, 2007; Bowler et al., 2010). The main limitation with this second strand of research is that it relies on the two voting assumptions mentioned above. Furthermore this literature focuses exclusively on the analysis of big parties thus possibly excluding a lot of potential strategic voting.

Finally, there is an additional strategic voting possibility that is difficult to measure using actual vote choice. This problem stems from the fact that the straight vote usually regarded as sincere by the existing literature (Voting option 1) can indeed be strategic (Voting option 6). For instance, when a voter truly prefers a small party, but knows that this party has no chance of getting seats on both electoral tiers, the voter may decide to strategically cast a straight vote for another party. For this reason, it makes sense to assume that among those casting a straight vote there will be hidden a

small number of strategic voters (Thurner and Pappi, 1998, p.228). These limitations of the current literature call for a test of voting behaviour assumptions and for the need of additional methods to investigate split-ticket voting.

Two analytical steps are employed in an attempt to overcome identification problems due to the fact that the observed behaviour is compatible with several individual-level mechanisms. Both analytical strategies are based on the idea of examining the two votes separately rather than in conjunction as it is the practice in the existing literature. First, because observed vote choice can be consistent with both sincere and strategic voting, alongside actual voting, this thesis also employs voting intentions. Pre-electoral voting intentions and post-electoral actual vote choice in the two parts of the electoral ballot will be compared and investigated. The broad idea is that since the two votes are cast by the same voter during the same election, there should be no major differences across the two votes when it comes to the comparison of intended and actual vote. In other words, there is no reason to expect a priori that intentions and actual vote should be more similar in the case of the party or the candidate vote. If voters are found to behave differently between the two votes across the pre and post-electoral settings, we will wonder why by examining specifically sincere and strategic incentives.

The second step consists in looking only at actual vote choice investigating voting predictors in the two parts of the electoral ballot. The aim is to assess what explains the two votes and whether or not there are substantial differences when it comes to the influence of sincere, strategic and institutional factors. The same set of variables is applied across countries and across votes. This analysis is interested to investigate vote choice in general rather than for a specific party or candidate.[3] For this reason, original data have been reshaped into a so-called 'stacked' form. When the dataset is reconstructed, each respondent is represented by a number of cases as many as the number of parties running for elections. This means that a stacked dataset has repeated observations on the same individual. In the stacked data matrix, which is derived from the 'normal' data matrix as illustrated in Figure 4.1, the unit of analysis is not respondents, but responses (respondent*party).

In the context of the reconstructed dataset the dependent variable is a dummy taking a value of '1' in correspondence of the party voted by the respondent and '0' otherwise and it measures the likelihood of voting for party X in general. Using a stacked dataset one is able to include as independent variables the features of the individuals making the choice, the features of the choices (that is the parties) and

[3]Vote choice is a nominal variable measuring candidate and party vote. The Multinomial Logistic Regression (MNL) is a form of regression that can be used when the dependent variable takes more than two nominal unordered categories (McFadden, 1974; Alvarez and Nagler, 1995). However, the MNL cannot be used for the purpose of this thesis because of the following limitations. First, in the usual MNL, vote choice is modeled in terms of the characteristics of the individuals making the choice and the choice itself and not on the features of all parties running for elections. For this reason, the MNL does not permit to investigate vote choice in general. Second, in the usual MNL estimations for smaller parties are very unstable and often automatically dropped during the analysis leading to biased estimations (Alvarez and Nagler, 1998; van der Eijk et al., 2006). Third, the use of the MNL can be problematic when one wants to compare the estimated coefficients across datasets (Train, 2003) such as in the context of this thesis.

the independent variables defined for combination of individuals and choices (that is an individual perception of the party) (Stimson 1985; Tillie 1995; van der Eijk and Franklin 1996, 2009). In other words, this means that using a stacked dataset we are able to control for inter-party and intra-party variance simultaneously.

Figure 4.1: Stacking the data matrix

Original Data Matrix

resp-id	Age	left/right position respondent	perceived LR-position pty 1	perceived LR position pty 2	perceived LR position pty 3	L/R Dist. to party 1	L/R Dist. to party 2	L/R Dist. to party 3	Vote-choice	utility party 1	utility party 2	utility party 3
1	59	4	4	6	7	0	2	3	1	9	5	4
2	40	6	3	7	8	3	1	2	2	5	9	7
3	22	9	3	6	8	6	3	1	3	2	4	7

Stacked Data Matrix

resp-id	id-of-party	Age	left/right distance	vote-choice	utility
1	1	59	0	1	9
1	2	59	2	0	5
1	3	59	3	0	4
2	1	40	3	0	5
2	2	40	1	1	9
2	3	40	2	0	7
3	1	22	6	0	2
3	2	22	3	0	4
3	3	22	1	1	7

Source: van der Eijk et al. (2006) modified by me in correspondence of the vote choice column in the Stacked Data Matrix.

There are two alternative models that one can use with stacked data and both take into account the fact that when the data are reconstructed the dataset is characterised by repeated observations on the same individual (see Figure 4.1). The first model is the Conditional Logit (CL). The CL is a model specification in which the likelihood of observing a value of the dependent variable is calculated relative to each group of observations (e.g Chamberlain, 1982; Greene, 1997). The second alternative (hereafter refer to simply as 'clustered logit') implies the use of the regular logistic regression but the observations are defined as dependent through clustering (e.g. van der Eijk and Franklin, 1996; van der Brug, 2004). These two models are very similar and should lead to similar results. Despite this however, there is one advantage of the clustered logit over the CL. The CL does not allow to include choice options chosen by only few respondents; it has been shown as this exclusion may lead to biased results (van der Eijk and Franklin, 1996). Conversely, the clustered logit permits to focus the analysis on all available alternatives in each political system. As a consequence, the analysis conducted in this thesis prefers the clustered logit strategy to the CL despite the fact

that both model specifications are run, compared and discussed.

To sum up, surveys will be analysed using a non-stacked and a stacked format. The first analysis looks at split-ticket voting directly as it is common in the existing literature. This allows us to assess if classical findings hold when controlling for individual preferences for parties and candidates as well as aggregate-level indicators. At the same time surveys will be originally analysed using a stacked data file. In this case, the object of the analysis is what explains vote choice in the two parts of the electoral ballot rather than why people split their ticket. This is done to provide evidence on the influence of a series of voting predictors and their impact on the way people cast their vote under mixed systems. This analysis enables us to reason about sincere and strategic voting avoiding the limitations with classical approaches. Furthermore the stacked data strategy permits to compare the behaviour of 'non-forced' and 'forced' voters with the aim of assessing whether or not they cast their two votes differently. This represents an important innovation as usually forced voters are mentioned but not properly investigated by current investigations of split-ticket voting. Examining forced voters provides further evidence on the impact of parties and candidates on the way people vote under mixed rules.

4.4 Inference from Aggregate Data

As mentioned, when relying on aggregate data, the existing literature used the 'net' measure of split-ticket voting calculating the difference between the votes gained by the party and the linked candidate in a certain district (difference between the rows and columns in Table 4.1). Current studies use Ordinary Least Squares (OLS) regression to regress the net measure of ticket-splitting on a number of factors, such as incumbency, competitiveness of the district race and so forth (e.g. Bawn, 1999; Kostadinova, 2002; Moser and Scheiner, 2005). This measure of the dependent variable is flawed by significant problems as it only provides the minimum level of split-ticket voting that actually takes place and it is not able to account for all the cross-voting among parties and candidates (Cowart, 1974; King, 1997). One possible solution is to use indirect methods able to provide estimates of the phenomenon of interest. The purpose of this section is to review, test and suggest improvements to existing estimation methods while applying them to the subject of this thesis.

4.4.1 Available Methods

Two long-standing methods proposed to tackle the ecological fallacy issue are the *Methods of Bounds* (Duncan and Davis, 1953) and the *Ecological Regression* (hereafter also referred to as Goodman's method) (Goodman, 1953). The Methods of Bounds produces bounds that must be correct without relying on any statistical assumption; however it only returns an interval and no point estimate is produced. For example with reference to Table 4.1, one can easily put deterministic bounds on the cells quantities without

using any statistics. Specifically, if the total vote for Candidate A is 1000 (T^i_A=1000) and the total vote for Party A is 750 (X^i_A=750), a wide range of different numbers could be put in first top cell (β^i_{AA}) without contradicting its row and column marginals. In this specific case for example, the Methods of Bounds will report an interval of 0-750. Estimates of the aggregate quantities of interest are instead provided by the Goodman's method.

The main advantage of the Goodman's method is that it is relatively simple. However it is characterised by several disadvantages and it relies on very stringent assumptions well documented in Achen and Shively (1995) and King (1997). Importantly for this thesis subject is the fact that the Goodman's method may report proportions of the quantities of interest that are outside the [0,1] interval. Put simply this means that the Goodman's method will report for instance that 105% voters split their ticket.[4] In my survey of the existing literature, the Goodman's method has never been used to estimate split-ticket voting in multi-party settings. Few works exist that apply the method to two-party systems and they have either discuss its inapplicability due to the high level of heteroskedasticity in the data (Burden and Kimball, 1998, 2004) or they have used the Goodman's method as an analytic check to assess other methods' performance (Tam Cho and Gaines, 2004). Because of these limitations and since the Goodman's method has been already tested by the existing methodological literature, this thesis uses Goodman's results for comparative purposes only and this method's performance will not be directly assessed.

Even if other methods exist, the exisiting literature refers to King's (1997) method as the most attractive because it combines the insights of the *Methods of Bounds* and *Ecological Regression*. King's method is a special case of a random-effects model, involving a combination of procedures details of which are provided in King (1997) and subsequent works (e.g. King et al., 2004). Details of King's method and subsequent developments (King et al., 1999) are not recalled here as these method are only suitable for two-party systems (also refer to as settings for 2X2 estimation tables) and for this reason they cannot be used in this thesis focused on split-ticket voting in multi-party settings.

An extension of these earlier methods to multi-party settings has been put forward by Rosen et al. (2001) who also provide a much faster method of estimation. In their approach they suggest a *Multinomial-Dirichlet* model for the estimation of the unknown quantities. Referring to Table 4.1, in the first stage, the model assumes that the *stochastic* component T^i_c= (T^i_A, T^i_B, T^i_C) follows a Multinomial distribution with *systematic* component Θ.[5] On the second level of this hierarchical model the *stochastic* component β^i_{rc}= (β^i_{AA}, β^i_{BA}, $\cdots$, β^i_{rc}) follows a Dirichlet distribution with *systematic*

[4] A technique to bring the coefficients admissible is the Iterative Proportional Fitting algorithm of Deming and Stephan (Schadee and Corbetta, 1984). In this case, the aim of the algorithm is precisely to 'fix' inadmissible coefficients, keeping intact the structure of the estimation table. Despite this possible adjustment however, inadmissible coefficients raises additional concerns as documented in Achen and Shively (1995).

[5] $\Theta = \sum^{r} \beta^i_{rc} X^i_r$.

component α_{rc}^{i}.[6] In the third and final stage, the model assumes that the regression parameters (γ_{rc}^{i} and δ_{rc}^{i}) are a priori independent. The parameters d_r are assumed to follow exponential distributions with means $1/\lambda$ (Rosen et al., 2001, p.137). Using Markov Chain Monte Carlo methods, the method estimates the unknown quantities based on samples drawn from the posterior distributions.

In the context of this thesis, the *Multinomial-Dirichlet* model is useful because it allows the estimation of disaggregate quantities of split-ticket voting in multi-party settings. The model can also be adjusted to the contextual needs adding covariates to the analysis.[7] The possibility of adding covariates is important as it helps to control for factors correlated with the main independent variable such as demographic variables or other sub-level characteristics (Rosen et al., 2001). In my examination of the literature, only another parametric method exists that would permit the estimation of unknown quantities for large estimation tables. The *Multinomial-Logistic* method proposed by Greiner and Quinn (2009) is structurally very similar to the *Multinomial-Dirichlet* model discussed above. The only major difference pertains the second level of the hierarchical model where the *Multinomial-Logistic* method uses a stacked additive logistic normal distribution instead of mutually independent Dirichlet distributions (Greiner and Quinn, 2009, p.71). This method too allows the use of covariates.

Beside these two parametric methods, a third alternative to estimate disaggregated quantities of split-ticket voting uses both individual and aggregate-level data and a non-parametric method known as *Maximum Entropy*. This method was originally proposed for applications to electoral data by Johnston and Hay (1982, 1983) and it has been applied to the study of split-ticket voting in New Zealand by Johnston and Pattie (2000, 2002). In this chapter I use the most recent version developed by Elff et al. (2008).[8] The *Maximum Entropy* method is simple to implement and is less computationally intense than the two parametric methods discussed above. Its major flaw consists in the fact that the required extra margins use surveys and thus the method is not applicable when individual-level data are not available (see Cleave et al., 1995 for a detailed methodological discussion). Another drawback is that this method cannot use covariates.

4.4.2 Testing Settings

The cases employed to test the estimation techniques are all years of elections in New Zealand (1996-2011) since the introduction of the mixed-member electoral system in 1996 and the 2007 Scottish Parliament elections.[9] These cases provide exceptionally

[6] $\alpha_{rc}^{i} = \frac{d_r exp(\gamma_{rc}+\delta_{rc}Z^i)}{d^r(1+\sum_{j=1}^{C-1} exp(\gamma_{rj}+\delta_{rj}Z_j))} = \frac{exp(\gamma_{rc}+\delta_{rc}Z^i)}{1+\sum_{j=1}^{C-1} exp(\gamma_{rj}+\delta_{rj}Z_j)}$.

[7] In order to avoid complicating the discussion, this chapter does not provide the results with the use of covariates. Some discussion of the issue is however provided in the Appendix to Chapter 4.

[8] I gratefully acknowledge the assistance of Martin Elff and Roy Johnston in providing me with the replication material and the R package to replicate their analysis and apply their method in this chapter.

[9] Estimations have been carried out for all years of election in New Zealand despite the fact that this chapter only shows results of the 2002, 2005 and 2008 elections. The aggregate results for the 2011 are

the *actual* levels of split-ticket voting by party at the district level. Furthermore, they are useful testing grounds as they supply data at the polling station level, and their comparison allows the test of the techniques across two rather different contexts. Specifically, the use of data at the lowest level of aggregation possible, that is polling station, is required since the estimations performed at higher levels, such as district, may carry larger errors. New Zealand and Scotland enable the testing of the methods on nearly 4,000 polling stations per each year of election. This allows for the three estimation methods to be tested across a total of more than 25,000 polling stations, with at least 2,000 different combinations of tables dimensions.[10] To perform the estimations presented in this chapter, high computational capability was required spanning a period of time of almost two years.[11] As far as I know, no estimation technique has been ever tested against such a large amount of real-world electoral data.

New Zealand

A proportional mixed-member electoral system was used in New Zealand for the first time during the 1996 election. After a long two-party system experience, today New Zealand is characterised by two major parties, Labour and National, about four smaller parties namely Green Party, New Zealand First Party (NZF), Association of Consumers and Taxpayers (ACT) and United Future. All the other parties usually gaining less than 1% of the national party list vote. On the electoral ballot the parties are listed on the left while the candidates are listed on the right. Candidates and parties are listed alphabetically following the candidates' surnames. Parties running only for the party vote are listed at the bottom following parties names (Vowles, 2005, p.298). Figure A4.2 provides a specimen of the ballot paper in use in New Zealand.

In New Zealand, after each election, the Chief Electoral Officer reports the combination of the two votes for each party at the district level. Moreover the electoral results are made available at the polling station level.[12] The New Zealand case is an appropriate testing ground not only because it provides the actual level of split-ticket voting across several years of election, but also because it allows variation across elections. This is significant because, even if the two biggest parties (Labour and National) receive the majority of votes in every election, the total percentage of votes received by each party varies in significant amount across elections.

For instance, the National party received only 21% of the national party list vote in 2002, but it gained more than 45% of the votes during the 2008 election. In terms of estimation tables, this means that the cell entries and the relation between rows and

not provided because for that year surveys are not yet available.

[10] In other words, referring to the estimation table represented in Table 4.1, the three methods have been tested across more than 25,000 of these tables. Each of this 25,000 table contains different internal values across its rows, columns and marginals. Concerning more specifically the number of rows and columns, the data available allow to test the methods across more than 2,000 different combinations.

[11] For the work conducted in this chapter I have relied on the infrastructure provided by the Trinity Centre for High Performance Computing funded by eINIS without which such analysis would have not been possible.

[12] Data ready available at `http://www.electionresults.org.nz/`. (Accessed 3 July 2013)

columns is different across elections. In addition, even if bigger parties tend on average to contest more districts than smaller parties, the total number of candidates varies across sub-units and years of election. For example, the NZF contested less than 30% of the districts in 2008 but more than 50% during the 2005 election. This means that the estimation tables will be of different size across sub-units and across elections. This variation allows to test the performance of the estimation techniques across many and different instances.

Scotland

In Scotland a relatively proportional mixed-member electoral system was introduced for the 1999 election (see Dunleavy and Margetts (1999) for details on the electoral system). For the first two Scottish elections voters had to cast their votes on two separate ballot papers. For the 2007 election, the two previous ballot papers were replaced by a single paper on which the left-hand side lists the parties and the right-hand side lists the candidates. Figure A4.1 provides a specimen of the ballot paper in use in Scotland for the 2007 election. The Scottish context is characterised by four major parties Labour, Scottish National Party (SNP), Conservative and Liberal Democrats (Lib Dem) alongside several smaller parties. The introduction of the mixed system facilitated the modest growth of the party system. However, after the relatively large amount of seats received by small parties in the 2003 election, they performed quite poorly in subsequent elections.

For the 2007 election only, the two votes were counted electronically and paper combinations of the candidate and the party vote were made available after the election by the Scotland Electoral Office. Moreover, exceptionally for the 2007 election, the electoral results are available at the polling station level.[13] The Scottish electoral context is different from the New Zealand case for several reasons. First, as discussed in Chapter 3 of this thesis, on average split-ticket voting in Scotland is lower than in New Zealand. Moreover, the two settings are different with regard to the number of parties and their relative strength. In Scotland there are generally fewer parties running for election and in contrast to New Zealand these parties form two internally more homogenous groups. The first group is formed by bigger parties such as Labour, SNP, Lib Dem and Conservative while the second group is formed by parties obtaining less than 1% of votes. Usually, big parties contest both electoral tiers whereas small parties run only for the party vote. In terms of estimation tables, this means that they are generally smaller, that is they have fewer rows and columns, in Scotland than in New Zealand and they display more homogenous values across their internal cells.

[13]Data ready available at `http://www.scotlandoffice.gov.uk/scotlandoffice/10202.html` (Accessed 3 July 2013).

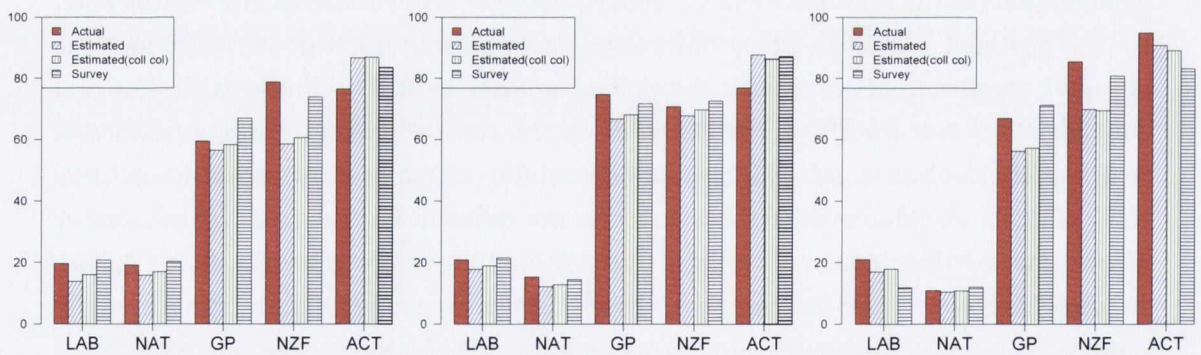
4.4.3 Testing Available Methods

The sections below summarise the main findings after the application of the *Multinomial-Dirichlet*, the *Multinomial-Logistic* and the *Maximum Entropy* methods; complete results are presented in Appendix 4. Specifically, Appendix 4 supplies additional details, graphs and tables for each section presented below. This is done to keep the technical details at the minimum in this context but still provide enough evidence to be able to assess the performance of the methods.

The Multinomial Dirichlet method

The *Ecological Inference Multinomial-Dirichlet* method (hereafter referred to as EI-MD) (Rosen et al., 2001) has been employed here to estimate the amount of split and straight vote by district using data at the polling station level.[14] Figure 4.2 provides the national average of split-ticket voting by parties for the 2002, 2005 and 2008 general elections in New Zealand. The figures compare the actual split-ticket vote (solid red) to survey results (horizontal grey lines) to the estimated quantities using the EI-MD respectively before (oblique blue lines) and after collapsing columns of parties receiving less than 1% of the total party vote into a single 'other' column (vertical green lines). The barplots illustrate that the EI-MD is remarkably consistent with actual values of split-ticket voting.

Figure 4.2: EI-MD and surveys versus actual split-ticket voting by party (%), New Zealand



(a) 2002 (b) 2005 (c) 2008

Notes: EI-MD refers to Ecological Inference Multinomial Dirichlet method. The graph shows the national average of split-ticket vote by party. Key to party: LAB-Labour; NAT-National; GP-Green Party; NZF-New Zealand First; ACT-Association of Consumers and Taxpayers. Coll Col-Collapsed Columns. *Source*: own elaboration from data available at `http://www.electionresults.org.nz/` (Accessed 3 July 2013).

On average, the EI-MD tends to underestimate the levels of split-ticket voting for bigger parties and overestimate these levels for smaller parties. Concerning survey results, they also provide consistent results especially for bigger parties, however in

[14] The method has been applied using the R package *Zelig* version 3.5.3 with 1000 iterations.

this case the error trend is less clear. The barplots also show that the estimations are rather similar before and after collapsing columns for parties receiving less than 1% of the votes. This finding is very important in the light of the fact that the EI-MD is computationally intensive and the reduction of the number of rows and columns heavily reduces estimation time allowing to obtain results much faster. If the results before and after collapsing columns are similar, this means that the estimation tables dimensions can be reduced collapsing third parties results saving time during the estimation.

To fully appreciate the performance of the EI-MD, the comparison between estimated and actual values is also provided at the district level. Appendix 4 shows graphically this information; Table 4.3 summarises the findings at the party level showing values of Root Mean Squared Error (Root-MSE) respectively before (ALL) and after collapsing columns (Coll Col) for parties receiving less than 1% of the party vote. Root-MSE measures the differences between the predicted and the actual observed values and it is used to assess the predictive power of the EI-MD model. It ranges from 0 to 100 where '0' means that the predicted values are identical to the actual ones and the estimation technique is perfect. The table confirms that the results for bigger parties are quite accurate while the results for smaller parties are less precise. This result is most probably due to the sharp difference between the percentage of votes received by the two groups of parties and by the fact that the information available during the estimation process for smaller parties is modest and the error larger. The finding that Root-MSE tends to increase as the size of the party decreases is confirmed by the results in the Scottish case displayed in the second half of Table 4.3. It appears that the error for the SNP is much lower than that of smaller parties such as the Lib Dems. The Scottish context allows to assess if the good performance of the EI-MD method holds when a different setting is used. As Table 4.3 and the graphs displayed in Appendix 4 show, the good performance of the EI-MD method is confirmed in the Scottish case.

Table 4.3: EI-MD performance at the party level

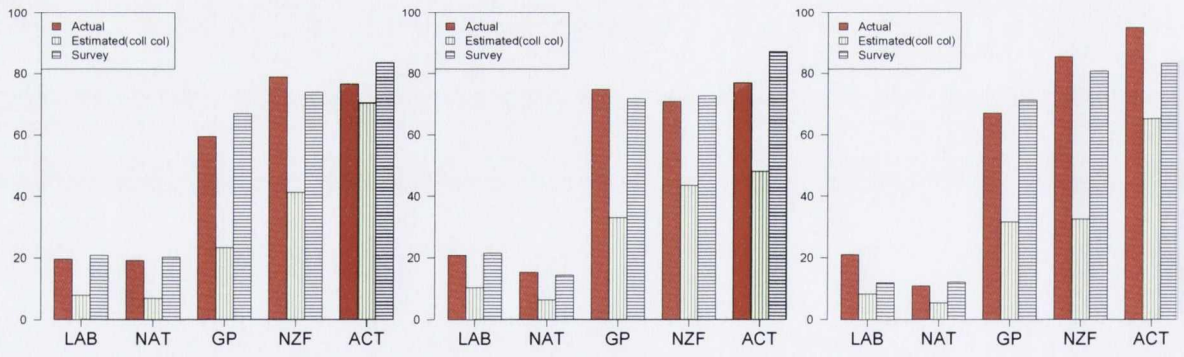
Root-MSE												
	Overall		**LAB**		**NAT**		**GP**		**ACT**		**NZF**	
NZ	ALL	Coll col	ALL	Coll Col	ALL	Coll Col	ALL	Coll Col	ALL	Coll Col	ALL	Coll Col
2002	23.43	15.92	11.16	9.64	16.72	17.65	14.50	15.62	17.24	16.70	18.24	18.79
2005	35.44	32.03	7.09	7.25	19.88	19.66	40.46	40.05	39.63	39.77	41.77	42.82
2008	23.57	13.38	14.30	13.92	4.11	4.44	17.47	16.11	11.60	10.79	22.31	20.96
	Overall				**Conservative**		**Labour**		**Lib Dem**		**SNP**	
STD	ALL		Coll Col		ALL	Coll Col	ALL	Coll Col	ALL	Coll Col	ALL	Coll Col
2007	14.78		12.34		13.87	11.91	8.77	9.71	15.30	17.60	7.85	7.89

Notes: EI-MD refers to Ecological Inference Multinomial Dirichlet method. The unit of analysis is the amount of split-ticket vote received by each party in a certain district. NZ-New Zealand; STD-Scotland. Further notes see Figure 4.2.

The Multinomial Logistic Method

The *Ecological Inference Multinomial-Logistic*[15] method (hereafter referred to as EI-ML) (Greiner and Quinn, 2009) has been employed here to estimate the amount of split and straight vote by district using data at the polling station level.[16] Figure 4.3 compares the actual split-ticket vote (solid red) to survey results (horizontal grey) to the estimated quantities after collapsing third parties results (vertical green) into a single 'other' column as carried out for the EI-MD model. EI-ML method results without collapsing columns are not shown in the figures due to the fact that they could not be estimated. In other words, the EI-ML takes longer to provide results and when the estimation tables are particularly large it will fail to provide the quantities of interest.[17] Consequently, the reduction of the number of rows and/or columns of the estimation tables is not only appealing, but also necessary. Nevertheless, it has to be said, that in those cases where the estimations were obtained, the results were very similar before and after collapsing columns. The barplots show that the EI-ML performs better for bigger parties. On average, it underestimates the level of split-ticket voting for all parties especially the smaller ones. This can be appreciated also examining the results at the district level as displayed in the Appendix 4 and in Table 4.4 displayed below.

Figure 4.3: EI-ML and surveys versus actual split-ticket voting by party (%), New Zealand



(a) 2002 (b) 2005 (c) 2008

Notes: EI-ML refers to Ecological Inference Multinomial Logistic method. Further notes see Figure 4.2.

[15] I gratefully acknowledge the assistance of Kevin Quinn in providing me with the indication of the R package to be used in order to apply the method in this chapter.

[16] To apply the EI-ML method I have used the R package *RxCEcolInf* with 1000 iterations.

[17] The EI-ML method is extremely computationally intense and fails to reach convergence when the estimation tables have a number of rows or columns that exceed 15. See also the Warnings sections in 'RxCEcolInf' R Package additional material available at `http://cran.r-project.org/web/packages/RxCEcolInf` (Accessed 3 July 2013).

Table 4.4: EI-ML performance at the party level

Root-MSE												
	Overall		LAB		NAT		GP		ACT		NZF	
NZ	ALL	Coll col	ALL	Coll Col	ALL	Coll Col	ALL	Coll Col	ALL	Coll Col	ALL	Coll Col
2002	-	19.34	-	13.92	-	17.15	-	26.08	-	19.94	-	19.97
2005	-	24.61	-	10.07	-	8.83	-	36.11	-	32.18	-	23.56
2008	-	22.19	-	12.40	-	7.31	-	32.67	-	24.87	-	23.94
	Overall		Conservative		Labour		Lib Dem		SNP			
STD	ALL		Coll Col		ALL	Coll Col	ALL	Coll Col	ALL	Coll Col	ALL	Coll Col
2007	-		18.81		-	14.48	-	22.10	-	21.86	-	15.69

Notes: EI-MD refers to Ecological Inference Multinomial Logistic method. The unit of analysis is the amount of split-ticket vote received by party in a certain district. NZ-New Zealand; STD-Scotland. Further notes see Figure 4.2.

It seems safe to conclude that for both parametric methods, the total error in the estimations comes from failing to detect values of split-ticket voting for smaller parties while for bigger parties they perform considerably well. In general terms, the EI-MD performs significantly better than the EI-ML method. In other words, both parametric methods provides estimated quantities that are not very different from the actual ones in roughly half of the cases. For bigger parties, the methods perform very well and they supply reliable quantities more often for big parties than for small ones. The EI-MD performs much better than the EI-ML and it provides quantities of split-ticket voting very similar to the actual ones in the majority of instances.

The Maximum Entropy Method

A third alternative when relying on aggregate data to measure split-ticket voting consists in the use of a non-parametric method known as the Maximum Entropy method (hereafter referred to as EMax) (Elff et al., 2008) which uses both survey and aggregate data. Concerning the version of the method used in this chapter, it is worth noticing that while the parametric methods provide estimates and standard errors for each party at the district level, EMax only provides estimates and error information for the overall district level. For this reason it is less useful in the context of this thesis aimed at investigating the variation of ticket-splitting at the party level across districts. However because the parametric and the non-parametric methods rest on two completely different analytical assumptions, the comparison of the two when the actual amount of split-ticket voting is not available may be regarded as useful in deterring problematic observations. Moreover, if results gained by the parametric and non-parametric methods provide similar results, this means that the results are not peculiar to that estimating procedure (Johnston et al., 2004). This matter is discussed in the next section. For the moment being, it is sufficient to mention that the results of the application of the EMax (presented in Appendix 4) show that the method performs quite well and it follows the positive trend presented for instance in Johnston and Pattie (2002) and Elff et al. (2008). Similarly to the two parametric methods, the results do not present obvious outliers except for a few points which usually represent the Maori districts in New Zealand as discussed in the next section.

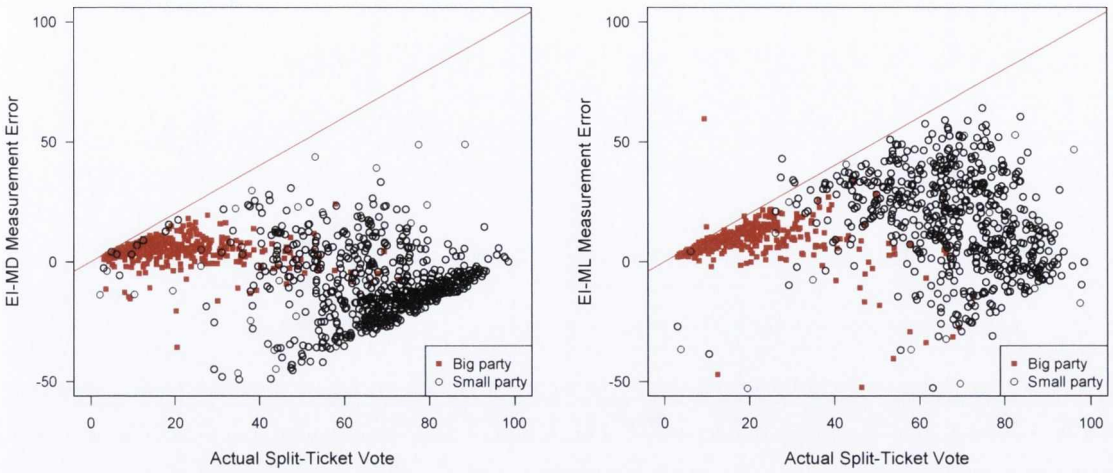
4.4.4 Overall Comparison and Methods Limitations

Regarding the parametric methods, an overall assessment suggests that estimations are less precise in the case of smaller parties whereas the methods provide accurate results for bigger parties. The methodological conclusion to be drawn from this is that estimates for smaller parties are likely to be less precise than those for bigger parties. Furthermore, the error appears to increase dramatically when dealing with exceptionally large estimation tables. This is confirmed by the higher average performance of the estimation techniques in Scotland where the number of parties and candidates is generally lower than in New Zealand. Specifically, in the Scottish case, outliers represent the districts with extremely large number of parties and candidates running for election. In terms of substantive interpretations of split-ticket voting this means that larger the number of parties and candidates running for elections, more cautious one should be in interpreting the values provided by the estimation methods.

Concerning big party outliers in New Zealand, they represent observations from the Maori districts. These districts are peculiar under one specific aspect: they are usually characterised by a high value in the row (or column) marginal and by a low value in the corresponding column (or row) marginal. This result is rooted in the fact that big parties contesting the Maori districts receive big amounts of party vote (i.e. high values on the row marginals) but they perform quite poorly in the candidate vote (i.e. low values on the column marginals). Conversely, in these districts the Maori candidates receive a lot of votes when compared to their own party. Since both parametric techniques tend to assign higher values in the diagonal cells when at least one of the corresponding value on the column or row marginal is high, they perform quite poorly in these districts. Generally speaking, one should be aware of the fact that when a party receives too many votes compared to its own candidate, or vice versa, the estimated values might carry larger errors. Fortunately there are statistical remedies, such as the use of Weighted Least Squares (WLS) in regression models, to deal with the error in the estimations as explained below.

Regarding the overall error pattern, Herron and Shotts (2003) have shown that the measurement error in King's (1997) estimates for 2X2 estimation tables is negatively correlated with the true level of the quantities of interest. This means that the error is larger for lower levels of the party vote. As they point out, if the error affecting a dependent variable is correlated with it, then all regression estimates based on the contaminated variable are at risk of inconsistency. The authors show that this risk is realised in the case of two-party settings. Figure 4.4 illustrates that in the multi-party settings analysed in this chapter, the estimates' error does not appear to be strongly correlated with the actual level of the dependent variable for neither one of the two parametric methods. When big parties and small parties are considered separately the relationship appears to be clearer but not always consistent across elections. Overall it is clear that both methods underestimate the actual levels of split-ticket voting especially so in the case of smaller parties.

Figure 4.4: EI-MD and EI-ML error versus actual split-ticket voting by party (%)



(a) EI-MD (b) EI-ML

Notes: See Figure A4.3.

Finally it is relevant to assess directly the differences in the estimations provided by the different methods. Table 4.5 provides pairwise comparisons across all methods discussed above and it provides a comparison of these methods to the classical Goodman's method. Root-MSE ranges from 0 to 100 where '0' means that the two models we are comparing are identical. The table reports that the estimates do not greatly differ across models despite the fact that the E-Max and the Goodman's[18] method are slightly more similar. The fact that the results are not dependent on the choice of the estimating procedure is a positive finding not least because this means that when actual values are not available, one can use the comparison across models to detect possible outliers.

Table 4.5: Root-MSE: Pairwise methods comparison

NZ	**EI-MD vs EI-ML**	**EI-MD vs EMax**	**EI-MD vs Goodman**	**EI-ML vs EMax**	**EI-ML vs Goodman**	**EMax vs Goodman**
2002	15.15 (69)	14.92 (69)	12.21 (69)	25.43 (68)	21.10 (69)	10.86 (69)
2005	13.11 (69)	10.29 (69)	12.46 (69)	17.24 (69)	15.43 (69)	13.71 (69)
2008	10.83 (70)	21.09 (70)	20.24 (70)	17.73 (70)	19.64 (70)	8.81 (70)
STD						
2007	15.15 (69)	14.92 (69)	12.21 (69)	25.43 (68)	21.10 (69)	10.86 (69)

Notes: EI-MD refers to Ecological Inference Multinomial Dirichlet method; EI-ML refers to Ecological Inference Multinomial Logistic method; EMax refers to Maximum Entropy; Goodman refers to the Goodman Regression method. Comparisons are provided at the district-level. Numbers in brackets represent N for the calculations. NZ-New Zealand; STD-Scotland.

[18]The Iterative Proportional Fitting (algorithm of Deming and Stephan (Schadee and Corbetta, 1984)) has been applied with the aim of 'fixing' inadmissible coefficients. This is done using the *loglin* function used to fit log-linear models to multidimensional estimation tables (by Kurt Hornik).

4.5 Using Point Estimates and Surveys in Regression Models

With an aim to generalize the use of surveys and estimates to the study of split-ticket voting, this paragraph offers an exploratory analysis introducing some of the models and techniques heavily employed in the rest of this thesis. It needs to be emphasised that this section is not an attempt to provide a complete substantive investigation of split-ticket voting. The goal of the methodological discussion is to compare how different substantive findings are when point estimates are used in place of the actual values of split-ticket voting where the actual values are not available. Ideally, the values and the significance level of coefficients using the estimated values of ticket-splitting will not be statistically different from the ones using estimates. At the same time, ideally results using surveys will be close enough to the ones using aggregate data to lead to very similar substantive findings. This is because one can be more confident in the results when the survey and aggregate analyses match.

In my review of the existing literature, EI-MD or EI-ML estimates have never been used as dependent variables in regression models. However, since they consist of generalization of 2X2 methods to multi-party settings, I follow the prescriptions of the most recent methodological literature on smaller estimation tables. Concerning the use of King's (1997) estimates, the methodological literature has suggested the use of the estimated proportions as dependent variable in WLS models where the estimates errors are used as weights (Adolph et al., 2003). In the WLS analysis observations are weighted by the inverse of their standard errors, thus giving greater weight to observations with more precise estimates of ticket-splitting (Burden and Kimball, 1998, p.539).

In addition, I follow the prescriptions of the methodological literature on regression models using proportions as dependent variable. In this regard, Kieschnick and McCullough (2003) after surveying several studies using proportions as dependent variable, find evidence to reject the OLS, the censored normal and the logistic normal models; instead they suggest the adoption of beta regression.[19] An increasing number of works today suggest the superiority of the beta regression models when dealing with proportions (e.g. Papke and Wooldridge, 1993; Cribari-Neto and Zeileis, 2010). I run a similar test of different regression techniques to choose the most appropriate model specification. Details are shown in Appendix 4. Here it is sufficient to mention as the choice of the model (i.e. OLS, Tobit or Beta model) does not appear to affect the results. Notwithstanding this, values of the Akaike's Information Criteria (AIC) suggest that the beta regression specification is superior to the other models. For this reason subsequent investigations of split-ticket voting will employ the beta model.

The models presented below include some of the most common independent variables used by the existing literature on split-ticket voting. Incumbency and Female

[19]Their tests lead to the rejection of the distributional assumptions underlining the normal, the censored and the logistic normal model since the conditional expectation function of the variates is nonlinear and the error distributions are heteroskedastic (Kieschnick and McCullough, 2003).

are both dummy variables which measure candidate features likely to affect the probability of splitting. The effect of incumbency has proved to lower levels of split voting in a variety of contexts (Bawn, 1999; McAllister and White, 2000; Karp et al., 2002; Carman and Johns, 2010). Regarding candidate gender, Karp (2009) showed that its effect is very low. Both DContention and District Margin capture features of the district race likely to impact the probability of splitting. The District Margin measures the competitiveness of the district race as the difference between the first and second best candidate in each district and the general expectation is a negative effect on ticket-splitting (Cox, 1997; Reed, 1999).[20] The variable DContention measures the percentage difference between one's most preferred candidate and the vote for the lowest of the two top contenders, or zero if one's most preferred candidate ranked first or second (Niemi et al., 1992, p.232). As mentioned in previous chapters, the expectation is a positive effect. Candidate Spending measures party spending at the district level as an indicator of candidate viability. Existing studies have shown that more a party spends less likely it is to lose votes on the candidate ballot (Karp et al., 2002; Johnston and Pattie, 2002) that is a negative effect is expected. As already mentioned, in this context we are not interested in the substantive outcome of each of this variable, but rather how different their effect is when modeled using different estimation techniques.

Table 4.6 shows beta models results for the 2008 election in New Zealand. Model 1 reports findings using as dependent variable the actual value of split-ticket voting. The results using point estimates derived from the application of the EI-MD and EI-ML methods are shown in Model 2 and 3 respectively. Logit regression is used when dealing with surveys when the unit of observation is respondent's vote choice (Model 4). The dependent variable in this case takes the value of 1 when a voter splits his ticket and 0 otherwise. The *Switch* columns provide pairwise comparisons between the actual values and the use of one of the estimation methods. When a 'No' appears in the switch column, this means that the results are not statistically different when point estimates are used in place of the actual values of ticket-splitting. Conversely, when a 'Yes' appears in the switch column, this means that the results are statistically different.[21]

With respect to the comparison across dependent variables, Table 4.6 shows that the coefficients display the same sign and similar effects even if not completely so. Part of the coefficient's significance is lost when the independent variable is not fully significant (i.e. in the case of Female), but the size as well as the sign of the coefficients are saved in the majority of cases. Results for the 2005 and 2002 elections and the comparison in the Scottish context shown in Appendix 4 confirm the good performance of the different methods. I ran many more models than those shown here adding and dropping several variables and by pooling data across elections. In all instances, the

[20] Both District Margin and DContention are measured at the previous year of election to avoid the well-known 'endogeneity' problem (Karp et al., 2002, p.8).

[21] The idea of this comparison is taken from Herron and Shotts (2003) which use this comparison for the 2X2 King's (1997) method.

positive patterns were kept in the overwhelming majority of cases. Overall, it appears that the substitution of the dependent variable with estimated quantities does not change substantive findings especially when using the EI-ML method. Specifically, the EI-MD method provides the best estimation method among those tested in this chapter and it offers an important tool to investigate split-ticket voting at the aggregate-level in subsequent chapters of this thesis.

Table 4.6: Multivariate analysis, 2008 New Zealand election

	(Model 1)	(Model 2)		(Model 3)		(Model 4)	
	Actual	**EI-MD**	*Switch*	**EI-ML**	*Switch*	**Survey**	*Switch*
Incumbency	-0.86^{***}	-0.83^{***}	*No*	-0.68^{***}	*No*	-0.41^{*}	*No*
	(0.12)	(0.17)		(0.19)		(0.14)	
Female	-0.16^{*}	$-0.21.$	*No*	-0.16	*Yes*	$-0.13.$	*No*
	(0.07)	(0.11)		(0.12)		(0.04)	
Candidate Spending	-0.04^{***}	-0.03^{*}	*No*	$-0.03.$	*No*	-0.06^{***}	*No*
(1000 $)	(0.01)	(0.01)		(0.01)		(0.01)	
District Margin	1.50^{***}	2.08^{***}	*No*	0.17	*Yes*	-0.70	*Yes*
	(0.31)	(0.48)		(0.54)		(0.48)	
DContention	6.08^{***}	7.64^{***}	*No*	5.17^{***}	*No*	0.04^{***}	*No*
	(0.38)	(0.59)		(0.68)		(0.00)	
(Intercept)	-1.16^{***}	1.49^{***}		1.59^{***}		-0.93^{***}	
	(0.17)	(0.26)		(0.30)		(0.18)	
Observations	342	316		309		1812	
Pseudo-R^2	0.60	0.62		0.58		0.18	
LL	304.3	215.8		274.2		1773.03	
AIC	-592.62	-415.53		-532.35			

Notes: Standard errors in parentheses: $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{.}p < 0.1$. The dependent variable in the *Actual* model is the percentage of split-ticket vote received by each party in a district; in the *EI-MD* and *EI-ML* models the dependent variable is the estimated amount of ticket-splitting using the Multinomial Dirichlet and the Multinomial Logit methods. All models are estimated using the command *betareg* in *Stata 12*. In the *Survey* model the dependent variable takes a value of 1 if the respondent casts a split vote and 0 otherwise. Logit regression has been estimated using the command *logit* in *Stata 12*.

4.6 Summary & Concluding Remarks

In a world of complete information, all disaggregated quantities of split-ticket voting would be known by the researcher, and estimation techniques would not be necessary. In such ideal world, substantive investigations of the variation of ticket-splitting could been carried out with little statistical effort. In an even more ideal world, it would be possible to interview all voters that will provide their voting preferences and attitudes honestly and precisely. As this world does not exist, there is a need to assess the accuracy and efficacy of the available data and methods to estimate ticket-splitting values. Therefore the research contributed by this thesis is uniquely situated. Exclusively for New Zealand and Scotland, researchers have access to the actual values of split-ticket voting. This chapter has used these two contexts to review the available data and methods.

Despite intrinsic methodological limitations, survey data remains an avoidable part of the study of voting behaviour as they represent the only access points to individual motivations. In this regard the chapter reviewed the actual use of these data in the

literature and introduced relatively new ways of using surveys to analyse split-ticket voting. The invaluable information provided by surveys will be employed to investigate the impact of individual-level features such as political and social values on the probability of casting a split vote.

Regarding the use of aggregate data, the chapter provided a comparison of the three most recent estimation techniques proposed to tackle the ecological fallacy problem which is an unavoidable issue when dealing with aggregate data. In particular, the analysis assessed the performance of the estimation techniques and highlighted their issues and limitations. A few observations are noteworthy. First, the available techniques perform remarkably well over time and across settings. In particular, since the point estimates are close enough to the actual values, when used in regression models, they provide similar results to the ones obtained using the actual values. As mentioned already, this is an important remark in the light of the fact that the actual levels are not normally available to the researchers.

The methodological findings from this chapter provides a fundamental basis for the development of this thesis and for substantive interpretations of split-ticket voting. Last but not least, because the issue of measurement of split-ticket voting is a common one, the results of this analysis can be regarded as useful in all other settings where researchers have only available aggregate data but they are interested in explaining the variation at a disaggregated level.

Chapter 5

A Cross-Country Analysis and A Comparative Investigation of the Two Votes

5.1 Introduction

As mentioned in the outset of this thesis, for the most part, the existing literature on split-ticket voting deals with no more than one or two countries. The countries analysed are well established democracies such as Germany, New Zealand, Scotland and to lower extent Japan, Russia, Hungary and Lithuania. Although such research has provided valuable insights, country-level data are naturally of limited use when one seeks to understand the variation of split-ticket voting across countries. What is missing is a systematic investigation of the influence that each of the variables may have from one country to another, whilst maintaining the same set of measures for each of the independent variables. Previous chapters have also discussed the identification problems characterising split-ticket voting. These identification problems are rooted in the fact that observational voting patterns are consistent with several different explanations at the individual level. For this reason, the existing literature on ticket-splitting has often relied on two problematic assumptions. First, a vote cast under proportional rules is assumed to reflect a more sincere preference. Second, it is assumed that voters are characterised by a one-party preference. Based upon these two assumptions, a straight vote is usually considered to represent sincere voting and a split vote is often assumed to reflect some form of strategic voting especially when dependent upon education and political sophistication.

The lack of comparative investigations and the presence of these identification problems call for both a cross-country and a cross-vote analyses. This chapter provides the first comparative analysis across 10 mixed-member electoral systems covering all possible combinations of mixed rules at national and sub-national level.[1] The analysis

[1]For a justification of the countries selected refer to the discussion provided in Chapter 3 page 43.

employes mixed-level datasets where individual-level data about voters' preferences and motivations are combined with district-level information which takes into account the electoral context in which the vote is cast. Moreover the analysis conducted in this chapter attempts to overcome the identification problems due to the fact that vote choice under mixed systems can be consistent with multiple explanations at the individual level. To this end, the two votes are investigated separately rather than in conjunction as it is the practice in the existing literature. This means that the analysis will not consider directly whether the voter casts a split or a straight vote. It rather assesses how different the two votes are when it comes to sincere and strategic voting determinants using both pre and post-electoral data. As far as I can tell nor a comparative investigation of individual preferences across all types of mixed systems nor a comparative investigation of the two votes have been conducted before.

The chapter proceeds in four parts. Section 2 presents theoretical expectations regarding voting behaviour and discusses the independent variables and their measurement. Despite employing a different dependent variable, this study uses existing independent variables. This is done to maximize the comparability of the findings obtained in this chapter with those of the existing literature. This allows us to test and expand on current knowledge of split-ticket voting. The two strategies of analysis when it comes to the use of pre and post-electoral data are explained in section 3. Section 4 provides the results of the comparison between intentions and actual vote in the two parts of the electoral ballot and it explains why this comparison is an important one. The multivariate models and the main findings are presented in section 5. Section 6 provides an assessment of the results and final remarks will close the chapter. For all countries under scrutiny in this chapter, the party vote or the PR vote is the vote for a national party under proportional rules. The candidate vote or SMD vote is the vote for a single-member district candidate under majoritarian rules.

5.2 Determinants of Vote Choice

Sincere voting describes a situation in which the voter simply casts a vote for the most preferred party irrespective of any other considerations. Parties' and candidates' electoral prospects and the expected effect of vote choice on the election outcome do not factor into voters' decision. Strategic voting on the other hand, implies that the voter evaluates how his vote will influence the election result (Abramson et al., 2010). Since strategic voting is linked to voters' preferences but also to their expectations and these are linked to the electoral context, the existing literature looked at several factors likely to impinge the way people vote under mixed rules. Finally there are some features of the institutional setting which encompass voters but do not dependent on them. For the purpose of this analysis, I group voting predictors into *subjective*, *objective* and *institutional* voting determinants. The aim is to assess the importance that subjective and objective factors have on the party and the candidate vote and if there are meaningful differences between the two. In addition, the analysis is intended

to test whether findings hold when controlling for the institutional variation across countries.

5.2.1 Subjective Determinants

Subjective determinants of vote choice refer to voting attitudes such as party identification and social and political values. These features are likely to influence voting behaviour regardless of the electoral setting. There are some other individual-level features instead which depend, at least to some extent, on the electoral context such as exposure to the electoral campaign and evaluations of parties' electoral strength. The other factor that determines voter motivation is the capacity to cope and understand the context in which the vote is cast, and react strategically to this information. For instance, the existing literature tends to agree on the hypothesis that voters with higher political sophistication and higher level of education will be more likely to cast a strategic vote (e.g. Gschwend, 2007).

Concerning the issue of voter sincerity, it makes sense to analyse the extent to which party attachment explains vote choice in the PR versus the SMD context using the traditional Eurobarometer question: 'Do you usually think of yourself as close to any political party?'. It is also possible to use frequently available feeling thermometer questions asking respondents to provide a score for the parties on a scale from 0 to 10 where '10' means 'like the party very much'. Generally it is assumed that the party rated highest is the respondent's favorite party and sincere and straightforward voters intend to vote for their favorite option. The party sympathy question can also be used to investigate if voters like one party or more than one. It can be that some voters like only a single party whereas others score multiple parties equally, or nearly equally high (Marsh, 2006*b*). It is straightforward to see that voters who like more than one party similarly will be less likely to vote for one of these two parties when compared to those who like one party above all the others.

There is no doubt that in the case of mixed systems one would have preferred the feeling thermometer question, as well as all the other questions used to measure subjective determinants of vote choice, to be asked separately for *all* parties and candidates running for elections. Unfortunately however, information on parties' and candidates' preferences is only available for the New Zealand up until 2005 and Japan. Not surprisingly, evidence from these two countries shows that the feeling thermometer question asked for candidates explains the SMD vote better than the feeling thermometer question asked for parties.[2]

Ideological voting, based on Downs' (1957) original work, suggests that voters will likely vote for the party closest to them on a hypothetical ideological continuum. The assumption is that voters are able to characterise themselves and the parties in such terms and choose between parties based on this comparison. Similarly issue voting

[2] A larger discussion of this issue is presented in Chapter 6 of this thesis where the Japanese case is analysed in detail.

would suggest that voters will tend to vote for parties closest to them on a series of important issues (Rabinowitz and Macdonald, 1989; Bargsted and Kedar, 2009). Since appropriate issue-voting questions are not available in many surveys analysed in this chapter, I use a more general self-placement question; 'Where would you place yourself (and each of the following parties) on scale from 0 to 10 where '10' means "extreme right"?'. The score of this proximity variable represents the absolute difference between the respondent and each of the parties on a left-right scale. The general expectation is that as the perceived distance between voters and parties increases, the less likely the respondent will be to cast a vote for that party.

5.2.2 Objective Determinants

Objective predictors are those likely to affect voters equally despite their own electoral preferences. These factors can be objective party features such as party size or characteristics of the competition at the district level. Existing works have shown that the relationship between district outcomes and strategic voting is a strong one (e.g. Cox, 1997; Alvarez and Nagler, 2000). There are two ways of assessing this link. The first one is by asking respondents directly. The second way, presented below, is using aggregate district indicators. Among the countries analysed in this chapter, a few pre-electoral surveys have asked questions on voter expectations for each party and candidate running for election. In 2002 in New Zealand and 2007 in Scotland, pre-electoral surveys have asked 'What do you think party (or candidate) X's chances are of getting elected on a scale from 0 to 10 where '10' means "highest chances of being elected"?'.

In both countries, more than 90% of those intended to vote for a party on the PR vote said that this party was expected to get seats in the parliament after the election. Interestingly, among those who intended to vote for a candidate on the SMD vote, only a small fraction thought that this candidate had the best chance of winning. Most felt that their preferred candidate only had some chance of winning. However among those who thought that candidate X had the best chance of winning the district seat, the majority intended to vote for that candidate. In the Japanese pre-electoral context, when Japanese voters were asked about the expected outcome of the election in relation to their SMD vote, an overweeningly majority (70%) picked the option that the candidate for whom they intended to vote 'will definitely or probably win' the elections; less than 20% said that the candidate 'will win with a small margin', and the rest picked the option 'the candidate probably won't win'. This clearly indicates that not all of those intended to vote for a candidate are strategic. However, those who vote for a candidate in the SMD generally think, correctly or not, that this option has good chances of entering the parliament after the election.

Since individual-level pre-electoral expectations to measure wasted vote considerations are not available in all countries analysed in this chapter, I follow the lead of Niemi et al. (1992, p.232) to build two variables 'Distance from contention' and 'District competitiveness' using aggregate data. These variables should help measuring a

strategic reaction to the electoral rules. Both variables and their measurements have been discussed in previous chapters. Recalling that discussion, the variable Distance from contention measures the percentage difference between one's most preferred candidate and the vote for the lowest of the two top contenders, or zero if one's most preferred candidate ranked first or second. The expectation as confirmed in the New Zealand case (Karp et al., 2002), is that the higher this difference, the more likely an individual should be to switch from his party and vote strategically for one of the two top contenders.

The variable District competitiveness measures the closeness of the district race as the difference between the first and second best candidates in each district. The general expectation is a negative effect: the closer the district race, the greater the probability of casting a split vote because fewer voters are willing to risk wasting their vote (Cox, 1997; Bawn, 1999; Reed, 1999; Kostadinova, 2002). Specifically, when the district race is competitive strategic supporters of the two top ranked candidate should stick with their candidate in order to guaranteed his victory. On the other hand, if a negative relationship is found this may indicate the presence of personal vote, especially for the second-placed candidate because, other things being equal, there is no reason to support a candidate that has no chance of winning. The matter is complicated for lower ranked candidates: if competitive district races may encourage higher strategic defection in order to guarantee the victory of the least-worst option in that district, at the same time higher splitting can be entirely consistent with personal voting (Moser and Scheiner, 2005, p.263).

5.2.3 Institutional & Cross-Country Variation

The sample of countries employed in this analysis offers variation on several aspects deemed important to influencing vote choice. First, the sample covers all possible combinations of mixed rules, that is majoritarian and semi-majoritarian, proportional and semi-proportional. Second, some of these countries had mixed systems in place for several elections whereas mixed rules are relatively new in others. Finally the sample includes established democracies, newly established ones as well as some instances of non-full democracy.

Concerning institutional variation, Germany, New Zealand and Albania are usually defined as proportional, sometimes also compensatory, mixed systems because they offer strong linkage mechanisms between the PR and SMD tiers (Shugart and Wattenberg, 2001). On the other hand, the Japanese, South Korean, Thai, and to some extent the Italian and the Hungarian systems do not offer such compensatory linkages.[3] In this second group of countries often defined as majoritarian mixed systems, the SMD vote is the most important vote as it has a great leverage on the final distribution of legislative

[3]The configuration of the Italian (D'Alimonte, 2005) and Hungarian (Benoit, 2005) mixed systems makes it harder to classify them. Both systems are a more complicated version of majoritarian systems and for this reason they are often defined as semi-majoritarian mixed systems (Cox and Schoppa, 2002; Shugart and Wattenberg, 2001).

seats (Shugart and Wattenberg, 2001). Under mixed-majoritarian rules, parties will have a much stronger incentive to focus on winning as many SMDs as possible because each district seat they win will be added onto the national party seat total. For this reason, candidates in these systems will be more likely to behave personalistically than their counterparts in proportional mixed systems and this ultimately should encourage personal vote (Moser and Scheiner, 2005).

Among the countries analysed, Germany has used a mixed system for decades, but the system is quite new in the other countries. Also Germany, New Zealand, Japan and Italy are consolidated democracies but democracy is relatively new, at least for the elections analysed in this thesis, in Hungary, Albania and South Korea. Thailand instead is not always considered to be a full democracy (e.g. Norris, 2005). Voters experience with the electoral rules is likely to influence their strategic coordination (Cox and Schoppa, 2002). Furthermore existing works often suggested that the lack of party system institutionalization is probably the reason strategic voting is very low in less developed democracies (Kostadinova, 2002; Moser and Scheiner, 2009). Finally, the analysis includes Scotland and Wales as sub-state case studies in order to test whether or not voters react differently to the electoral context when voting for a non-general election. The expectation is that a non-general election may be regarded by voters as less important than a national election. The fact that in both sub-state elections considered, smaller parties usually perform better than in national elections tends to confirm this expectation (Curtice, 2006, p.119). The relatively lower importance of these elections may lead to either less concern for voters about wasting their vote or a chance to experiment by supporting smaller parties. In both cases, the expectation is a lower level of strategic voting in non-general when compared to general elections.

Put simply, I propose that a voter is more likely to vote for a party when he is attached to a party, likes that party more than any other party, feels close to a party, when he believes that the party, via its candidate, has some chance of winning locally. I also suggest that there will be differences across countries where majoritarian mixed systems will show higher level of personal vote when compared to compensatory systems. Also, everything else being equal, countries with older mixed rules are more likely to show patterns of voters' strategic coordination. Furthermore I control for district competitiveness and voters' education.

5.3 Assessing Voting Behaviour Determinants

The existing literature on voting behaviour under mixed-member electoral systems focused on the question of voters' sincerity across the two ballot tiers. First and foremost, voter sincerity is measured using party attachment and this is seen as the major incentive to vote for the same party on both ballots. The existing literature has then identified two main rationales behind the deviation from a straight vote. The first one is consistent with the wasted vote hypothesis. When a rational voter anticipates no chance of victory for the most preferred party's candidate he will switch by voting for

a bigger party's candidate. The so called 'coalition voting' hypothesis instead affirms that big party's supporters also can engage in strategic splitting by casting a sincere preference on the SMD ballot and by switching strategically to a minor party and likely coalition partner on the PR ballot to help it cross the electoral threshold.

The assessment of voting behaviour hypotheses is difficult as actual vote patterns are typically compatible with a variety of alternative individual-level mechanisms. For instance both the wasted vote and the coalition voting hypotheses produce identical patterns, that is a vote for a big party on the majoritarian ballot and a vote for a smaller party on the proportional ballot. This observational result is also in line with sincere voting. Thus unless survey questions are structured so that they reveal the true voting intentions, it is difficult to disentangle the different hypotheses by examining exclusively actual vote choice. Unfortunately these survey questions are not often available in electoral surveys. Chapter 6 of this thesis looks in detail at a case study, Japan, where this information is made available through detailed survey data. The comparative analysis conducted in this chapter though, faces the standard data limitation and identification problems of the current literature on vote choice under mixed systems.

These limitations are dealt with in this context by following two analytical steps. The analysis starts by comparing voters' intentions to actual vote choice for each of the two votes separately. Subsequently, the chapter investigates whether and to what extent the two votes are different with regard to observed patterns between the pre and post-electoral setting. Usually the comparison between intentions and actual vote choice has been examined in the context of media exposure and short-term forces. The change of preferences before and after an election concerns the electorate's response to the more or less immediate circumstances that surround a specific election (Dreyer, 1971). The 'floating voter' hypothesis states that non-attached voters and those exposed to media are more likely to change their mind during the electoral campaign than voters with a party attachment (Lazarsfeld et al., 1944). More recently, Blais (2004) finds evidence that the propensity to change one's mind declines as the campaign progresses with pronounced differences across countries. In the context of this thesis, the primary interest is not on the reasons why voters change their mind before and after the elections. This chapter focuses on assessing how much different intentions and actual vote choice are and whether there is any meaningful difference between the patterns observed in the party and the candidate vote.

To fulfill this first aim of the analysis, I calculate correlation coefficients between intentions and actual vote in each of the two parts of the electoral ballot.[4] Since both votes are cast by the same voter and during the same election, the general expectation is that we should not see major differences across the two votes. On the other hand, if one of the two votes is likely to change during the electoral campaign we will wonder why by examining at specific factors related to sincere and strategic voting. The second step

[4]The correlation coefficient measures the strength and direction of the linear relationship between intentions and actual vote ranging from -1 to +1, with 0 indicating no correlation at all.

of the analysis consists in looking only at actual vote choice providing a comparative investigation of the two votes. The aim is to assess what explains the two votes and if there are substantial differences when it comes to the influence of sincere, strategic and institutional factors. Current investigations of split-ticket voting have usually looked at vote choice under mixed systems as a 0-1 choice. In this context instead we look at the two votes separately relaxing the assumptions regarding the sincerity of the two votes. The same sets of variables are applied across countries and across votes.

In this context we are not interested in what determines a vote for a party rather than another but we rather wish to assess vote choice in general. To this end, original data have been reshaped into a so-called 'stacked' form as discussed in Chapter 4. There are two model specifications that can be used when datasets are reconstructed: the Conditional Logit model (CL) (Chamberlain, 1982) and the logit with clustered observations (hereafter referred to as simply 'clustered logit') as proposed by Tillie (1995) and van der Eijk and Franklin (1996). The subsequent analysis illustrates and discusses only results provided by the clustered logit method. Notwithstanding this, Table A5.3 in the Appendix 5 compares the results of the CL and the clustered logit model indicating that the two models do indeed provide very similar results.

5.4 Comparing the Pre and Post-Electoral Vote

The analysis in this section compares intentions and actual vote. Panel surveys including at least one pre-electoral and one post-electoral wave are available for the 2009 election in Germany, 2001 in Italy, 2007 and 2011 in Scotland, 2011 in Wales, 1996, 1999 and 2002 in New Zealand and 1996, 2003 and 2005 in Japan (see Table A5.2 for data sources). Table 5.1 lists the countries starting from most proportional (i.e. Germany and New Zealand) to most majoritarian mixed systems (i.e. Italy and Japan). First the analysis compares Intentional (I) and Actual (A) vote on the PR using correlation coefficients. Then the same difference (I versus A) is considered examining the candidate vote. Subsequently, because the aim is to assess if there are meaningful differences across the two votes, I compare the two correlation coefficients, obtained separately for the two votes, using the *Fisher r-to-z transformation.*[5] The first column in Table 5.1 shows the difference between the two correlation coefficients. When the difference showed in Column 1 is positive, it means that the intended and actual PR vote is more similar than the intended and actual SMD vote. In other words the PR vote is more stable across the pre and post-election setting than the SMD vote. Bold coefficients are a sign that this difference is statistically significant.

Second, I calculate a correlation coefficient between intended PR and intended SMD and then compare this to the correlation coefficient obtained comparing the actual PR and the actual SMD vote. The aim of this step is to check more generally how different voting intention and actual vote choice are and whether PR and SMD vote are more

[5]The *Fisher r-to-z transformation* is used to obtain a value of z that can be applied to assess the significance of the difference between two correlation coefficients (Zar, 1996).

Table 5.1: Correlation between Intended and Actual vote choice

Country		Column 1 I/A PR vs I/A SMD	Column 2 I PR and SMD vs A PR and SMD	Column 3 Split Vote %
MIXED-PROPORTIONAL SYSTEMS				
Germany 2009	*All Voters*	0.004	**0.051**	35.3
	PID==1	0.004	**0.053**	30.5
	DContention==0	0.018	**0.137**	35.1
New Zealand 1996	*All Voters*	**0.048**	0.009	37.6
	PID==1	0.044	-0.009	33.3
	DContention==0	**0.217**	**0.046**	35.2
New Zealand 1999	*All Voters*	**0.044**	**0.095**	37.3
	PID==1	0.099	0.047	33.3
	DContention==0	**0.071**	0.065	29.7
New Zealand 2002	*All Voters*	**0.063**	0.038	41.3
	PID==1	0.083	0.108	53.7
	DContention==0	0.025	0.005	39.8
Scotland 2007	*All Voters*	**0.205**	**0.093**	31.9
	PID==1	**0.154**	-0.094	24.4
	DContention==0	0.187	-0.146	30.5
Scotland 2011	*All Voters*	0.005	0.029	19.2
	PID==1	-0.123	0.018	20.4
	DContention==0	-0.091	-0.671	25.0
Wales 2011	*All Voters*	**0.027**	**0.069**	28.0
	PID==1	0.001	**0.007**	20.7
	DContention==0[2]			
MIXED-MAJORITARIAN SYSTEMS				
Italy 2001	*All Voters*	**0.045**	**-0.016**	11.1
	PID[1]			
	DContention==0	**0.054**	**-0.014**	9.6
Japan 1996	*All Voters*	-0.044	0.001	27.2
	PID==1	-0.019	-0.033	23.6
	DContention==0[2]			
Japan 2003	*All Voters*	-0.044	0.001	27.2
	PID==1	**-0.051**	0.038	27.3
	DContention==0	-0.055	0.022	21.5
Japan 2005	*All Voters*	**-0.098**	0.015	26.4
	PID==1	**-0.087**	0.011	25.7
	DContention==0	-0.133	-0.060	23.4

Notes: Coefficients show the difference between correlation coefficients. To assess if the differences are statistically significant I use the *Fisher r-to-z transformation* (Zar, 1996). Bold coefficients are significant at ($p<0.05$).'I' is 'Intended' vote calculated using pre-electoral data; 'A' is 'Actual' vote calculated using post-electoral data. Only those voters who cast both votes are included. *PID==1* are the respondents with a party attachment; *DContention==0* are those intended to vote or that have voted for a party ranked first or second in the previous election. Last column refers to actual vote. [1] The Eurobarometer question about party attachment has not been asked. [2] Lack of respondents district information. Data are weighted as to reflect the actual vote distribution.

similar before or after the elections. Column 2 of Table 5.1 shows the results. When the coefficient displayed in the table is positive and significant it means that the PR and the SMD votes are more similar in the pre-electoral setting than after the elections. In other words less split-ticket voting if found prior to the elections. The first row (*All Voters*) for each country reports the results considering all voters and provide general conclusions concerning the comparisons of the two votes. The second row (*PID==1*)

includes only respondents with a party attachment. A standard finding in the literature is that identifiers are less likely to split their vote (e.g. Karp et al., 2002; Curtice, 2006) and change their mind during the electoral campaign (e.g. Johnston and Pattie, 2004; Rich, 2012). If it is true that voters use the party as a clue to cast their two votes, we should find identifiers to be generally more sincere and thus less likely to change their mind that is no significant difference on the first and second column of the table.

Finally each third row (*DContention==0*), reports the results including only those respondents whose party, they intended or have voted for, ranked first or second in the previous election. As mentioned in the previous section, the expectation is that the lower the difference between the vote for one's most preferred candidate and the lower of the two top contenders, less likely an individual should be to switch from his party and vote strategically for one of the two top contenders (Niemi et al., 1992). Thus, if those voting for a bigger party truly prefer this party, we should find them to be less likely to change their mind or cast a split vote, that is no significant difference on the first and second column. If, on the other hand, this group of respondents shows less stable patterns between the intended and actual vote, this can be considered a sign of strategic vote.

Regarding a comparison between the stability of the two votes between the pre and post-election contexts, Column 1 of Table 5.1 indicates that the PR vote is to some extent more stable than the SMD vote in proportional mixed systems such as New Zealand (positive difference) and the opposite holds true in the case of majoritarian systems such as Japan (negative difference). However these differences are pretty small and only significant in roughly half of the cases. Column 2 suggests instead that the two votes are more similar in the pre-electoral phase except in the Italian setting as discussed below. This means that in the majority of cases, split-ticket voting is at least to some extent a consequence of the electoral campaign.

Concerning identifiers, Table 5.1 illustrates that differences across the two votes, first column, are rarely significant except in Japan. Specifically in roughly half of the cases, identifiers are slightly less likely to change their mind during the election campaign and more likely to cast a straight vote. The only exception is Japan where the difference is negative and statistically significant for the 2003 and 2005 elections meaning that in this country the candidate vote is at least as stable as the party vote. The stability of the candidate vote can be a consequence of personal voting specifically that voters value candidate higher than parties; on the other hand, the stability of the candidate vote can be due to the fact that voters know prior to the elections how to cast their candidate vote being instructed by parties to follow their pre-electoral agreements (e.g. Liberal Democratic Party (LDP) with the smaller junior coalition partner Komeito-Clean Government Party (CGP)).

The patterns for those who prefer a party ranked first or second in the previous election vary across countries. First it is worth noticing that in proportional mixed systems such as Germany and New Zealand, supporters of big parties appear to be more likely to change their mind during the electoral campaign and also more likely

to split their votes during the election. 'DContention==0' coefficients are significant also in Italy but with the difference that those supporting bigger parties are less likely to split after the elections, (i.e. negative difference). Also, the level of split-ticket voting is the lowest in Italy. The Italian mixed system, in use until the 2001 election, was characterised by an additional feature not available in any other existing mixed systems. Specifically, this system permitted the formation of pre-electoral coalitions among two or more parties in the majoritarian tier to be displayed on the electoral ballot. Consequently, the correlation coefficients in the table for the Italian case refer to inter-coalition rather than party-level switching which appear to be very rare.[6]

To sum up, the results presented in Table 5.1 reveal that the patterns in the party and the candidate vote are to a large extent similar, with the candidate vote slightly more likely to be impinged by short-term forces, especially in proportional mixed systems. Concerning the first assumption about higher levels of voter sincerity in the proportional vote, the evidence suggests that this is not always the case across countries. Regarding big parties' supporters, there appears to be some support for strategic voting in Germany and New Zealand but not as much in the other countries. Furthermore, the fact that the correlation coefficient is higher in the case of intended rather than actual vote suggests that split-ticket voting is to some extent the results of campaign forces rather than preferences. Finally the last column of the table shows the level of split-ticket voting as measured using surveys. Split-ticket voting is higher in proportional mixed systems such as Germany and New Zealand and it is lower in countries such as Japan and Italy.

5.5 Comparing the Two Votes

5.5.1 Multivariate Models

The second aim of this chapter is to investigate the determinants of vote choice in the two parts of the electoral ballot. This is done in order to provide additional evidence about sincere and strategic voting. The analysis uses data in the form of a stacked dataset. In this case the dependent variable is a dummy taking a value of '1' in correspondence of the party voted for by the respondent and '0' otherwise. In this stacked dataset, there are two main independent variables according to whether they refer primarily to voters, to parties' features or to the district race or whether they are conditional on how voters perceive parties in the electoral context. Because the dependent variable in a stacked file is defined in terms of respondent*party, an independent variable in order to be included in the analysis needs to be also defined in terms of bivariate relationships between the chooser (i.e. respondent) and the choice (i.e. party). Some independent variables such as party identification and left-right voter/party proximity are already defined as respondent*party specific relationships. Other variables instead, like socio-demographic variables, need to be re-conceptualised as proximity measures

[6] A detailed discussion of this peculiar system is provided in Chapter 7 of this thesis.

in order to capture the empirical relationship between voters and parties. To this end, I apply the so-called 'y-hat' approach (van der Eijk and Franklin, 1996). The 'y-hat' procedure permits the estimation of bivariate logit regressions to calculate predicted probabilities of the independent variables. The overall variable, across all parties, synthesises the effect of the independent variable on a generic party and the independent variable will have a different effect for different parties.[7]

The coefficients estimated by means of a multiple regression represent the direct causal effect of each independent variable on the party and candidate vote separately, when controlling for the impact of all other independent variables. To discern the impact of a variable on the PR and SMD vote, I use average marginal changes and present complete logit results only in the Appendix (Table A5.4 and Table A5.5). For a dummy independent variable, the marginal effect illustrates how the probability of observing a vote for party X [P(Y=1)] changes as the independent variable changes from 0 to 1, holding all the other variables constant at their mean if continuous and at their mode if categorial. For instance in the case of Germany, the predicted probability of observing a vote for party X on the PR vote changes from 0.19 to 0.29 when the variable PID goes from 0 to 1. In other words, the probability of observing a party vote is almost 10% greater for an identifier than for a non identifier. The predicted probability is higher in the case of the SMD vote (about 14%). For a continuos independent variable, such as Distance from contention, the marginal effect measures the *instantaneous rate of change* that, for variables measured in small units, match up well the change in the dependent variable for a one unit increase (Long and Freese, 2006; Cameron and Trivedi, 2009).

5.5.2 Multivariate Results

Table 5.2 and Table 5.3 show, for each country, the relationship between vote choice in the two parts of the electoral ballot, and several subjective and objective vote determinants. Countries are grouped according to the linkage between the two electoral tiers. Table 5.2 reports the results for proportional mixed systems whereas Table 5.3 includes the majoritarian systems. The model comprises six basic determinants of vote choice: party attachment, utility for parties, proximity party/voter, local candidate chances, district competitive, and education.[8]

Firstly, using the Eurobarometer question I measure party attachment. Across all countries, being an identifier increases the chances of voting for party X and for candidate X. Except in the case of Germany, and slightly so for Wales and Italy, this probability is generally higher for the party rather than for the candidate vote.

[7]Specifically, the relationship respondent*party is empirically determined by estimating, separately for each 'stack' (i.e. party), the empirical bivariate relationship between independent variable and the party's vote: the so-called 'affinities' or 'y-hats'. The predicted values (y-hats) are then centered on their means and saved as scores for the empirical analysis as party-respondent-specific predictors (refer to van der Eijk and Franklin (2009) and previous works for a complete discussion).

[8]Leader rating is not included because it is correlated with party rating but it performs less well in explaining both votes.

Table 5.2: Vote determinants under proportional mixed rules: Marginal change

	Albania		**Germany**		**New Zealand**		**Scotland**		**Wales**	
	VOTE PR	VOTE SMD	VOTE PR	VOTE SMD	VOTE PR	VOTE SMD	VOTE PR	VOTE SMD	VOTE PR	VOTE SMD
PID	0.067	0.023	0.099***	0.135***	0.082***	0.073***	0.398***	0.389***	0.488***	0.543***
	(0.029)	(0.040)	(0.012)	(0.011)	(0.007)	(0.006)	(0.058)	(0.057)	(0.030)	(0.029)
Party Ties	0.475***	0.593***	0.315***	0.272***	0.466***	0.262***	0.638***	0.517***	0.502***	0.439***
	(0.042)	(0.039)	(0.012)	(0.012)	(0.012)	(0.011)	(0.030)	(0.034)	(0.040)	(0.041)
Proximity	-0.023***	-0.021***	-0.022***	-0.017***	-0.023***	-0.019***				
	(0.002)	(0.003)	(0.001)	(0.001)	(0.001)	(0.001)				
DContention*			-0.079**	-0.595***	0.475***	-0.534***	0.637***	-0.374***		
			(0.028)	(0.025)	(0.011)	(0.010)	(0.086)	(0.070)		
District Margin			-0.493***	-0.301***	0.001	-0.133***	-0.017	-0.100*		
			(0.032)	(0.035)	(0.008)	(0.008)	(0.055)	(0.047)		
District Margin Top			0.768***	0.315***	-0.006	0.106***	0.077	0.074		
			(0.039)	(0.048)	(0.017)	(0.015)	(0.091)	(0.091)		
Education	0.239	-0.199	0.552***	0.584***	0.145***	0.052	-0.073	0.176	0.169**	0.262
	(0.126)	(0.250)	(0.069)	(0.076)	(0.025)	(0.033)	(0.130)	(0.146)	(0.065)	(0.173)
Observations	1744	1744	23835	23835	41091	41091	6200	6200	8150	8150
Pseudo R^2	0.292	0.337	0.162	0.231	0.452	0.401	0.535	0.432	0.565	0.574
Nagelkerke R^2	0.395	0.447	0.247	0.339	0.546	0.493	0.666	0.565	0.679	0.688
LL	-584.101	-552.487	-11211.733	-10309.057	-8505.857	-9290.889	-1567.262	-1916.896	-1721.674	-1682.672
AIC	1178.203	1114.975	22439.465	20634.113	17027.715	18597.779	3148.523	3847.792	3451.348	3373.344

Notes: The table shows the marginal change in the predicted probability of casting a vote for a party (VOTE PR) or a candidate (VOTE SMD) calculated using the `mfx` command when holding all the other categorical variables constant at their mode and continuous variables constant at their mean. Estimates of the standard errors of the marginal effects are shown in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Complete logit coefficients are presented in Table A5.4. Data are weighted as to reflect the actual vote distribution. See Table A5.2 for variables coding.

* District-level variables are missing when surveys lack indication of the district in which the SMD vote has been cast.

Table 5.3: Vote determinants under majoritarian mixed rules: Marginal change

	Japan		**South Korea**		**Thailand**		**Italy**		**Hungary**	
	VOTE PR	VOTE SMD	VOTE PR	VOTE SMD	VOTE PR	VOTE SMD	VOTE PR	VOTE SMD	VOTE PR	VOTE SMD
PID	0.226***	0.130***	0.347***	0.301***	0.769***	0.589***	0.332***	0.401***	0.392***	0.346***
	(0.026)	(0.020)	(0.030)	(0.030)	(0.059)	(0.113)	(0.033)	(0.026)	(0.035)	(0.035)
Party Ties	0.332***	0.213***	0.503***	0.455***	0.867***	0.808***			0.463***	0.397***
	(0.027)	(0.024)	(0.022)	(0.022)	(0.013)	(0.016)			(0.025)	(0.025)
Proximity	-0.011***	-0.010***	-0.015***	-0.011***	-0.019***	-0.016***	-0.044***	-0.060***	-0.028***	-0.029***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.004)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)
DContention	0.638***	-0.697***					1.057***	-1.165***		
	(0.046)	(0.032)					(0.058)	(0.067)		
District Margin	-0.143**	-0.343***					-0.176***	-0.319***		
	(0.052)	(0.051)					(0.049)	(0.060)		
District Margin Top	0.238***	0.307***					0.220***	0.286***		
	(0.064)	(0.057)					(0.056)	(0.078)		
Education	0.369**	0.290***	-0.037	0.521**	-0.143	-0.149	0.167***	0.124*	0.443***	0.419***
	(0.114)	(0.087)	(0.289)	(0.172)	(0.124)	(0.130)	(0.037)	(0.050)	(0.054)	(0.056)
Observations	6582	6582	4469	4469	3957	3957	9843	9843	4589	4589
Pseudo R^2	0.367	0.374	0.208	0.168	0.602	0.520	0.596	0.530	0.297	0.245
Nagelkerke R^2	0.595	0.602	0.298	0.245	0.719	0.645	0.716	0.658	0.402	0.338
LL	-4041.427	-3989.766	-1791.152	-1885.523	-811.658	-980.253	-2092.809	-2442.691	-1532.387	-1644.839
AIC	8098.855	7995.532	3592.303	3781.046	1633.316	1970.507	4199.618	4899.382	3074.774	3299.678

Notes: Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. See Table 5.2 for notes. Complete logit results are presented in Table A5.5.

There are also some conspicuous differences across countries. PID has a lower effect in proportional mixed systems than in the other countries and a relatively big effect in sub-state elections. Party ties measures how much the respondent likes the party when compared to all the others and it takes a value of 0 if the respondent does not have a best party, 1 if he ranked more than one party highest, and 2 if the respondent has a single best party. The coefficients of this variable are always positive and statistically significant and generally higher than the values of PID. The proximity variable (Proximity) measures party/voter absolute distance on a scale from 0 to 10 where 0 represents extreme left and 10 extreme right. One expects that as the perceived distance between voters and parties increases, the less likely a respondent should be to cast a vote for that party. The empirical findings support this expectation. Some variables pertain primarily to the party or candidate level and can be considered objective measures of party strength. Regarding the variable Distance from Contention (DContention), it is measured differently in the two votes. In the candidate vote, DContention measures the difference between one's preferred party and the second best placed candidate in the district using data from the previous year of election. If voters are strategic the coefficient of this variable should be negative and this is what we find.

The extremely high level of DContention in Italy is due to inter-coalition distance at the district level. As mentioned, since in Italy candidates run formally as part of a coalition, each district is usually contested by two big coalitions' candidates and a few very small ones. For this reason in Italy DContention takes a value of 0 for the two big candidates and very high values for all the other candidates. This in turn leads to the huge value of DContention in the candidate vote in Italy. With regard to the PR vote, DContention measures the percentage of votes received by the party at the national level in the previous year of election. For this reason, the variable should measure the probability of casting a PR vote for a party according to the party national size. If the effect is positive it simply indicates that bigger parties are more likely to receive a vote on the PR ballot. On the other hand, a negative coefficient indicates that larger the party, the smaller the probability of voting for that party on the PR tier. This will suggest some sort of strategic reasoning in line with the coalition voting hypothesis. DContention in the party vote is found to be positive and significant everywhere; its effect is very high and similar to DContention in the SMD vote except in Germany. In this case the negative effect of this variable on the PR vote suggests the presence of coalition voting.

District Margin measures the difference between the first and second-placed candidate in a district. This variable is used as a control for the competitiveness of the district race and it is expected to have a stronger effect in the candidate vote and this is what we find except for Germany where the effect is very similar on both votes. District Margin Top which measures District Margin only in the case of two top contenders should be positive if one ought to conclude that strategic voting is present at

the district level.[9] District Margin Top shows almost no impact in New Zealand and Scotland, a positive and very similar effect in Japan and Italy across the two votes and positive but higher on the party vote in Germany. This result means that when strategic considerations are present they impact the two votes equally and even more the party vote in Germany. Finally concerning voters' socio-demographics features, the existing literature in mixed systems usually showed, with the exception of education, that these variables have little impact on split-ticket voting (Banducci et al., 1998; Karp, 2006). I have tested the impact of age, social class and religiosity: all these variables impact the two votes very similarly and they usually increase the explanatory power of the models, measured using Pseudo R^2. The two tables only shows education which has a different impact across the countries examined.[10] Importantly, the inclusion or exclusion of the demographics variables from the models do not affect the substantive results with regard to the other variables.

5.6 Assessment

The analysis presented in this chapter followed two steps. The first one consisted of a comparison between intended and actual vote in the two parts of the electoral ballot, with the aim of testing voting behaviour assumptions. First, this comparison suggested that the vote for parties is only slightly more stable than the vote for candidates. Second, the analysis showed that there is a higher level of straight voting and support for smaller parties in the pre-election setting than after the election. Taken together these findings suggest that the vote cast under majoritarian rules is only slightly more strategic than the vote cast under proportional rules and that strategic considerations are at least to some extent a consequence of the electoral campaign. To provide a clearer look at the issue of voter sincerity, the analysis looked at two groups of voters separately: those who have a long-term party commitment and those who support a big party.

Across countries, identifiers are unsurprisingly less likely to change their mind during the electoral campaign and more likely to cast a straight vote. Substantively there is a confirmation of the standard finding that those with a party attachment will 'simply' vote for their preferred party on both electoral ballots. The fact that they are only slightly more prone to switching in the candidate vote is most probably due to the features of the district race which is usually a much restricted version of the PR menu. On the other hand, regarding those respondents supporting bigger parties, the analysis indicates a substantial difference between proportional and majoritarian mixed

[9]District Margin for lower ranked candidate has not been included because highly correlated with District Margin Top.

[10]There is another reason why I do not investigate the effect of socio-economic variables in multivariate models other than they low level of significance. I understand that socio-economic variables affect vote decision; their effects however is more indirect when it comes to explain the difference in the two votes when compared to the effect of other variables such as party identification. In other words, I focus on more proximate factors that should explain the two votes and the difference between them.

systems. In proportional mixed systems such as Germany there is a clearer indication of strategic voting as those who voted for a big party are less likely to vote for the party or candidate they said they were intended to vote for. In majoritarian systems, such as Japan and Italy, voters are slightly more likely to change their mind in the party vote rather than in the candidate vote. This finding can be an indication of the presence of either personal voting or 'selective entry' by parties (Burden, 2009).

As already mentioned, personal voting it is expected to be stronger in majoritarian mixed systems where parties have incentives to ask candidates to behave in a more personalistic manner. This means that in majoritarian mixed systems there will be a stronger link between the candidate and the district. The finding that in Japan the SMD vote is even more stable than the party vote suggests that this is indeed the case. Concerning selective entry, parties usually contest more SMDs in Germany and New Zealand than they do in the Italian and Japanese settings where they often engage in formal pre-electoral coalition agreements. The fact that the SMD vote is more stable across elections in Japan may indicates that party competition at the district level is increasingly institutionalized.[11]

The two sub-state contexts, Scotland and Wales, behave more like the proportional settings but evidence of strategic voting is lower than in Germany and New Zealand. An analysis of respondents' responses confirms low level of strategic considerations indicating that both votes should be considered a sincere reflection of voter preferences. For instance, when Scottish voters were asked how did they cast the party and candidate vote respectively the majority responded that they intended to vote for 'the best party' (48% and 49%), moderately fewer that they 'always vote that way' (22% and 21%). Very few, specifically about 5% and 3% in the PR and SMD vote respectively, claimed that 'It's my second preference; I vote for my first-preference party in the other vote' and finally roughly 6% and 7% claimed that 'I really preferred another party but it had no chance of winning in this region/constituency'. Similar findings have been found for the Welsh case.

The second step of the analysis provided an investigation of the subjective and objective determinants of actual vote across the two electoral tiers. Two findings deserve attention. First, the analysis has made it clear that substantive determinants tend to be only slightly more important in the party vote. In some cases, such as Germany, party identification has an even stronger impact on the candidate vote. In many countries such as Italy, Wales and Hungary the effect of party attachment is similar across the two votes. On the other hand, the context seems to play a larger role on the candidate vote. Similarly, the candidate vote appears more likely to be subject to strategic reasoning than the party vote. However, this result may simply be a consequence of the choice people are asked to make during an election rather than strategic considerations as such. Moreover, and surprisingly, I find strategic variables to have a conspicuous impact on the party vote too. This is perhaps a consequence of contamination effects under

[11] This point is further considered in Chapter 6 of this thesis where the Japanese case is analysed in detail.

mixed rules. Many have shown that vote choice in one election affects the choice in the other election (Cox and Schoppa, 2002; Nishikawa and Herron, 2004).[12] The result that small parties supporters are more likely to change their mind during the electoral campaign tends to confirm that the proportional ballot too is subject to wasted vote considerations.

Despite providing some elements of discussion, so far this study did not properly investigate coalition voting. The analysis of the impact of coalition preferences usually uses pre-electoral data to account for coalition expectations and preferences prior to the elections (see for instance Pappi and Thurner 2002; Gschwend 2007; Bowler et al. 2010). Pre-electoral data are available only in less than half of the countries analysed in this chapter. Table 5.4 provides a look at the coalition hypothesis using the most recent pre-electoral surveys available for the sample of countries analysed in this chapter. The variable 'Coalition Preference' measures the impact of having a preference for a coalition government and having expressed a preference to see party X in that coalition. The results suggest that coalition preferences equally impact both votes in all countries except for Japan. The effect of this variable however is stronger in the PR vote in Germany and New Zealand whereas it is stronger in the SMD vote in Scotland. These results suggest that people cast both votes with a coalition preference in mind.

Table 5.4: A closer look to the coalition hypothesis: Marginal change

	New Zealand		**Germany**		**Japan**		**Scotland**	
	VOTE PR	VOTE SMD	VOTE PR	VOTE SMD	VOTE PR	VOTE SMD	VOTE PR	VOTE SMD
PID	0.164***	0.133***	0.496***	0.498***	0.189***	0.114***	0.405***	0.469***
	(0.027)	(0.022)	(0.029)	(0.027)	(0.033)	(0.026)	(0.050)	(0.050)
Party Ties	0.576***	0.160***	0.045*	0.051*	0.305***	0.191***	0.405***	0.253***
	(0.031)	(0.022)	(0.021)	(0.021)	(0.036)	(0.031)	(0.056)	(0.051)
Proximity	-0.021***	-0.014***	-0.001**	-0.001**	-0.008*	-0.006*		
	(0.001)	(0.001)	(0.000)	(0.000)	(0.003)	(0.002)		
Coalition Preference	0.045***	0.040***	0.118***	0.105***	0.007	0.018*	0.068***	0.106***
	(0.008)	(0.006)	(0.011)	(0.011)	(0.011)	(0.008)	(0.018)	(0.018)
DContention	0.079*	-0.389***	-0.152**	-0.385***	0.636***	-0.679***	0.122	-0.203**
	(0.033)	(0.022)	(0.056)	(0.055)	(0.062)	(0.029)	(0.075)	(0.077)
District Margin	-0.008	-0.118***	-0.408***	-0.233***	-0.048	-0.166**	-0.058	-0.132***
	(0.018)	(0.017)	(0.061)	(0.060)	(0.064)	(0.051)	(0.035)	(0.038)
District Margin Top	0.053	0.163***	0.717***	0.290**	0.097	0.145*	0.174*	0.242**
	(0.042)	(0.030)	(0.085)	(0.107)	(0.104)	(0.066)	(0.069)	(0.084)
Education	0.093*	0.052	-0.027	0.048	0.098	0.126	0.265*	0.385*
	(0.047)	(0.071)	(0.178)	(0.184)	(0.152)	(0.112)	(0.106)	(0.178)
Observations	7505	7505	5280	5280	3514	3514	3795	3795
Pseudo R^2	0.534	0.496	0.261	0.273	0.332	0.401	0.549	0.495
Nagelkerke R^2	0.605	0.567	0.364	0.379	0.555	0.632	0.665	0.614
LL	-1004.481	-1087.878	-1962.987	-1929.902	-2278.642	-2040.887	-824.629	-923.890
AIC	2026.962	2193.757	3943.974	3877.804	4575.284	4099.775	1665.257	1863.780

Notes: Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. See Table 5.2 for notes and Table A5.6 for logit coefficients. Data are weighted as to reflect the actual vote distribution.

[12]This is also refer to by the existing literature as the 'spill-over' effect (Karp, 2009) according to which since the SMD will boost party performance in the PR tier, parties will run hopeless candidates on the SMD ballot exactly to improve their performance in the party vote.

5.7 Summary & Concluding Remarks

This chapter used a comparative analysis across mixed systems and across the two votes to provide insights into two related issues. The first issue concerns voter sincerity and strategic considerations across electoral rules. The second issue addresses the effect of institutional variation across countries adopting different mixed rules. To substantively investigate these two questions, the analysis took two methodological departures from the existing literature. First, the candidate and the party vote have been analysed separately before and after the elections to detect differences and similarities between the two votes when it comes to sincere and strategic voting. Second, to analyse actual vote choice in the two parts of the electoral ballots, a stacked data file has been employed which permitted an investigation of vote choice in general rather than for a specific party or candidate. Moreover the use of the stacked data file allowed an assessment of the impact of individual, party and aggregate-level features simultaneously.

Two conclusions are noteworthy. Concerning voters' sincerity, the analysis made it clear that voters do not see the world as black and white and they tend to use the two-ballot system to express a nuanced vote choice. Many voters choose a candidate from a different party than the one voted for in the PR 'simply' because party affiliation matters less in the majoritarian vote. The evidence suggests that split-ticket voting is to some extent sincere and not necessarily strategic. On the other hand, strategic voters will act upon strategic incentives on both ballots and the vote under majoritarian rules is only slightly more likely to be impinged by strategic reasoning. With regard to a comparison across countries, I find remarkable similarities across the two tiers but also some interesting differences across types of mixed systems and level of experience with the electoral rules. Voting behaviour in the two tiers is very similar especially with regard to the effect of objective indicators on vote choice. On the other hand, proportional mixed systems differ from majoritarian ones in that they provide less evidence of personal voting. As explained this can be a consequence of party strategies and their coordination efforts on the candidate ballot in majoritarian mixed systems such as Japan.

There are two issues left unclear from the previous discussion. First, because of the inclusion of several countries and since in the majority of these countries questions on candidate preferences are not available, the analysis has examined voting behaviour using exclusively individual-level information on parties' preferences. Information on how much voters like candidates has not be included because unavailable. On the other hand, the comparative analysis was unable to control for 'forced' split-ticket vote. This limitation stems from the fact that information on the district in which the candidate vote is cast is only available for less than half of the countries analysed. Consequently it was impossible to control whether voters had the same party available on both electoral ballots or if they were forced to split. Such control is important when one wants to properly investigate ticket-spitting. These additional investigations are carried out in the next two chapters of this thesis using the Japanese and the Italian cases.

Chapter 6

Parties, Candidates & Split-Ticket Voting: The Japanese Case

6.1 Introduction

A mixed-majoritarian system has been in use in Japan since the 1996 elections. Under this system Japanese voters cast two votes, one for a local candidate using majoritarian rules (hereafter referred to as SMD or candidate vote) and one for a national party under proportional rules (hereafter referred to as PR or party vote). Despite a great deal of research on the impact of the electoral reform on the Japanese system as a whole, less has been written about why Japanese voters split their ticket by voting for a candidate and a party that are not linked. This is surprising if one considers that the few existing works on ticket-splitting in Japan have shown that a significant number of voters split their vote and this has usually an impact on the electoral outcome (Reed, 1999; Kabashima and Reed, 2001; Burden, 2009). The Japanese case is interesting for several reasons but there is one above all that justifies its analysis.

Surveys in mixed systems do not usually ask respondents why they cast a split vote and for this reason the motivations of this behaviour need to be investigated indirectly. When analysing split-ticket voting indirectly scholars face identification problems rooted in the fact that the observed split-ticket choice is consistent with multiple explanations at the individual-level. Specifically, the voter can genuinely prefer a candidate running for another party than the one voted for on the PR: this leads to sincere split-ticket voting. At the same time, the voter may decide to split towards a bigger party's candidate after realising that his most preferred party's candidate has no chance of getting elected: this consideration leads to 'wasted vote' strategic split-ticket voting. It is also entirely possible that the voter, after casting a sincere vote for the most preferred candidate on the SMD ballot, decides to cast a strategic PR vote to help a smaller party to cross the electoral threshold on the proportional ballot:

this consideration leads again to split-ticket voting but this time consistent with a strategic 'coalition vote'. Furthermore it is possible that the split is a consequence of the unavailability of the party's candidate on the electoral ballot. It is straightforward to see that unless survey questions are structured so that they reveal the true voting intentions, it is difficult to disentangle a strategic from a personal vote. The situation is complicated by the fact that usually surveys ask respondents how they feel about the parties contesting the elections; on the contrary, information about feelings for candidates and their chances of winning the district seat is usually missing.

Disentangling the factors influencing ticket-splitting is possible using Japanese surveys since they contain questions about the rationale behind vote switching and thermometer questions about feelings for parties and candidates running for elections. Furthermore because information about the district in which the vote has been cast is available, it is possible to control for forced split-ticket voting. The aim is to assess to what extent the presence or absence of certain candidates on the electoral ballot influence the way people vote under mixed rules. This chapter analysis is relevant for Japanese politics because it provides further elements to highlight causes and consequences of the mixed system electoral reform. At the same time, this study has a broader reach given the possibility in this context to analyse the impact of parties and candidate feelings on split-ticket voting; moreover in the Japanese case it is possible to control for forced ticket-splitting.

This chapter starts with a brief overview of the Japanese electoral setting and by outlying theoretical expectations. In this section the current literature limitations are identified and it will be explained how this work is intended to address them. Subsequently an exploratory picture of split-ticket voting in Japan is offered by using primarily aggregate data. First, the analysis looks at the comparison of the majoritarian vote for a candidate and the proportional vote in that single-member district for the candidate's political party to compare how strong parties are vis à vis candidates. Subsequently, estimation techniques to obtain disaggregated quantities of split voting from aggregate results improve the analysis. This is an important step forward from earlier investigations of ticket-splitting in Japan, and in the majority of other split-ticket voting contexts, which rely solely on crude aggregate election results. Finally, survey data will be analysed to answer additional questions concerning the possibility of different types of split-ticket voting and determining whether one's decision to split correlates with notions of rational vote maximization. Concluding remarks will close the chapter.

6.2 The Japanese Case

6.2.1 The Rules and the Party System

The public's demand for reform and its thirst of change, the widespread support for reform among members of the parliament and the formation of a grand coalition of

government that 'could agreed on little else than the necessity of enacting reform' (Reed, 2005, p.280) made possible the electoral passage from a Single Non-Transferable Vote (SNTV) system to a majoritarian mixed-member electoral system in 1993. The new electoral system was introduced for both the lower (*House of Representatives*) and the upper house (*House of Councillors*) of the Japanese Parliament (*Diet*) and used for the first time during the 1996 election. For the lower house, which is the focus of this chapter, under the new electoral rules voters elect 300 members using single-member district (SMD) and 180 members using proportional rules (PR).

In terms of allocation of seats the two tiers are completely separated. The unique seat in each SMD is allocated to the candidate who wins the majority of votes; seats in the PR tier are distributed among the parties using closed lists, and D'Hondt formula. The party vote is assigned at the 'block' levels as opposed to the national level and this limits further the proportionality of the system by lowering the district magnitude. There are in total 11 PR blocks with district size ranging from 6 to 30. When entering the polling place, Japanese voters receive two blank ballot papers. They receive the first ballot to be filled inside one of the SMD booths where a list of candidates and their party affiliation is present. After they have voted, voters receive another blank ballot to be cast in one of the PR booths where the voter finds a list of the parties presenting candidates in that PR block. To date, Japan is the only democracy that does not print ballots (Reed, 2005).

Before the electoral reform, the Japanese system consisted of one large party, the Liberal Democratic Party (LDP) dominating three or four smaller opposition parties that were never able to win control of the government. After the reform, Japanese politics entered a phase of remarkable fluidity with many new parties founded and many more proposed. Under the new electoral rules the chances of smaller parties to obtain seats have slightly increased despite remaining significantly low (Reed, 2003, p.193). Although the LDP has survived to form a variety of coalitions ranging from a minority to an over-sized majority, since 1998 the Democratic Party of Japan (DPJ) has continued to counter the LDP governments (Kato and Kannon, 2008).

Table 6.1 reports the national aggregate party and candidate vote for all major parties in Japan for each election since the introduction of the mixed system in 1996. The table indicates that the LDP performs better in the SMD tier than in the PR. For instance the LDP received about 33% of the total party vote but almost 39% of the candidate vote in 1996. Such difference across the two tiers is even bigger in the following years of election reaching a maximum during the 2012 when the difference between the party and the candidate vote for the LDP party was more than 16%. This is perhaps not surprising since the LDP is the only party, excluding the small Japanese Communist Party (JCP) in the 1996 and 2000 elections, which run candidates in the overwhelming majority of the SMD contexts. In other words, because vote choice is much more restricted in the candidate vote and the LDP always run candidates, it is likely that the LDP gets additional candidate votes from supporters of those parties who do not run candidates. As a matter of fact, for smaller parties the trend between

the party and the candidate vote is reversed: they usually do better in the party vote outperforming their candidates. For the DPJ the trend is fluctuating across elections however the difference between the party and the candidate vote is much lower than the LDP.

These aggregate results suggest that a sizable number of voters who voted for an LDP candidate on the SMD ballot selected a different party on the PR ballot. These patterns are consistent with an explanation that many supporters of smaller parties in the PR decided to switch supporting a LDP candidate on the SMD ballot. This result can be a consequence of the fact that voters want to switch for a LDP candidate or this can come about because voters are forced to split since the party supported on the proportional ballot does not run a candidate. One thing is sure: the fact that almost the same percentage of people vote in the two contexts (see last row of Table 6.1) indicates that split-ticket voting is responsible for these patterns of voting.

Table 6.1: Percentage of votes won by parties in the two parts of the electoral ballot

	Party Vote						**Candidate Vote**					
	1996	2000	2003	2005	2009	2012	1996	2000	2003	2005	2009	2012
LDP	32.8	28.3	35.0	38.2	26.7	27.6	38.6	41.0	43.8	47.8	38.7	43.0
DPJ	16.1	25.2	37.4	31.0	42.4	16.0	10.6	27.6	36.7	36.4	47.4	22.8
JCP	13.1	11.2	7.8	7.3	7.0	6.1	12.6	12.1	8.1	7.3	4.2	7.9
SDP	6.4	9.4	5.1	5.5	4.3	2.4	2.2	3.8	2.9	1.5	2.0	0.8
NFP	28.0	-	-	-	-	-	28.0	-	-	-	-	-
CGP-Komeito	-	13.0	14.8	13.3	11.4	11.8	-	2.0	1.5	1.4	1.1	1.5
JRP	-	0.4	-	-	-	20.4	-	2.0	1.3	-	-	11.6
Others	18.2	12.9	0.0	4.7	8.2	15.7	8.0	13.5	7	5.9	6.6	12.4
Valid Votes	59.6	62.5	59.8	67.5	69.3	59.3	59.6	62.5	59.9	67.5	69.3	59.3

Notes: Key to parties: LDP-Liberal Democratic Party; DPJ-Democratic Party of Japan; JCP-Japanese Communist Party; SDP-Social Democratic Party; CGP-Komeito-Clean Government Party; Conservatives Party. NFP-New Frontier Party;JRP-Japan Restoration Party.*Source*:`http://www.electionresources.org/jp`.(Accessed 3 July 2013).

6.2.2 Voting Expectations

The existing literature on split-ticket voting in mixed systems focuses primarily on the issue of strategic voting. The strategic voter is the voter who tries to maximize the impact of his vote on the election outcome and will split if one of the two votes is at risk of being wasted (e.g. Duverger, 1963; Cox, 1997). The issue of strategic voting has also been the focus of the Japanese literature on split-ticket voting. Using the candidate vote gap, measured as the difference between the vote for the party and the linked candidate at the district level, Reed (1999) claims support for the wasted vote strategic hypothesis in the 1996 Japanese elections. His analysis shows that voters are more likely to vote for incumbent and more viable candidates in SMDs. In other words, there appears to be a strong correlation between positive candidate vote gaps and candidates' chances of winning the single-member district seat. Using data at the prefecture level for the 1996 elections, Kohno (1997) reaches similar conclusions.

The empirical evidence using aggregate-level differences to support the strategic voting hypothesis is limited since these differences say little about when and where the switching occurs. This limitation stems from the fact that aggregate calculus are likely to underestimate levels of split-ticket voting since they cannot account for all the cross-voting among parties and candidates in the two parts of the electoral ballot. This chapter looks at the aggregate data to provide an exploratory analysis not only examining aggregate differences but also using estimations derived from advanced estimation methods.

Of course voters can cast a split or a straight vote in a sincere fashion. The sincere voter is the voter who casts a vote only based on party and/or candidate sympathy regardless of the electoral prospects of his preferred choice (e.g Cox, 1997; Abramson et al., 2010). Many consider straight-ticket voting a consequence of party attachment: specifically, everything else held constant, those with a stronger commitment to parties are more likely to cast a straight vote than non identifiers (e.g. McAllister and White, 2000; Karp et al., 2002; Gschwend, 2007; Carman and Johns, 2010). This holds true, however, only in those cases when voters do not have contrasting feelings for parties and candidates running for elections (Gallagher, 1998, p.209). In other words, voters are more likely to split when the most preferred candidate belongs to a different party than the preferred one. For instance, Karp et al. (2002) view split-ticket voting in New Zealand as highly predictable, in terms of a combination of strategic and personal voting for popular district candidates.

With reference to the Japanese case, the legacy of the previous system, the features of the new electoral system and the characteristics of Japan's party politics all suggest the presence of high levels of personal voting. Specifically, first, the now defunct SNTV system played an important part in exacerbating the highly personalistic nature of the Japanese political system (Reed, 2003). Second, many features of the new Japanese mixed system creates incentives for personalistic politics. For instance, the dual candidacy feature, on the basis of which parties can run the same candidate on both ballots, reinforces the candidates' personalistic campaign to attract personal voting on both tiers (McKean and Scheiner, 2000). Furthermore, it has been highlighted that the lack of linkage between the two tiers will provide parties with strong incentives to focus on taking as many SMDs as possible by encouraging their own candidates to seek personal votes (Moser and Scheiner, 2004, 2005). The availability of strong LDP candidates well-known at the municipal level and their persistence tend to reinforce these patterns (Reed, 2002; Burden, 2009).

Current studies of split-ticket voting use incumbency as a measure of personal voting and they usually find evidence that when parties run an incumbent candidate they are characterised by lower levels of split-ticket voting (Bawn, 1999; Reed, 1999; Karp et al., 2002; Carman and Johns, 2010). The use of incumbency to capture personal vote is problematic though since it cannot help to disentangle strategic motivations from more sincere ones. For instance, when supporters of small parties, such as the JCP, defect from the party's candidate by voting for an LDP candidate, this defection may be

strategic as well as due to the personal features of the LDP candidate. For this reason, it is difficult to disentangle strategic from personal voting by simply using incumbency as independent variable. Fortunately surveys in Japan allows us to use incumbency but also more direct information on familiarity as well as feelings for candidates.

To some extent, also the vote under proportional rules can be considered wasted when cast for a party that has a sure victory. For this reason supporters of big parties can strategically split on the PR vote after casting a sincere candidate preference in order to favour a least-worst option and help this party cross the electoral threshold. In the Japanese case, the very low 2% threshold may not induce bigger parties to cast a strategic PR vote for a small party (Gallagher, 1998, p.209) but the reverse can take place. Since the 2003 elections parties frequently enter into formal pre-electoral coalitions in many districts by presenting common candidates. This is true for instance in the case of the LDP and the junior coalition partner Clean Government Party-Komeito (CGP-Komeito). The presence of these firm alliances between parties and their coordination in some of the SMD districts, may induce supporters of one party to support another party when the preferred one is not available in line with a possible coalition outcome.

Beside the possibility that the vote may be sincere or strategic, there is a third split-ticket voting hypothesis which is much less considered in current studies of split-ticket voting. Not all voters find the party they supported on the PR also available on the SMD ballot and thus their split may be forced by the limited candidate menu. The analysis of forced voters is difficult for the following reasons. First, not always information on the local district where the candidate vote has been cast is available. Consequently sometimes it is impossible for researchers to know whether the party for which the people voted also run a candidate. On the other hand, even when information on the district is available, modelling voting preferences with regard to forced voters is not easy. This difficulty stems from the fact that forced voters have no choice but to split; for this reason they cannot be included in common models of split-ticket voting where the dependent variable is a dummy measuring the probability of splitting the ticket.

Usually, current studies of split-ticket voting do not deal with this issue. More often than not, forced voters are excluded from the analysis. Excluding forced voters means assuming that they would have cast a straight vote if possible. This assumption is questionable since we know that many non-forced voters split their ticket anyway. On the other hand, non considering the issue means assuming that all voter preferences are available on the electoral ballot. This is also problematic because many voters do not usually find the same party on both ballots. Not controlling for forced split-ticket voting can lead to biased results by overestimating the effect of voter preferences and motivations. The analysis conducted in this chapter addresses this issue by examining separately forced and non-forced voters.

6.3 Evidence from Aggregate-level Data

For each pair of graphs displayed below, each graph on the left, plots values of the candidate vote gap as calculated by subtracting from the candidate vote the total vote for the party in each district. Positive values indicate that the candidate did better than his own party whereas a negative gap means that the party outperformed the candidate. This measure is limited by several methodological flaws because the differences between SMD and PR vote for each party hide all the cross-voting among parties and candidates. For example, it is reasonable to imagine that if ten LDP supporters vote for a DPJ candidate and ten DPJ voters vote for a LDP candidate, the aggregate figure will return no party defection for both parties and a zero vote gap. For this reason I uphold the use of the candidate vote gap with estimates of split-ticket voting. Each graph on the right displays the values of ticket-splitting by candidate at the SMD level as calculated using the Multinomial-Dirichlet method (Rosen et al., 2001). The Multinomial-Dirichlet method has been assessed to be the best performing method among the ones tested in Chapter 4 of this thesis.[1]

Starting with Figure 6.1, the plot on the left (Figure 6.1a) shows that patterns of candidate vote gap are very similar across elections, following an unimodal distribution with a mode just above zero which means that on average candidates slightly outperform parties. The explanation for this is quite simple: since in most districts, voters were offered more PR than SMD choices, unless a differential in turnout takes place, the votes for candidates will generally be higher than those for parties. Similarly Figure 6.1b indicates that aggregate patterns of split-ticket voting are quite stable across elections with the 2005 election resembling to some extent an outlier. The shapes of the distributions in Figure 6.1b are due to the fact that bigger parties are characterised by very low levels of split-ticket voting (mode around zero) whereas very small parties show high levels of ticket-splitting (mode around one). The third mode, around the middle of the distribution (5%), is increasingly visible starting from the 2000 election onwards and becoming much clearer during the 2005 election.[2]

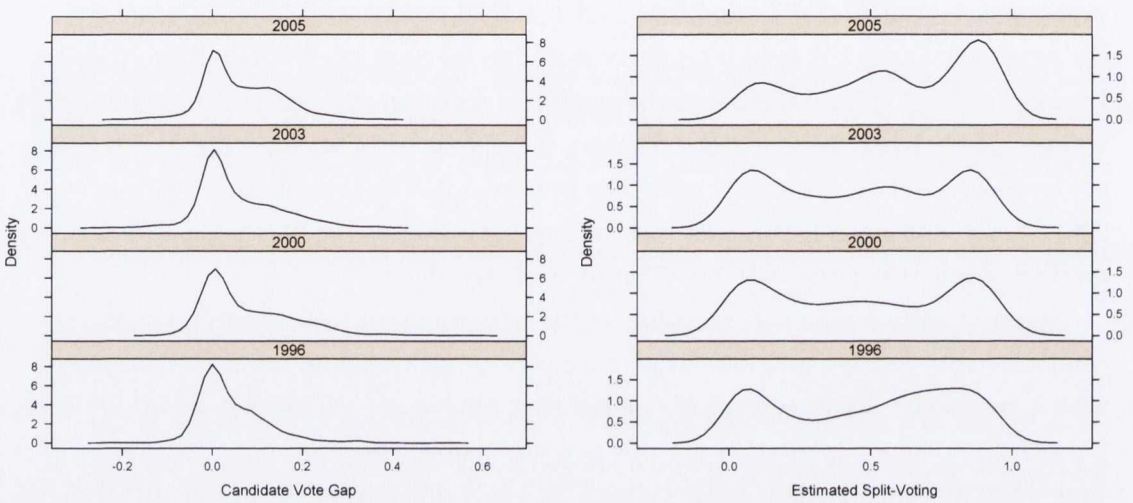
Figure 6.2 provides the same quantities as Figure 6.1 but as a function of party share of vote with distinct colors and shapes enabling us to differentiate across parties. To be sure, the x-axis of the previous figure is now the y-axis, the horizontal axis plots values of party share of votes. Figure 6.2a shows a scatter plot with a weak but visible positive relationship between the candidate and the party vote. This result indicates that bigger the party, better its candidate performs. Despite this however, the funnel shape towards higher values of the party vote indicates that a few big party candidates, such as LDP and DPJ, are characterised by negative vote gaps and perform worst than

[1]Municipal level electoral data in Japan are not free. Data at this low level of aggregation from 1996 to 2005 where provided by Jun Saito. This is the reason why this thesis only looks at electoral data up until the 2005 election. Table A6.1 in the Appendix shows national level estimates for major parties and compares those with survey data over time.

[2]This third mode represents the parties, such as the DPJ and the JCP, which run candidates also in some of the districts where they have no chance of winning. This issue will be discussed more extensively in the following sections.

some smaller parties candidates such as JCP and NFP. CGP-Komeito is the only party featuring consistently positive gaps. This is not surprising given that the CGP-Komeito regularly coordinates with the LDP and only runs candidates in districts where the LDP does not endorse candidates. In these districts, the two parties still run separate lists in the PR but endorse common candidates. The results are to some extent confirmed by looking at Figure 6.2b which shows that the LDP and the DPJ are characterised by the lowest levels of split-ticket voting with a few exceptions.

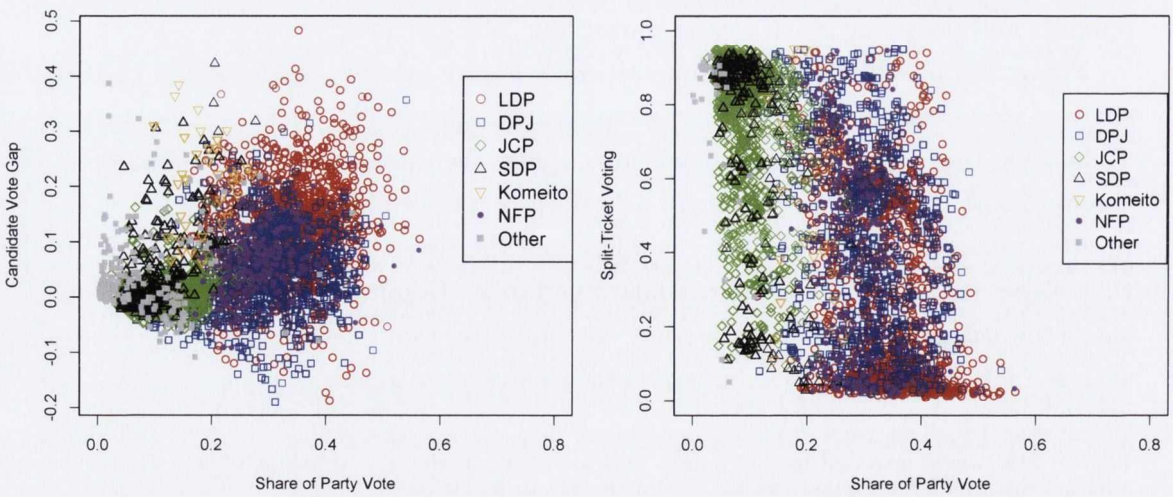
Figure 6.1: Candidate vote gap and split-ticket voting (%)



(a) Candidate Vote Gap (b) Estimated levels of Split-Ticket Voting

Notes: The figure plots quantities by party at the SMD level. Estimated values use the Multinomial-Dirichlet method (Rosen et al., 2001). *Source*: Candidate Vote Gap: own elaboration from data provided by Asano and Yanai (2013). Estimations: were performed by me using municipality level data provided by Jun Saito.

Figure 6.2: Candidate vote gap and split-ticket voting (%), by party

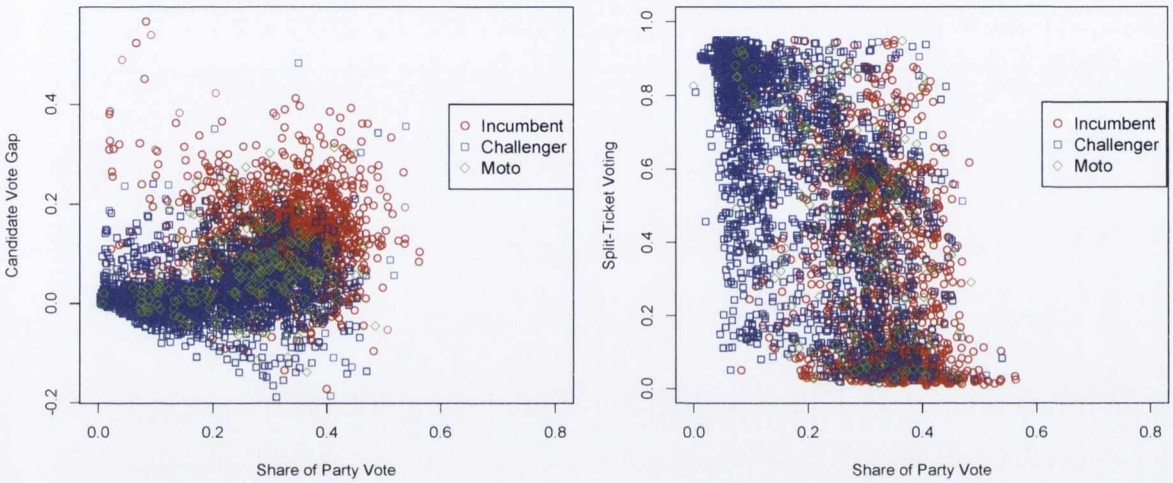


(a) Candidate Vote Gap (b) Estimated levels of Split-Ticket Voting

Notes: Kee to parties see Table 6.1. For additional notes see Figure 6.1.

Figure 6.3 and Figure 6.4 show again the same quantities but as a function of incumbency status and candidate spending respectively. First, Figure 6.3 shows quite clearly that incumbent candidates are those who feature higher percentages of candidate vote gap and lower levels of split-ticket voting. Challenger candidates show an almost opposite pattern whereby 'moto' candidates, those who were members of the parliament but not incumbent in the current election, positioning themselves at half way. Finally, Figure 6.4 reports the candidate vote gap and estimates of split-ticket voting by share of party vote and by category of spending. Clearly the more a candidate spends, more likely he is to gain more votes than his own party and lower levels of split-ticket voting.

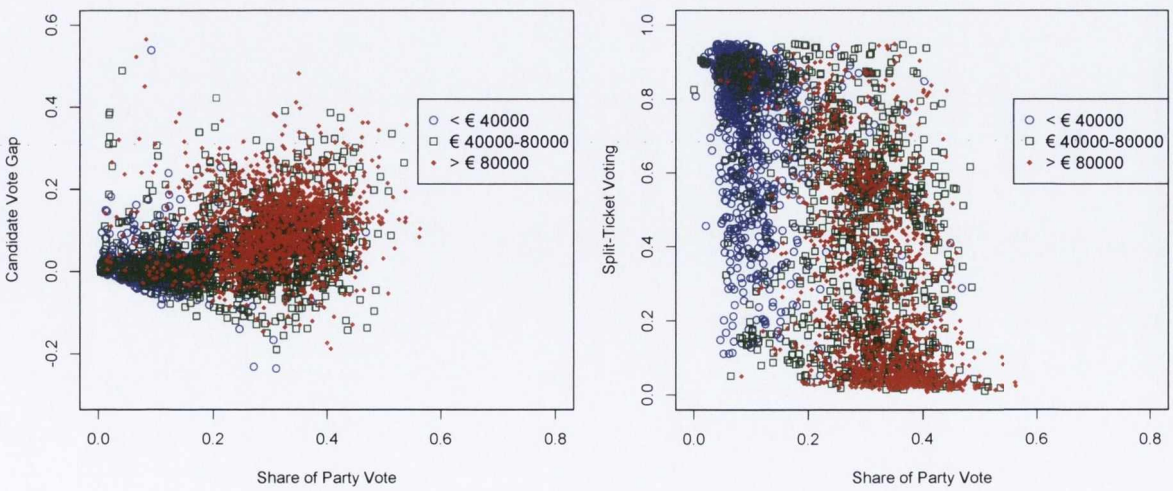
Figure 6.3: Candidate vote gap and split-ticket voting (%), by incumbency status



(a) Candidate Vote Gap (b) Estimated levels of Split-Ticket Voting

Notes: 'Incumbent' and 'Challenger' mean respectively that a candidate has won or not the SMD district during the previous election. 'Moto' means that the candidate was a member of the parliament in the past but not an incumbent in the current election. Additional notes see Figure 6.1.

Figure 6.4: Candidate vote gap and split-ticket voting (%), by category of spending



(a) Candidate Vote Gap (b) Estimated levels of Split-Ticket Voting

Notes: Candidate spending figures from 1996 onwards were provided by Asano and Yanai (2013).

When all parties are considered across all years of election, bivariate relationships (not shown here) between candidate spending and either one between candidate vote gap and ticket-splitting estimates as dependent variable are quite strong: spending alone is able to account more than 25% of the variation and it is positive and significant for candidate vote gap and negative and significant for split-ticket voting. At the party level the direction of these effects is confirmed despite the fact that spending explains more variation in the case of smaller parties than for the LDP. To sum up, aggregate results are consistent with a strategic argument and in line with current studies findings. Next section clarifies the meaning of these patterns by focusing directly on voters.

6.4 Who Split and Why?

As stated in the outset of this chapter, Japanese surveys are useful to analyse types of split-ticket voting since they contain questions about the rationale behind vote switching as well as feeling thermometer questions for parties and candidates running for elections. The focus of the following analysis is to disentangle three types of split-ticket voting that at the both individual and aggregate-level generate identical patterns. These types are sincere, strategic and forced ticket-splitting. In the next paragraphs I will briefly recall the hypotheses for each type of split-ticket voting as mentioned in Section 2 of this chapter.

Sincere Voting

Concerning sincere voting, I will be investigating the following hypotheses:

H1a: Voters with higher party identification are more likely to vote a straight-ticket (Campbell and Miller, 1957; McAllister and White, 2000; Karp et al., 2002; Gschwend, 2007; Carman and Johns, 2010).

H1b: Having strong feelings for more than one party (or more than one candidate) is likely to increase split-ticket voting (Karp et al., 2002).

There is one additional hypothesis that is usually considered as reflecting voters' preferences. As mentioned earlier however, the result of this hypothesis is also consistent with a strategic reaction to the electoral rules on the majoritarian tier.

H1c: Strong candidates, usually measured using incumbency status, are likely to decrease split-ticket voting for their parties (Bawn, 1999; Karp et al., 2002; Carman and Johns, 2010).

Strategic Voting

Concerning strategic voting, I will first consider individual-level features that may facilitate a reaction to strategic incentives by testing the following hypotheses:

H2a: Political sophisticated or more educated voters are more likely to react to district-level features and thus more likely to split their vote (Karp et al., 2002; Karp,

2006; Carman and Johns, 2010).

Second, the institutional features of the setting wherein voters cast a vote also plays a primacy role. Taking into account aggregate-level factors, I will be investigating the following hypotheses:

H2b: As the distance between the preferred party's candidate and the second best placed candidate in the district increases, voters are more likely to split to avoid wasting their candidate vote (Niemi et al., 1992; Karp et al., 2002).

H2c: The distance between first and second best placed candidate in a certain district is likely to affect the likelihood of casting a strategic vote in the following ways:

- For the first and second ranked candidates: when the district race is competitive, strategic voters should stick with their candidate and thus less ticket-splitting is expected. A positive relation between 'District Margin' and split voting is expected.
- For lower ranked candidates: when the district race is competitive, strategic voters should split towards one of the two top contenders to help the most preferred one to win. The relation between District Margin and split voting is negative. As already discussed however, this result is undefined because consistent with a strategic and sincere voting explanation (Moser and Scheiner, 2005).

H2d: Party's spending for candidates is likely to decrease split-ticket voting because it increases perceived candidate's viability (Karp et al., 2002; Johnston and Pattie, 2002).

H2e: Voters are more likely to split when they have a preference for a coalition government rather than a single-party government (Pappi and Thurner, 2002; Gschwend, 2007; Bowler et al., 2010).

Forced Voting

Not all voters find the party voted on the PR also available on the SMD ballot and thus their split can simply be forced by the limited candidate menu. Since Japanese surveys provide information on the district wherein people vote, their use permits to distinguish between non-forced and forced voters. The analysis of forced voters measures the impact of candidate availability on the way people vote under mixed rules.

6.4.1 Evidence from Individual-level Data

In the 1996 pre-electoral context, when Japanese voters were asked about the expected outcome of the election in relation to their SMD vote[3], an overweeningly majority (70%) picked the option that the candidate for whom they intended to vote 'will definitely

[3]The question employed in the 1996 survey is: 'Do you think that the candidate you have intention to vote will win?'

or probably win' the elections; less than 20% said that the candidate 'will win with a small margin', about 9% said 'probably won't win' and just below 2% said that the candidate 'will definitely lose'. When asked a similar question in 2003 and 2005 pre-electoral surveys, just above 60% of respondents chose the option that the 'candidate is fairly strong and will win the elections'. Roughly 20% picked the option that the most preferred party 'is barely ahead but can still win the election', and about 12% said that 'even if voted, the most preferred candidate is likely to loose the elections'. Overall the evidence from pre-electoral surveys suggests that the majority of the respondents think, correctly or not, that the candidate they intend to vote will certainly or probably win the SMD elections.

Furthermore, Japanese voters were asked why the party they were intended to vote in the SMD was different from the one in the PR. An analysis of the responses to this question suggests that almost 40% of voters can be regarded as forced splitters (they picked the option 'there is no candidate from the party that I support'); at least 24% of the split vote is to be considered sincere (voters picked one of the following options: 'in the PR there is a candidate that is not from the party I support for whom I would like to vote' or 'I choose for whom to vote regardless of the candidate's affiliated parties'). Only just above 8% can be considered strategic according to the wasted vote hypothesis (voters picked one of the options: 'the candidate from the party I support will certainly win even if I do not vote for him/her' or 'the candidate from the party I support will certainly lose') and a percentage of about 12% can instead be considered strategic according to the coalition voting hypothesis having picked the option 'I consider the balance of the seats in the House.'[4]

Regarding personal vote, in 1996 respondents were asked if they cast the candidate vote based more on the party or more on the candidate. Roughly 41% chose the option 'more on party' and about 46% 'more on candidate'. Considering that in 1996 under the new electoral system, only the LDP and the JCP were running under the same party labels as they had in 1993 this is perhaps quite surprising. When asked the reason for choosing the party on the PR, nearly 23% picked the option because they 'favored candidates on the PR list', but about three times more (above 65%) said because of the 'party's policies' or because they 'liked the party' or because they have 'been voting for the party before.'[5]

In the post-electoral survey for the 2003 and 2005 elections, when Japanese respondents were asked which factors did they consider when voting, more than 30% in the SMD and about 40% in the PR said because they supported the party. Very similar percentages have been reported for all the other options except for the option 'because of the personality of the candidate' has been chosen by 20% of the respondents in the SMD and only 5% for the PR and the option 'because of the party policy' that has been chosen by only 9% of respondents in the SMD and 19% in the PR vote. This pattern of responses is a sign that the vote is party-centered more than candidate-centered.

[4]The rest (about 15%) picked the options 'other' or 'na'.

[5]Finally about 8% choose the option 'were asked to vote for the party'.

Despite this however, the features of the candidates matter a good deal especially on the SMD ballot. It is possible to analyse this further by investigating whether ticket-splitting is a result of multiple preferences for more than one party or candidate.

This can be done by analysing comparatively parties and candidates ranking using feelings thermometer questions. Below I summarize the main findings whereas Appendix 6 displays the results graphically and provide some additional notes. This analysis looks at the rating for parties and candidates according to the vote cast, that is straight or split vote. I first check the following: do straight voters rank the party and the candidate voted differently than splitters? The answer is yes: straight voters rank the party or the candidate voted much higher than the other parties or candidates; for splitters the difference of rating between the top ranked party and the others is much smaller. The second question deals with straight voters by asking: do straight voters show differences in the way they rank the party and the candidate they voted? The answer is no: straight voters rank the party they voted very similarly to the candidate and specifically at least two percentage points higher than the other parties or candidates. How about splitters? Do they rank parties and candidates differently?

The answer is yes: in the case of splitters it makes a big difference wether one examines the rating for the party or the one for the candidate voted. First and foremost, perhaps not surprisingly, overall candidate rating explains the candidate vote better than the party vote and vice versa. Looking at the party vote, splitters vote for the party they ranked highest; at the same time however voters do not always rank highest the candidate's party for which they have voted. For instance those who voted for a CGP-Komeito candidate ranked the LDP party highest, those voting for a SDP candidate, ranked highest the DPJ party. This is a clear evidence that many votes for a candidate come from supporters of other parties. This can be a sign that voters follow parties' suggestions on how to cast their SMD vote. For instance there is clear indication that among those rating LDP highest, many have voted for a CGP-Komeito candidate thus following LDP party instructions to vote for a CGP-Komeito candidate when the LDP one is not available.

The fact that many voters split can also be due to the fact that the most preferred candidate does not run linked to the preferred party. As a matter of fact, examining candidates rating, those voting for a candidate rated that candidate highest; but not always they also rated highest that party's candidate. For instance, CGP-Komeito party supporters rank LDP candidates almost as high as the candidate from the CGP-Komeito party. In some extreme cases, such as for DPJ, LDP candidates are rated even higher than DPJ ones. This result tends to suggest that many voters like candidates not belonging to their most preferred party. And LDP candidates are usually among the most liked ones.

To sum up, exploratory findings using surveys suggest that straight-ticket voters have stronger feelings for parties and they remain loyal to their party on both votes. Splitters, on the other hand, generally have a weaker party attachment, but not too weak, and they will cast their vote based on other motivations. Apparently, what really

determines the type of vote cast, is not whether or not the voter has a long-term party attachment but rather how much a voter likes a party when compared to all the others. There appears to be some strategic coordination among smaller parties but contrasting feelings for candidates and parties appear to explain a great deal of the variation. This section's findings suggest the presence of strong mis-alignments of feelings for parties and candidates. A multivariate analysis confirms these findings.

6.4.2 A Multivariate View of Split-Ticket Voting

In the multivariate analysis, I first use the standard approach to the study of split-ticket voting in which the dependent variable is the probability of casting a split rather than a straight vote by including only non-forced voters. In such regression models, the dependent variable is a dummy taking a value of '0' every time the respondent casts a straight vote and '1' otherwise. Table 6.2 shows marginal effects whereas logit coefficients are presented in Table A6.2 in the Appendix. For a dummy independent variable, the marginal effect shows how the probability of observing a split vote changes as the independent variable changes from 0 to 1, holding all the other variables constant at their mean if continuous and at their mode if categorial. For a continuos independent variable, such as candidate spending, the marginal effect measures the change in the dependent variable for one unit increase of the independent variable (Long and Freese, 2006; Cameron and Trivedi, 2009).

Table 6.2 shows two logit model specifications ('party-centered' and 'candidate-centered') using pooled data for the 1996, 2000, 2003 and 2005 Japanese elections.[6] In the party-centered model all the variables are built as if the vote in mixed systems is party-centered: this means that all the variables are measured considering only the party voted. For instance, with reference to the first variable (PID) this is set at 1 if the respondent identifies with the party voted on the PR and 0 otherwise. In the case of the candidate-centered model, party attachment, as well as all the other variables, are measured on the basis of the candidate voted: PID takes a value of 1 if the respondent identifies with the party of the candidate voted. It is straightforward that for straight voters, the variables will be identical in both models because the party on the PR coincides with the one supported on the SMD. But for splitters these are different. The comparison of the two models allows us to check whether or not voters consider the two votes similarly. Concerning the party-centered specification, Model 1 includes all voters, Model 2-4 control for the party voted on the PR to assess if there are differences at the party level.

Looking at the substantive results, having a party attachment (PID) reduces the probability of observing a split vote (see H1a). Specifically, Table 6.2 shows that for *All Voters* when the party identification variable changes from 0 to 1, the probability

[6] I run different models specification by clustering errors by district and years of election or both and by running multi-level logit models. Different model specifications provide very similar results and do not affect the sign or significance of the coefficients. For this reason, I only present simple logit models with robust standard errors.

Table 6.2: Explaining party defection: Marginal change

	(Model 1)	(Model 2)	(Model 3)	(Model 4)	(Model 5)
		Party-centered			**Candidate-centered**
	All Voters	LDP	DPJ	Others	All Voters
PID	−0.051***	−0.011	−0.094**	−0.051	−0.126***
	(0.015)	(0.014)	(0.031)	(0.044)	(0.016)
Party Sympathy	−0.007	−0.009*	0.010	−0.009	−0.016***
	(0.004)	(0.004)	(0.010)	(0.011)	(0.004)
Party Ties	0.034*	0.030	0.041	0.001	0.028
	(0.016)	(0.017)	(0.037)	(0.040)	(0.017)
Candidate Sympathy	−0.023***	−0.018***	−0.032***	−0.033***	−0.002
	(0.003)	(0.003)	(0.006)	(0.008)	(0.003)
Candidate Ties	0.013	0.009	−0.008	0.045	0.015
	(0.015)	(0.016)	(0.032)	(0.047)	(0.017)
Candidate Knowledge	−0.024*	−0.014	0.029	−0.054	−0.010
	(0.009)	(0.009)	(0.038)	(0.030)	(0.010)
Coalition Preference	−0.015	0.000	−0.008	−0.047	−0.026
	(0.013)	(0.012)	(0.028)	(0.037)	(0.014)
Education	0.041***	0.029**	0.063**	0.033	0.045***
	(0.011)	(0.010)	(0.024)	(0.034)	(0.012)
Incumbency	−0.043**	−0.012	−0.072*	−0.061	−0.017
	(0.015)	(0.014)	(0.031)	(0.045)	(0.015)
Spending (1000 €)	0.000	0.000	0.000	−0.000	0.000
	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)
Observations	1604	1006	517	342	1604
Pseudo R^2	0.193	0.179	0.164	0.205	0.116
Nagelkerke R^2	0.259	0.227	0.231	0.293	0.160
LL	−511.254	−256.411	−193.201	−135.549	−560.240
AIC	1044.509	534.822	408.401	293.098	1142.480

Notes: The table shows the marginal change in the predicted probability of splitting calculated using the `mfx` command when holding categorical variables constant at their mode and continuous variables constant at their mean. Estimates of the standard errors of the marginal effects are shown in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Complete logit coefficients are presented in Appendix in Table A6.2. Surveys for all election are provided by the Social Science Japan Data Archive,The University of Tokyo. Spending figures for all candidates running for elections from the 1996 onwards were provided by Asano and Yanai (2013).

of casting a split vote goes from 0.25 to 0.20 (about 5% less as displayed in the table). Party and candidate sympathy variables measure respectively how much the respondent likes the party (Party Sympathy) or the candidate (Candidate Sympathy) endorsed by the party voted on the PR on a scale from 0 to 10 where '0' means 'I don't like the party or the candidate at all' and '10' means 'like the party or the candidate very much'. This provides an indication of how much utility a voter can expect to receive from his support for each party. One expects that the more the respondent likes the party or the party's candidate for whom he voted for on the PR, the less likely the voter should be to cast a split vote. The empirical findings support these expectations.

The feeling thermometer questions can also be used to build a measure which takes into account how much the voter likes the best party when compared to all the others. The best party is the party scored highest by the respondent on a scale from 0 to 10. It can be that some voters like only a single party whereas other voters score multiple parties equally, or nearly equally high (Marsh, 2006*b*). It is straightforward to see that voters who like more than one party similarly will be more likely to split their vote than those who have a strong commitment to one party above all the others (H1b). The Party and candidate tiers variables are set at 0 when the respondent ranks a single party

(or candidate) highest and 1 otherwise. The results displayed in Table 6.2 suggest that ranking more than one party highest matters and it increases the chances of splitting the ticket. On the other hand, having warmest feelings for more than one candidate does not appear to have an effect. This finding suggests that liking more than one party enhances the chances of casting a split vote; however, and interestingly, the defection is not based on how much a voter likes his party's candidate when compared to the other candidates but only on how much the voter likes the party's candidate.

Beside candidate sympathy, there are other ways of measuring the influence of personal voting. The standard way is to use incumbency as it usually done in current analyses of split-ticket voting (H1c). Table 6.2 shows that when the variable Incumbency changes from 0 to 1, the probability of casting a split-ticket voting goes from 0.28 to 0.24 (roughly 4% less). However, as mentioned earlier, incumbency is not useful to distinguish between personal and strategic voting. Japanese surveys contain a series of questions about voters' knowledge of candidates and the type of contact voters had with the candidates in the period prior to the elections. Unfortunately, only some of these questions have been asked similarly across elections and for this reason not all can be used with pooled data. The candidate knowledge variable used in the multivariate models captures to what extent the voter knows the candidate personally using the question 'How well do you know the [named] candidate?' with options, 'no knowledge', 'know somewhat' and 'know very well'. Moving from one lower category (i.e. less knowledge), to an upper one (i.e. familiar with the candidate) decreases the probability of splitting. The impact of this variable however, is perhaps lower than expected.[7]

There are several variables that can be used to measure the impact of candidate viability on split-ticket voting. Several studies, especially in New Zealand, use party spending to show that more spending by parties in the SMD increases parties' ability to retain majoritarian votes and thus spending reduces defection (Johnston and Pattie, 2000; Karp et al., 2002) (H2d). The expectation is that the more the party spends on its candidate less likely a voter should be to split the ticket. Table 6.2 shows that on a general level spending is not important to explain split-ticket voting in Japan. This is somewhat puzzling also in the light of the aggregate results in the previous sections where rates of split-ticket voting have been found to be correlated with spending levels. In their study of money and politics in Japan under the old SNTV, Cox and Thies (2000) estimated statistically the impact of LDP candidates spending on electoral outcomes. Their study provides evidence that candidates' spending is strongly correlated with candidates' vote share and with the level of competitiveness of the district race. In this context, I control for candidates spending and simultaneously assess the relationship between spending and several other variables, such as incumbency and district

[7] An analysis across years of election shows that the effect of this variable decreases over time, being quite strong in 1996 and increasingly lower in subsequent elections. This finding is in line with the existing literature expectations suggesting that despite the fact that electoral outcomes in Japan will continue to be influenced by voters' evaluations of the candidate, this feature should lessen as parties become increasingly institutionalized (Reed, 2002).

competitiveness. A deeper inspection shows that spending is correlated with candidate status as incumbent candidates spend more than challenger candidates. At the same time, candidates from bigger parties spend much more than candidates from smaller parties. Moreover, spending is highly correlated with the competitiveness of the district race. Candidates tend to spend much more in more competitive districts while official spending is lower in safer districts confirming a standard finding in studies in US and elsewhere (e.g. Stratmann 2005). Consequently spending and district competitiveness cannot be included in the same regression model. A subsequent discussion will expand on this point using interaction effects.

The models also control for coalition preference which has been found to be correlated with the probability of splitting in countries such as Germany (e.g. Pappi and Thurner, 2002; Gschwend, 2007) (H2e). Recalling the discussion provided in section 2 of this chapter, coalition preferences should still matter in the Japanese case but they should matter less than in other countries. This is a consequence of the very low electoral threshold in the proportional tier which may be too small to induce Japanese voters to cast a strategic PR vote; however, the presence of firm alliances between the parties in some of the SMD districts may induce supporters of one party to vote for the other party when the preferred one is not available. The table shows that coalition preferences seem to have no impact on split-ticket voting.

I also control for demographic variables, such as education, political interest, age, gender and so forth. All demographic variables are insignificant, except education which is positive and significant, suggesting that educated people are more likely to split their vote. The non significance of demographic variables and the positive effect of education is a standard finding in studies of split-ticket voting and it has been interpreted as a sign that vote defection is usually the realm of educated and sometimes more sophisticated voters (e.g. Banducci et al., 1998; Karp, 2006) (H2a). A closer look at party level switching shows that for LDP supporters, party matters slightly less than candidates whereas for the DPJ, party considerations matter more than candidates. For smaller parties, candidates matter much more and alone the variable measuring candidate sympathy explains more than 50% percent of the variation of split-ticket voting at the individual level.[8] This is a confirmation of the fact that LDP candidates play a strong role in lowering split-ticket voting for the LDP party and attracting voters from other party supporters especially smaller ones.

With regard to the last model (Model 5), all the variables are measured as if the vote is candidate-centered. For straight voters the variables in all models are measured equally because the party and the candidate are affiliated. Since straight voters are the majority of the respondents included in Table 6.2 we expect very similar results between Model 1 and Model 5. Indeed the results are similar but not completely so. For instance an identifier is at least 5% less likely to cast a split vote than a non identifier after voting for his most preferred party. At the same time however, an identifier is at

[8]The model for smaller parties includes SDP, JCP and CGP-Komeito. Separated models for these three parties yield similar results.

least 12% less likely to split than a non identifier after voting for his most preferred party's candidate. If one considers the vote to be candidate-centered, party features matter more to explain split-ticket voting, on the other hand candidate features have no impact. In other words, after choosing the best candidate it matters only how much voters like the affiliated party. On the other hand, after picking the best party it still matters how much a voter likes a party and a candidate to decide if he will split or not. It is clear that both party and candidate features are important determinants of split-ticket voting. At the same time however, it is clear that the two votes are cast somewhat differently by voters confirming the intuition from the exploratory analysis in section 4.1. But how much different are the two votes? Furthermore, so far the chapter has only looked at non-forced voters. How different do forced voters behave?

6.4.3 A Comparative View of the Two Votes

As mentioned in the outset of this chapter, many voters may not have had any choice but to split given that smaller parties do not run candidates in many SMDs. Modelling forced voters represents a big challenge for scholars of split-ticket voting. This challenge stems from the fact that forced voters show no variation on the standard dependent variable measuring the probability of splitting the ticket. Consequently current analyses focus primarily on non-forced voters. This section adds on our knowledge of split-ticket voting by expanding the analysis to forced voters. The focus is to investigate how different the two votes are and whether or not forced voters behave differently from non-forced voters. To conduct such analysis I employ survey data using 'stacked' datasets in a way similar to what has been done in Chapter 5.[9]

In this context the dependent variable is a dummy taking a value of '1' each time the respondent voted for party X (or candidate X) and '0' otherwise. Concerning the independent variables, they refer to all parties and candidates running for elections. When the party did not run a candidate, the row corresponding to that candidate contains missing values. This missing data are not truly missing but simply do not exist. Excluding all these values means analysing only those cases where all parties and candidates run for elections obviously reducing the sample to a tiny group of non-forced voters. For cases in which the missing values do not exist, Allison (2001) suggests to plug in some arbitrary value for all missing data cases and then include in the regression a dummy variable coded 1 if data in the original variable was missing and 0 otherwise. Following Cohen and Cohen (1975), Allison (2001) explains that while this 'dummy variable adjustment' is clearly unacceptable when data are truly missing, it may still be appropriate in cases where the unobserved values simply do not exist.[10]

Table 6.3 shows the results in the form of marginal changes in the probability of

[9]See also Figure 4.1 and the discussion provided in Chapter 4.

[10]Suppose one assumes that there is one linear equation for non-forced voters and another equation for forced voters. The non-forced equation is identical to the forced equation except that it has (a) a term corresponding to the effect of candidate features on the dependent variable and (b) a different intercept. Allison (2001) explains that it is easy to show that the 'dummy variable adjustment' method produces optimal estimates in this situation.

observing a vote for a party (Party Vote) or a vote for a candidate (Candidate Vote). First off, because non-forced voters represent the majority of voters, the results are unsurprisingly similar between the *All Voters* and the *Non-forced* models. Concerning the Party Vote, for non-forced voters, parties matter slightly less than for all voters; at the same time, candidates matter slightly more. Conversely, in the Candidate Vote, for non-forced voters parties matter slightly more than for all voters; at the same time, candidates matter slightly less. Regarding forced voters in the party vote, a comparison between Model 2 and Model 3 shows that the party matters almost equally for non-forced and forced voters; conversely candidates features have no effect for non-forced voters. In the candidate vote, a comparison between Model 5 and Model 6 shows that party sympathy matters almost equally for forced and non-forced voters whereas candidates features are much more important in the case of forced voters when compared to non-forced voters. In other words, when voters are forced, candidate features appear to matter less whereas parties remain important to explain both votes. Put simply, there are two remarks one can draws from this analysis. The first remark is that when voters are non-forced, the features of the candidate and the party affect the other vote more; equivalently this means that contamination effects between the two tiers are clearly visible. On the other hand, when voters are forced, candidates are not at all important to explain the party vote, but candidates' parties' affiliation remains important to explain the candidate vote.

Table 6.3: A comparison of the two votes: Marginal change

	(Model 1)	(Model 2)	(Model 3)	(Model 4)	(Model 5)	(Model 6)
		Party Vote			**Candidate Vote**	
	All Voters	Non-forced	Forced	All Voters	Non-forced	Forced
PID	0.354***	0.316***	0.209**	0.214***	0.271***	−0.023
	(0.026)	(0.030)	(0.068)	(0.025)	(0.030)	(0.042)
Party Sympathy	0.028***	0.019***	0.019***	0.015***	0.016***	0.016**
	(0.002)	(0.002)	(0.006)	(0.002)	(0.002)	(0.006)
Candidate Sympathy	0.031***	0.031***	−0.013*	0.049***	0.049***	0.054***
	(0.003)	(0.003)	(0.005)	(0.003)	(0.004)	(0.010)
Candidate Knowledge	0.006	0.003	0.004	0.010	0.011	0.021
	(0.006)	(0.006)	(0.009)	(0.006)	(0.006)	(0.022)
Coalition Preference	0.058***	0.063***	0.015	0.068***	0.062***	0.120***
	(0.009)	(0.010)	(0.012)	(0.009)	(0.010)	(0.030)
Incumbency	0.048***	0.075***		0.097***	0.085***	
	(0.012)	(0.012)		(0.013)	(0.013)	
Spending (1000 €)	0.001***	0.001***	0.000*	0.000***	0.000***	0.001*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Dummy_1	0.010	−0.044*	0.289***	−0.005	0.020	−0.208**
	(0.018)	(0.018)	(0.038)	(0.018)	(0.019)	(0.065)
Observations	8943	7826	1117	8943	7826	1117
Pseudo R^2	0.362	0.471	0.501	0.483	0.499	0.434
Nagelkerke R^2	0.487	0.600	0.635	0.616	0.630	0.581
LL	−3018.705	−2177.195	−306.485	−2521.712	−2101.485	−380.185
AIC	6055.409	4372.389	628.970	5061.424	4220.969	776.370

Notes: The table shows the marginal change in the predicted probability of casting a vote for a party or a candidate respectively. Marginal changes are calculated using the `mfx` command when holding categorical variables constant at their mode and continuous variables constant at their mean. Estimates of the standard errors of the marginal effects are shown in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. All models only include respondents who cast both votes. Additional notes see Table 6.2. Logit coefficients are displayed in Table A6.3. $_1$ See discussion on the 'Dummy variable adjustment' method provided.

An investigation of the two votes shows that they are indeed different. The features of the party explain the party vote better than the candidate vote and vice versa for the candidate vote. The vote looks still party-centered when voters have a party identification; candidates' features, on the other hand, explain the two votes better when voters have no party attachment. When it comes to forced voters, despite the fact that for these voters party features matter less, it is clear that parties continue to influence vote choice on both ballots. In answering the question, would forced voters have cast a straight vote if their candidate or party was available on the electoral ballot or would they have split anyway? The results suggest that their choice will depend on how much they like the party but not on how much they like the affiliated candidate. As a final note, concerning the Incumbency variable it was automatically dropped from the party vote model in Table 6.3. Recalling the discussion of the imputation of the missing values, the model for forced voters include many small parties' supporters for which the variable incumbency takes almost always a value of 0. This is the reason why the variable incumbency is automatically dropped from the forced voters model in the party vote. To ease comparison, the incumbency variable has been dropped from the candidate vote model for forced voters too. It is worth mentioning however that, when included in Model 6, incumbency has a pretty big effect in determining the candidate vote.[11]

6.4.4 The Interaction between Individual and Contextual Factors

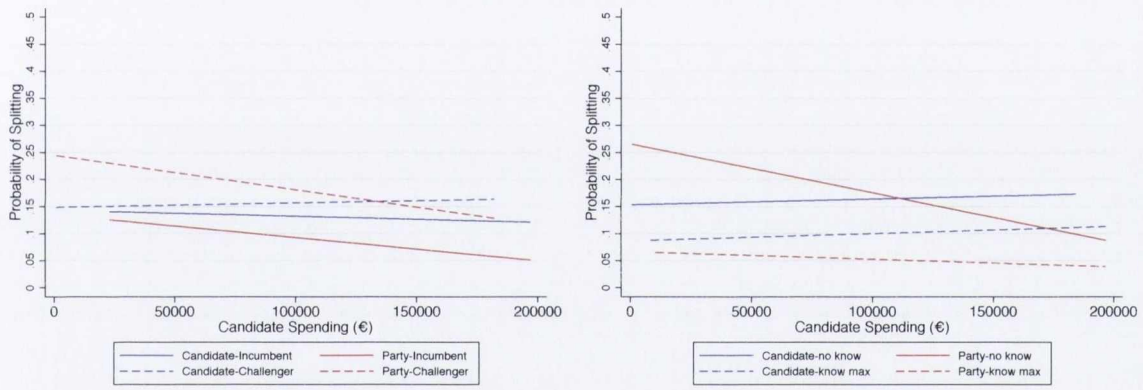
Finally, this section sheds light on some of the points not immediately obvious from the previous discussion. Specifically this section looks at correlated factors that could not be included simultaneously in multivariate models. Furthermore, the figures below analyse separately the party-centered and the candidate-centered variables and by looking at voting patterns for incumbent and challenger candidates. In all figures, red lines indicate values for the party-centered variables whereas blue lines indicate the candidate-centered variables. First, Figure 6.5a shows predicted probabilities as a function of candidate spending. The probability of splitting tends to decline with higher levels of spending for party-centered voters; on the other hand, spending by candidates makes almost no difference in the case of candidate-centered voters. Moreover the patterns are different if one considers incumbent versus challenger candidates as the decline is steeper in the case of challengers. This means that spending affects challenger more than incumbent candidates for which spending appears to be less rewarding. Several studies in US (e.g. Abramowitz, 1991; Jacobson, 1990*b*) and elsewhere (e.g. Palda and Palda, 1998; Carty and Eagles, 1999; Johnston and Pattie, 2006) have found comparable results. In an attempt to solve this puzzle Benoit and Marsh (2008) examined Irish election data. The authors show that it is not necessarily true that incumbent campaigning is less effective, but rather that incumbents are able to exploit their office

[11] I run many more models than the ones shown in this section. For instance I have tried to include a variable controlling for party size at the district level. The party size variable however showed high levels of correlation with spending and cannot be included in the final models.

benefits for campaign purposes in ways that are as effective as regular campaigning by challengers. The Japanese case shows similar results as spending is more important for challenger than for incumbent candidates.

With reference to candidate knowledge, Figure 6.5b indicates that on a general level, the effect of knowledge on split-ticket voting is relatively small. Specifically, the figure indicates that for party-centered voters, when the candidate is not known, spending has a huge effect on the probability of casting a split vote; at the same time, for well-known candidates the probability of splitting is very low regardless of spending. It seems that after people vote for parties, the electoral campaign makes a difference when deciding which candidate to vote. Conversely, after voting for candidates, the features of the electoral campaign have no effect on the probability of casting a split rather than a straight vote.

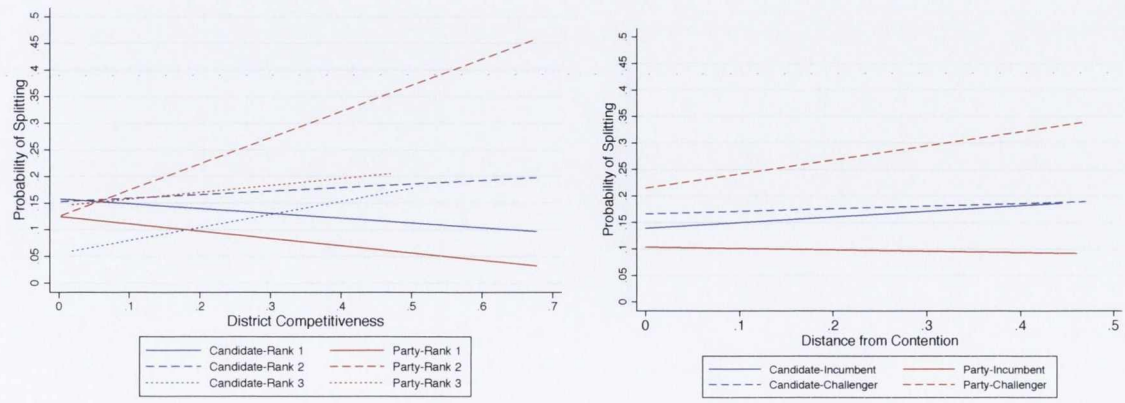
Figure 6.5: Predicted probabilities of ticket-splitting by candidate spending and familiarity



(a) by Candidate Spending and Incumbency

(b) by Candidate Spending and Familiarity

Figure 6.6: Predicted probabilities of ticket-splitting by district features



(a) by District Competitiveness

(b) by Distance from Contention

The features of the district race can encourage or limit party defection. For instance, if the top two contenders in the district are separated by a wide margin, a strategic vote makes less sense than if they are neck and neck (Niemi et al., 1992). Thus a positive relation is expected for both the first and second best placed candidate. If a negative relation is found this means that as the gap by which a candidate is losing gets larger, less likely a voter is to split away from this party's candidate. Such negative relation makes no sense from a strategic point of view but it appears to be in line with a personalistic interpretation of straight voting. To test the relation between district's competitiveness and candidate ranking, Figure 6.6a distinguishes candidates by order of ranking in the previous election.

First, district competitiveness has a negative effect on the probability of splitting with regard to first-ranked candidates for both party and candidate-centered voters; this result is in line with a personal voting hypothesis. With regard to second-placed candidates, the predicted probabilities of splitting sharply increase for less competitive district races suggesting a strong positive relationship especially for party-centered voters. This means that supporters of a party which candidate ranked second in the previous election are less likely to split when the district race is a closer one indicating some strategic coordination. Such result also sheds light on the high correlation between spending and district competitiveness and on the fact that both variables have a much stronger impact on the probability of splitting in the case of challenger rather than incumbent candidates. As discussed earlier, it is difficult to interpret the positive relation between district competitiveness and third-ranked candidates as this result is consistent with both a personal and strategic voting explanation (see H2c).

Concerning the difference between the vote for one's most preferred candidate and the lowest of the two top contenders, this variable has been used to prove the presence of strategic defection from least viable candidates both in Germany and in New Zealand (Karp et al., 2002; Gschwend et al., 2003). One expects that as this difference increases, voters should be more likely to switch voting strategically for one of the two top contenders. Interestingly, Figure 6.6b shows that the variable distance from contention has almost no effect in the case of incumbent candidates whereas it has a positive effect for challengers in the party-centered model. This finding confirms the results presented in Chapter 5 of this thesis which showed that splitting in Japan is less strategic than in other mixed systems such as Germany and New Zealand.

To sum up, across all graphs, party-centered and candidate-centered voters behave much more similarly in the case of incumbent than challenger candidates. In the case of incumbent candidates, the probability of splitting is very low and will not be affected much by candidate spending or by the features of the district race. For challengers, party-centered voters are more likely to split with a change in a series of factors spanning from spending to district features. All this indicates that in Japan candidate availability on the electoral ballot interacts with preferences for parties and especially for candidates at the individual level. Strategic coordination by voters is not absent but it is very low.

6.5 Summary & Concluding Remarks

Much has been written about the impact of the 1994 electoral reform on Japanese politics. Little focus has been devoted to voting behaviour under the new two-vote system and much less has been written about split-ticket voting. This is surprising if one considers that the few existing works have shown that in Japan a significant number of people split their vote and this group of voters has an impact on the electoral outcome (Reed, 1999; Kabashima and Reed, 2001; Burden, 2009). More often than not the current Japanese literature has looked at the candidate vote gap to discuss the performance of the parties or the candidates in the two electoral ballots. Despite the fact that the candidate vote gap in the SMD being a consequence of split-ticket voting, its use will not help disentangling the reasons why people split. Furthermore, aggregate patterns which suggest strategic voters' reaction to the electoral offer are entirely consistent with at least other two types of individual-level rationales. Wider vote gaps in the SMD for bigger parties can indeed indicate personal or strategic or forced split-ticket voting.

The aggregate-level evidence from this chapter suggests that patterns of split-ticket voting are consistent with a strategic explanation. Estimations show that big parties are characterised by higher levels of defection than those suggested by crude aggregate measures. Despite this however estimation results remain consistent with a strategic argument and in line with current studies findings. Conversely, the analysis of surveys reveals that what appears to be strategic is instead the result of sincere preferences for a party and a candidate that just happens to run for another party. There is clear evidence that the two votes are cast differently by voters with features of the party explaining the party vote better than the candidate vote and vice versa for the candidate vote confirming findings from Chapter 5 of this thesis. The investigation identifies the presence of two groups of voters: party-centered voters usually with a strong party identification, and those who values candidates more. For forced voters party features still matter the most but the candidate vote looks much more candidate-centered. The disentanglement of the different types of split-ticket voting suggests that the limited candidate menu restricts voters choice but many voters would have probably switched party on the SMD tier anyway. Overall, split-ticket voting in Japan is strategic only in those cases where it is not a consequence of personal voting and it is not forced.

The findings presented in this chapter are deemed to be relevant for Japanese politics and beyond. With regard to Japan, the analysis suggests that the majoritarian mixed system in use is surely not the 'best of both worlds' (Shugart and Wattenberg, 2001) for small parties which are characterised by high levels of splitting and will rarely beat strong party candidates in the majoritarian race. If small parties want to win the SMD seat, they will need to coordinate with bigger parties. On the other hand, the mixed system appears to be good for voters which, being able to vote for both a party and a candidate, are free to express a nuanced electoral choice. The analysis conducted

in this study has broader implications. Findings show that ticket-splitting is a consequence of a multitude of factors which depends only in part on the electoral rules. The disentanglement of these factors however, is only possible when pre and post-electoral survey data ask questions about all parties and candidates running for elections. Fortunately, these questions are becoming increasingly present in national election studies. Future research on split-ticket voting and the interconnectedness between parties and voters strategic actions should point their attention to those questions to uncover the causes of split-ticket voting avoiding unnecessary assumptions about voter sincerity that often, such as in this case, prove to be quite inaccurate.

Chapter 7

Split-Ticket Voting in a Peculiar Mixed System: Findings from the Italian Regional Level

7.1 Introduction

Previous analyses conducted in this thesis highlighted that 'unintentional' sources of voting behaviour are important determinants to take into account to explain split-ticket voting. Unintentional factors concern formal institutions, such as the link between the two tiers of the electoral ballot, and the number of parties and/or candidates running for elections. The impact of different combinations of electoral rules was considered in Chapter 5 of this thesis. Conversely, the effects of candidate and party availability on the electoral ballot could not be investigated in the comparative analysis because information on the voting district was not available. The matter of 'forced' split-ticket voting has been considered using Japanese survey data. Findings in Japan suggest that it is not the nature of forced that matters to predict split-ticket voting but rather whether or not voters pick candidates and then parties or vice versa. In other words, it matters if voters are party-centered or candidate-centered. Taken together these results suggest that, despite the importance of unintentional factors, voters' preferences and motivations explain most of the variation of split-ticket voting. Furthermore, so far this thesis looked mainly at relatively short-time voting predictors. These predictors relate primarily to the individual-level and concern both sincere and strategic voters' considerations. The literature on voting behaviour however has stressed the importance of long-term socio-political cleavages in explaining vote choice. The effect of long-term voting predictors is relatively difficult to measure and this is why previous analyses of split-ticket voting, in this thesis and elsewhere, did not take them into account.

This chapter looks at these matters in detail examining a very peculiar setting, the Italian regional elections. First, the chapter aims to provide further evidence on the question of forced split-ticket voting. The Italian regional elections are the only

instance of mixed rules where pre-electoral coalition agreements are displayed on the electoral ballot. Ticket-splitting is forced in other mixed systems as well because the candidate menu is always a restricted version of the proportional ballot, however the Italian case represents the unique case where cartel arrangements are displayed on the ballot paper. This means that voters can be straight or split *party* voters when their party is available on both ballots; when not available, voters can be straight or split *coalition* voters. This additional possibility allows for interesting considerations when it comes to the presence or absence of parties and candidates on the ballot paper. Second, this chapter assesses the effects of micro versus macro foundations of vote choice on vote switching. Micro-level foundations concern voters' feelings for parties and candidates. Macro foundations of voting involve long-term party loyalties and social characteristics. An application of a geographical approach for the study of voting behaviour to the Italian case is worthwhile, given that Italy's electoral behaviour has always been very geographical and each region is identified by specific electoral and social preferences (Cartocci, 1990; Agnew, 2002; Diamanti, 2003). In addition, the Italian mixed system is peculiar in that it allows for variation of the mixed electoral rules across sub-national units. For this reason, even if all the regions must maintain a mixed system they can alter it by, for instance, increasing the electoral threshold. These additional features permit an original investigation not possible in any other country where always the electoral rules remain constant across sub-national units during the same election.

This chapter is structured as follows. Section 2 presents the vote system in detail whereas section 3 derives the hypotheses to be tested. Subsequently in section 4 the comparison of the majoritarian vote for a candidate and the party vote in that single-member district for the candidate's political party/ies will provide the starting point of the analysis. Estimation techniques will then be employed in section 5 to obtain disaggregated quantities of ticket-splitting using aggregate voting results at the district level. The application of these methods represents an improvement of the 'net' measure of split-ticket voting as calculated by the difference between the vote for the candidate and the vote for the party. This is because estimation methods provide more accurate estimates of split-ticket voting and they permit an analysis of vote switching not only at the coalition level but also at the party and district level. Finally surveys in section 6 allow to respond to several additional questions providing access to individual-level motivations. Final remarks will close the chapter in section 7.

7.2 The Voting System

The twenty Italian regions represent the first-level administrative division of the state and the regional council they elect is the most important representative body after the national parliament. Regional elections are important in Italy and they are characterised by a turnout just 6-8% lower than national elections. Moreover, they are becoming increasingly important due to the devolution process that is currently underway in Italy. Five of the twenty regions are 'special' because characterised by a broader

degree of independence from the central state and by a different status and electoral system. This chapter only considers the remaining fifteen regions known as 'ordinary' which feature mixed rules and the same timing of elections.[1]

Following the wave of political change that characterised Italy in 1990s, unique mixed rules were introduced for the election of the regional councils in 1995. Under the new mixed-member electoral system, each Italian region forms one single-member district which chooses the future president of the region using majoritarian rules (SMD or candidate vote). Thus there are as many single-member districts as regions. The SMD is subsequently divided into a number of proportional districts (Italian *provincia*) ranging from 2 to 11 according to the regional population. The proportional vote (PR or party vote) is cast at the district level under proportional rules using open-lists with a threshold of 3% of the total party vote unless the party is connected to a presidential candidate which obtains more than 5% of the vote, in which case the threshold for the single party is only 1.5%. This threshold mechanism is also known as *double-threshold* mechanism (Pacini, 2007).

As was the case for the national system in use up until the 2001 general election, the SMD candidates must be affiliated with at least one proportional party but they may be affiliated with more than one. The reverse is not true, where proportional parties do not need to be affiliated with candidates running on the SMD, but in practice they always are (D'Alimonte, 2005, p.258). For this reason the majoritarian race is a restricted version of the proportional race and forced voters are those who do not find their PR party running a candidate in the single-member district (Benoit et al., 2006). Interestingly, when voting for a SMD candidate, voters are indeed casting a vote for a regional list that, if it wins the election will elect the SMD candidate, and future president of the region, and a variable number of Member of the Regional Parliament (MRPs) using closed lists. The number of MRPs elected with the regional list is variable and it constitutes a sort of *seat bonus* (usually 20%) which should always guarantee the majority of the seats to the winning coalition.[2] The presence of this seats bonus gives to the system a strong majoritarian thrust (Di Virgilio, 2000; Ceccanti and Vassallo, 2004).

Thus Italians have two votes, one for a candidate and future president of the region under majoritarian rules and one for a party under proportional rules. Since several parties run affiliated to the same SMD candidate a vote on the SMD is also intended as a vote for the coalition. The candidate vote gap is the difference between the votes obtained by the SMD candidate and the sum of parties affiliated to him on the PR. Since 1999 modifications are possible and each region can adopt slightly different electoral

[1] The 15 'ordinary' Italian regions are: Abruzzo, Basilicata, Calabria, Campania, Emilia-Romagna, Lazio, Liguria, Lombardia, Marche, Molise, Piemonte, Puglia, Toscana, Umbria, and Veneto. The 5 'special' Italian regions are: Friuli-Venezia Giulia, Sicilia, Sardegna, Trentino Alto Adige, and Valle d'Aosta.

[2] D'Alimonte (2005) following (Shugart and Wattenberg, 2001, p.20) classifies the Italian regional mixed system as both a 'majority assuring system' like the one in use in Mexico between 1988 and 1991 and 'a direct election of the prime minister system' like the one in use in Israel between 1992 and 2001.

rules holding the basic mixed system. For instance today some of the regions, such as Calabria, Puglia and Toscana, have increased the electoral party threshold from 3% to 4%, regardless of coalition affiliation (Figure ?? in Appendix 7 lists the changes likely to have an impact on split-ticket voting). Across regions there are usually two big coalitions which obtain more than 80% of the total vote, the centre-left and the centre-right, each of which includes one of the two biggest Italian parties[3] plus several coalition allies. Third-party coalitions, usually formed by one party only, rarely obtain seats and they have decreased in number over time. A scheme for the coalitions and their changes over time is provided in Figure A7.2 in the Appendix. The electoral ballot always displays coalitions (see Figure A7.1 in the Appendix for a specimen of the ballot paper). In my survey of existing electoral systems, no other mixed system today displays coalitions on the electoral ballot and permits variation of the electoral rules across sub-units.

To sum up, Italian electoral rules allow the three voting possibilities available for all voters under mixed-member electoral systems plus two additional ones. When the PR party runs a candidate on the SMD, the voter is defined as non-forced since he finds the party on both electoral tiers. On the contrary, if the party does not run a candidate, the voter is forced. Non-forced voters in all countries can choose to cast a straight vote (1. 'non-forced party sticker') choosing the candidate endorsed by the PR party voted or they can split choosing a candidate from a different party (2. 'non-forced party splitter'). When the party does not run a candidate, the forced voter that still wants to cast a vote for a candidate, is forced to split in all cases (3. 'forced party splitter') but in Italy. In this context instead two further voting options are allowed because pre-electoral coalitions are displayed on the electoral ballot. The voter can indeed vote for the candidate endorsed by the coalition linked to the PR party voted (4. 'forced coalition sticker') or he can split choosing a candidate endorsed by another coalition (5. 'forced coalition splitter').[4]

7.3 Expectations & Hypotheses

This section introduces several voting predictors investigated empirically in the rest of the chapter. This section focuses first on the effect of the peculiar Italian electoral rules and the effect of the district race features on split-ticket voting. Secondly, the intentional determinants of split-ticket voting are discussed with reference to the effect of short-term parties and candidate appeal and to the influence of long-term socio-political predictors.

[3]The two biggest parties today are: on the left *Partito Democratico* (PD), before 2007 named as *Democratici di Sinistra* (DS) and before 1998 named as *Partito Democratico della Sinistra* (PDS); on the right *Il Popolo della Libertà* formed in 2009 by the fission between *Forza Italia* (FI) and *Allenza Nazionale* (AN) and several smaller parties.

[4]Finally, a voter can cast a vote only for a party or a candidate. This voting option can be classified as 'incomplete' vote and it will not be considered in this thesis.

The effect of a peculiar mixed system

The existing literature on split-ticket voting defines strategic voting in relation to the 'wasted vote' hypothesis, according to which voters should desert the candidate endorsed by the party voted on the PR when this candidate has almost no chance of getting elected. Current studies also suggest that the splitting can be regarded as strategic when correlated with education and political interest (Banducci et al., 1998; Johnston and Pattie, 2002; Karp, 2006). Under the Italian setting the two votes are very much 'connected' due to the presence of the *double-threshold* mechanism on the basis of which parties are subject to an electoral threshold of 3% of the total party vote unless the party is connected to a presidential candidate which obtains more than 5% of the vote, in which case the threshold for the single party is only 1.5%. For this reason, if rational, voters should always cast a straight vote and remain loyal to the candidate endorsed by the coalition to which the preferred party belongs. Even if a voter may prefer a different candidate than the one endorsed by the PR party voted, it makes little sense for him to switch candidate because in this way the voter will reduce the chances of his party to get seats (Di Giovine and Pizzetti, 1996). Consequently, because of the peculiarities of the electoral rules, the wasted vote hypothesis suggests that more aware voters, via education or political interest, should be less likely to split to avoid decreasing the chances of their most preferred party to obtain seats. Furthermore, in Italy the clear indication of pre-coalition arrangements should discourage voters from splitting across coalitions regardless of the features of the SMD election.

H1a: More educated and/or more sophisticated voters are less likely to split their vote. This is controlled using the respondent's level of education.

Despite an overall expectation of very low levels of vote switching however, some specificities at the district and the regional level may affect the variation of split-ticket voting. For instance, a change of the electoral threshold can impact the overall observed variation. As a consequence, everything else held constant, a higher electoral threshold at the party level is expected to decrease even further the level of ticket-splitting. The mechanism works in the following way: if voters want to increase the probability of their preferred party to obtain seats, when the difficulty of gaining those seats increases, via an higher electoral threshold, voters should stick with their coalition candidate to boost the coalition and thus the party vote.

H1b: Everything else held constant, a higher electoral threshold is expected to further decrease levels of split-ticket voting. This is controlled using the level of electoral threshold at the district level.

On the other hand, the features of the SMD candidate and the coalitions' composition are likely to influence the likelihood of splitting the vote. For instance, Benoit

et al. (2006) showed that, at the national level, Italians were more prone to split their ticket when the coalition candidate was much further away in policy terms than the most preferred alternative on the restricted majoritarian choice menu.[5] The existing Italian literature has focused on the features of the coalition candidates stressing the fact that running strong personalities is likely to increase the coalition vote share on the majoritarian vote. Similarly, a policy-congruent coalition is usually regarded as more able to attract votes beyond the sum of the single parties of which it is composed (D'Alimonte, 1995; Vassallo, 2006). In this regard, D'Alimonte (2001) speaks about the 'gluing' effect, when the coalition is able to retain its voters on the SMD tier, and the 'magnetic' effect, when the coalition candidate is able to attract votes beyond the traditional base of the coalition.

H2a: Running strong candidates on the SMD ballot is likely to decrease split-ticket voting. This is controlled using incumbency and party leadership features of the coalition candidate.

H2b: A policy-congruent coalition is more likely to decrease defection and to increase splitting for other coalitions. This is controlled using a dummy variable which takes a value of 1 every time the coalition did not include extremist parties and did not leave out from the pre-electoral agreement potential important allies and 0 otherwise.

The electoral supply alone is also likely to affect the levels of split-ticket voting. For instance a forced voter, everything else held constant, is more likely to split than a voter who finds the party voted for available on both electoral ballots.

H2c: Forced voters are more likely to cast a split vote, deserting the candidate endorsed by the coalition to which the party voted belongs, when compared to those voters whose party is available on both ballots.[6] This is controlled using a dummy variable which takes a value of 0 when the party voted also run on the SMD tier and 1 otherwise.

Still concerning the features of the district race, scholars have since long ago found evidence that the competitiveness of the district race is likely to affect the way people vote (Cox, 1997). The variable 'District competitiveness' measures the closeness of the district race as the difference between the first and second best candidates (Niemi et al., 1992, p.232). The general expectation is a negative effect: the smaller the difference between the two top contenders in a district, the greater the probability of casting a

[5]Unfortunately this cannot be tested in this context since local surveys do not ask questions to measure party closeness for the parties and candidates running for elections. Furthermore, for the regional context measures of party policy positions are not always available.

[6]To recall, in Italy, because pre-electoral coalitions are displayed on the electoral ballot, forced voters can be forced coalition sticker by voting for the candidate endorsed by the coalition to which their party belongs or they can be forced coalition splitters voting for a different candidate. H2c says that forced voters are comparatively more likely to be forced coalition splitters than non-forced voters.

split vote (Cox, 1997; Bawn, 1999; Reed, 1999). Because of the peculiarities of the Italian electoral rules, an overall positive effective is expected. Furthermore, a positive effect is expected for bigger parties and a negative for smaller ones. The mechanism in the Italian context is as follows. As the district race gets more competitive, one expects strategic voters to support their coalition candidate if this was top-ranked in the previous election, in order to increase the preferred party's chances to get seats. On the other hand, supporters of smaller parties which lower-ranked candidates has no chance of getting elected, should probably switch supporting one of the top two candidates to boost the performance of the least-worst option. As already discussed in previous chapters however, a negative effect for smaller parties supporters is consistent with both a strategic and a personal voting explanation (Moser and Scheiner, 2005).

H2d: When the district race is competitive, supporters' of top-ranked candidates should stick with their preferred party coalition's candidate more often to guarantee his victory (i.e. positive relationship). On the contrary, for lower-ranked candidate a negative relationship is expected but the result remains undefined because compatible with different explanations at the individual-level. This is controlled using district competitiveness, measured as the difference between the first and second best candidates in a certain district, in interaction with candidate ranking at the district level.

The effect of socio-political features

The effect of the voting determinants just mentioned can be regarded as being relatively short in time. Stating that vote choice is a result of long-term political and social cleavages means giving a heavier leverage to the sentiment and disposition rather than reasoned preferences. In the 'American Voter' Campbell et al. (1960, p.121) emphasised the distinction between long and short-term forces by stating that the lasting attachment of Americans to one of the parties were one of the most important factor to explain national elections in United States (US). These loyalties establish a basic division of the electoral strength within which the competition of particular campaigns takes place. On the short-term side, Campbell et al. (1960, p.65) explained that attitudes toward the objects of politics do vary over time and these can explain short-term fluctuations in partisan division of the vote. The description of the main models in the electoral behaviour field points out to the importance of distinguishing between long and short-term voting predictors.

When applying the distinction long versus short-term factors to voting behaviour in Italy, the variables concerning the political and social cleavages seem undoubtedly to be the most employed ones in national electoral studies (e.g. Sartori, 1976; Corbetta et al., 1988). According to Sartori (1976), the multi-party Italian system was the result of both several political cultures coexisting, primarily the catholic and the communist ones, and a proportional electoral system which allowed each of these cultures to have

a parliamentary representation. This scenario produced a great stability in the election outcome. In fact from 1946 to 1981 the only party in charge of the government was the Christian Democrat Party (Italian *Democrazia Cristiana* (DC)). Voters' affiliation and identification with parties was not transitory but represented a proper recognition in collective identities. In a subsequent study of Italian electoral behaviour, Pasquino (1995) identified three main decision voting patterns: the identity vote, the nepotistic vote and the ideological vote. The first one was the more widespread especially in the North and in the Centre of Italy, on the other hand the latter seemed to be the less widespread. Socialization was indeed the key factor in explaining voting behvaiour in Italy and the territorial context was extremely important in explaining the Italian political behaviour.

The voting traditions linked to the territory (Agnew, 2002) were due to the social and institutional differences among the North, the Centre and the South of Italy (Putnam, 1993). There were indeed extensive differences among areas of the country with a huge difference between the North and the Centre of Italy where the two main parties had strong roots and the South, where the nepotistic vote was extensively widespread (Bellucci and Segatti, 2011). When considering the most recent years, it is still possible to isolate these three homogenous electoral areas in Italy also in regard to the Italian regional elections: the North, the Centre and the South. Whereas the Centre of the country is strongly leftist, the other areas are subject to more political competition with the North being slightly more rightist recently (Agnew, 2002; Diamanti, 2003).[7]

To account for the variation of split-ticket voting in regional elections, the existing Italian literature has focused on these ideological voting differences across regions (D'Alimonte, 1995; Vassallo, 2006; Chiaramonte and Barbieri, 2007, p.159). These explanations take into account political and social differences of the voters from the northern regions as opposed to the southern voters (De Luca, 2004). For instance, the literature holds that since in the southern regions nepotistic vote is quite diffuse (Cartocci, 1990; Diamanti, 2003), these voters cast high levels of preferential votes on the PR ballot. There are also a few specificities regarding the distribution of the vote among parties across the Italian regions likely to influence ticket-splitting. Specifically, Italian centre-left parties have always been traditionally very strong in the Centre of the country. On the other hand, centre-right parties are generally stronger in the North. These hypotheses, derived by the existing literature examining aggregate patterns, have never been tested using statistical methods. From the existing literature three hypotheses are derived:

H3a: Centre-left parties which are traditionally very strong in the central regions

[7]Despite the fact that the literature mentioned in this chapter would probably identifies four major areas (North-West, North-East, Centre and South), for the purpose of this discussion I will merge the North-West and North-East of the country in one area hereafter refer to as North. This is because the North-West and North-East appear to be much more similar when it comes to the electoral behaviour in the regional elections when compared to the national elections analysed by the literature mentioned in this chapter.

of the country, should be characterised by lower levels of split-ticket voting in these regions. This is controlled using an interaction dummy variable which controls for being a centre-left party running in the central regions of the country and 0 otherwise.

H3b: The existing Italian literature also suggests that centre-right parties should feature lower levels of split-ticket voting in the North. This is controlled using an interaction dummy variable which controls for being a centre-right party running in the northern regions and 0 otherwise.

H3c: Voters from the southern regions should prefer to cast more preferential votes on the PR than voters from the other regions. As such, southern regions will display a lower candidate vote gap. Since the vote cast on the PR vote is automatically counted also for the candidate, it is expected that these regions will display lower levels of split-ticket voting. This is controlled using a dummy variable which takes a value of 1 for southern regions and 0 otherwise.

7.4 Variation of Split-Ticket Voting ...

7.4.1 ... across regions & coalitions

The difference between the candidate vote and the vote received by all the parties running linked to that candidate at the district level provides a starting point for the analysis. The focus is to find out whether or not the differences across the candidate and the party vote follow regional patterns. Table 7.1 shows the difference between the SMD and the PR vote for macro areas of the country; Table A7.2 in the Appendix shows these quantities at the regional level. Candidate vote gaps are always quite small: considering that the values displayed in the tables are percentages, overall Table 7.1 suggests very low levels of defection. Across coalitions, the only discernible pattern is the difference between the two big coalitions (Centre-Left and Centre-Right) and the smaller ones (Other Coalitions). The latter tend to obtain positive gaps between the SMD and the PR vote meaning that the candidates always outperform the parties linked to them. On the other hand, the values for the big coalitions tend to fluctuate across elections. For instance, the centre-left coalition candidates performed quite poorly in 1995 and 2000 but a rough balance between the two tiers is registered in 2005 and 2010. For the centre-right coalition the patterns are even more sketchy. With regard to the difference between macro areas of the country (North, Centre and South), there are no pronounced differences despite the fact that in the northern regions the absolute gap between SMD and PR vote appears to be larger.

Table 7.1: The balance of the SMD and PR vote by macro-area, coalition-level (%)

	Average Percent Difference (SMD – PR)											
	Centre-Left				*Centre-Right*				*Other Coalitions*			
Election	N	C	S	*ToT*	N	C	S	*ToT*	N	C	S	*ToT*
1995	-1.61	-2.91	-1.33	-1.93	-0.53	1.78	0.52	0.66	2.96	1.25	0.67	1.47
2000	2.33	-0.41	-1.57	-0.15	-3.41	-0.36	0.09	-0.99	0.67	1.01	0.55	0.73
2005	0.83	0.33	0.06	0.35	-1.29	-0.69	-0.59	-0.81	0.50	0.38	0.53	0.47
2010	-0.39	-0.63	-0.36	-0.46	-0.42	0.26	2.66	1.04	0.11	0.87	1.30	0.84
Average	0.29	-0.91	-0.80	-0.55	-1.41	0.25	0.67	11.9	0.06	0.61	0.06	0.39

Notes: Northern regions (N): Piemonte, Lombardia,Veneto, Liguria. Central regions (C): Emilia-Romagna, Marche, Umbria, Toscana. Southern regions (S):Molise,Lazio, Campania, Puglia, Basilicata. *Source*: own elaboration from data available at `http://elezionistorico.interno.it`.

Analyses based on this aggregate measure of split-ticket voting suffer from two basic limitations. First, this measure is flawed by major problems since it only accounts for the minimum level of split-ticket voting that actually takes place and it is not able to account for all the cross-voting among parties and candidates (Cowart, 1974). Furthermore, the use of aggregate data does not allow a party-level analysis because aggregate voting results on the SMD ballot are only returned as coalition totals. One possible solution is to resort to indirect methods of estimation able to provide us with disaggregated quantities of split-ticket voting. These estimations permit an investigation of ticket-splitting at the coalition, party, district and regional-level.

7.4.2 ... across regions, coalitions & parties

Scholars developed several methods to use the observed aggregate data to estimate disaggregated quantities. An extensive discussion of these methods and their application to ticket-splitting has been provided in previous chapters of this thesis. In what follows I apply the best-performing method among the ones tested in Chapter 4 of this thesis. This method is the Multinomial-Dirichlet model put forward by Rosen et al. (2001) as an extension to multi-party electoral settings of the classical King's (1997) method only applicable to two-party systems.[8] The Multinomial-Dirichlet model has been employed here[9] to estimate the amount of split and straight vote by district using data at the precinct level (Italian *comune*).

Table 7.2 and Table 7.3 show estimation results over time and across regions at the coalition and the party-level respectively. Table 7.2 reports the estimated rates of split-ticket voting at the coalition level aggregated from individual SMDs in a procedure that weights the averages by the number of voters in each macro area. The values of the tables show that the overall splitting by bigger coalitions (Centre-Left and Centre-Right) is quite low and it does not appear to be higher in a specific area of the country.

[8]Using the Italian data I have applied all the available estimation methods, however to save space I only present the results obtained using the Multinomial-Dirichlet model. A discussion of the application and results for all the other methods is presented in Table A7.6 in the Appendix. That analysis shows

Table 7.2: Inter-coalition split-ticket voting estimation (%)

	Average Split-Ticket Voting as derived from estimation, coalition level (%)											
	Centre-Left				*Centre-Right*				*Other Coalitions*			
Election	N	C	S	*ToT*	N	C	S	*ToT*	N	C	S	*ToT*
1995	6.10	6.05	4.49	5.44	4.51	10.10	4.38	6.33	9.50	53.91	40.86	40.81
2000	5.22	5.91	6.11	5.38	3.80	6.51	5.00	4.68	34.50	45.01	62.00	50.38
2005	7.71	3.37	5.61	5.45	7.22	5.55	6.50	6.41	55.30	67.01	58.11	60.51
2010	6.19	5.91	6.61	6.21	3.61	6.41	8.91	6.42	29.61	45.01	41.20	39.91
Average	6.31	5.31	5.71	5.62	4.79	7.14	6.20	5.96	32.23	52.74	50.54	47.90

Notes: Key to symbols see Table 7.1. Standard errors of the estimates varies between 0.01 and 0.03 for bigger parties; usually lower than 0.15 for smaller parties. Estimation obtained using the (Rosen et al., 2001) model.

On average the centre-right coalition tends to be negatively affected by ticket-splitting in the centre of the country while the reverse is true in the northern regions for the centre-left coalition in line with the socio-political hypotheses discussed in previous sections. The table also illustrates that smaller coalitions' supporters are those who split more. Specifically it is worth noticing the lower values of split-ticket voting for third-party coalitions in 1995 in the North of the country. During the first year of election, a relatively big party, the Northern League (LN), run not affiliated with a big coalition in the northern regions. During this election the LN received very low level of vote switching thus leading to the low average level of ticket-splitting as displayed in the Table 7.2. Starting from the 2000 elections onwards, the LN run affiliated with the Centre-Right coalition and consequently, the column of the Other Coalitions in the table only includes small parties which on average are characterised by high level of defection. Caution is however recommended in the interpretation of the results for the Other Coalitions since the methodological discussion in Chapter 4 showed that the estimation for these parties will usually carry large estimation errors. The presence of a large error stems from the fact that small parties receive tiny percentages of votes and for this reason the amount of information available during the estimation process is often very low.

Estimates of party-level switching and the direction of split-ticket voting for the 2010 election are shown in Table 7.3.[10] The rows of the table represent the party vote, the columns represent the candidate vote. For each party, the first column also provides the coalition affiliation (Centre-Left or Centre-Right). For each coalition, the table lists the parties according to their sizes. For instance, among the parties running affiliated to the Centre-Left coalition, the *Partito Democratico* (PD) is the biggest party followed by the *Italia Dei Valori* (IDV) and *Rifondazione Comunista* (RC). Similarly, among the parties running affiliated to the Centre-Right coalition, the *Popolo della Libertà* (PdL)

that fortunately all these methods provide quite similar estimates.

[9]The method has been applied using the R-package Zelig version 3.5.3 with 1000 iterations.

[10]This section only presents the results for the 2010 election, however estimates have been carried out for all years of election; here it is sufficient to mention that broad conclusions are the same regardless of the year of election considered.

is the biggest party followed by the LN and the *Unione di Centro* (UDC). Starting from the first row, the table should be read in the following way: people who voted for the PD on the PR vote in the North (N) of the country cast about 96% of the PR vote for the Centre-Left candidate (straight vote) and this value is similar across macro areas of the country (C-centre and S-south). Still reading the first row of the table, on average about 3% of the PD supporters split their ticket towards the centre-right candidate and roughly 1% towards smaller coalition's candidates.

Generally speaking the results indicate that the smaller the size of the PR party (e.g. RC when compared to the IDV and IDV to PD), the higher the defection on the SMD tier. Supporters of parties running outside the two big coalitions are the ones who split more whereas the splitting of big parties such as PD and PdL is very low. On average these patterns are similar across macro areas (North, Centre, and South) even if not completely so. The table indicates that voters in the northern regions tend to remain loyal to their candidates more often than voters in the central regions and slightly more than voters in the southern regions. The table however hides some specific regional pattens. For instance, in 2010 in Basilicata the split was relatively high with as many as 10% of left and right voters splitting towards the opposite big coalition. On the other hand, third parties splitting was relatively low. Defection in Puglia instead, another region in the South, is often quite low. So, what explain these patterns? It is possible to confirm and extend this evidence employing multivariate regression models through the use of aggregate data first and surveys after.

Table 7.3: Intra-coalition split-ticket voting estimation (row %), 2010 election

	Candidate Vote											
	Centre-Left				*Centre-Right*				*Other Coalitions*			
Party Vote	N	C	S	*ToT*	N	C	S	*ToT*	N	C	S	*ToT*
PD (CL)	95.66	95.24	93.77	94.89	2.62	2.00	3.92	2.85	1.05	1.52	1.51	1.36
IDV (CL)	88.09	81.06	86.08	85.08	6.46	7.51	7.64	7.20	3.33	5.99	4.26	4.53
RC (CL)	78.08	72.19	87.71	79.33	11.28	10.59	5.43	9.10	6.96	9.45	6.85	7.75
Other (CL)	63.68	68.73	72.48	68.30	18.92	13.22	12.48	14.87	11.06	10.48	9.55	10.36
PdL (CR)	2.30	2.90	5.28	3.50	96.25	93.40	91.33	93.66	0.88	2.15	2.40	1.81
LN (CR)	7.61	9.26	–	8.44	91.09	80.11	–	85.60	0.89	6.35	–	3.62
Other (CR)	23.32	5.93	12.85	14.03	60.01	89.91	72.96	74.29	13.34	4.16	9.71	9.07
UDC (CR)	8.74	31.11	8.91	16.25	4.92	26.78	21.85	17.85	81.88	29.57	61.64	57.70
Other	16.46	17.17	25.84	19.82	28.69	23.11	32.56	28.12	40.59	44.89	29.44	38.31
Average	42.66	50.49	49.12	47.23	35.58	38.51	31.02	37.06	17.78	12.73	15.67	14.95

Notes: Key to parties: PD-Partito Democratico,IDV-Italia dei Valori, RC-Rifondazione Comunista, PdL-Popolo della Libertà LN-Lega Nord, UDC-Unione di Centro, Other-Other parties. CL-Centre Left, CR-Centre Right indicate coalition affiliation. Key to symbols see Table 7.1. UDC run alone in Lombardia, Veneto, Emilia-Romagna, Toscana, Umbria and Puglia.

7.5 Explaining Split-Ticket Voting at the Aggregate Level

The Rosen et al. (2001) method provides estimated rates of split-ticket voting by party at the district level as proportions. These estimates are used as dependent variable in beta regression models. The discussion provided in Chapter 4 of this thesis suggests that the beta regression represents a superior approach when using proportions as dependent variable confirming the findings in the methodological literature (e.g. Kieschnick and McCullough, 2003; Cribari-Neto and Zeileis, 2010). To discern the impact of a variable, I use average marginal changes and present complete results only in the Appendix (see Table A7.4). For a dummy independent variable, the marginal effect shows the percentage change in the amount of split-ticket vote received by each party for a discrete change in the independent variable, fixing all the other variables at their mean if continuous and at their mode if categorial. For a continuos independent variable, such as candidate spending, the marginal effect measures the change in the dependent variable for one unit increase of the independent variable holding all the other variable constant (Long and Freese, 2006; Cameron and Trivedi, 2009). Model 1 in Table 7.4 uses pooled data of all elections and parties (1995-2010). Models 2 and 3 include only the centre-left and the centre-right parties respectively. Table A7.3 in the Appendix explains in detail how these variables have been measured.[11]

With regard to the substantive results, starting from the impact of the electoral rules, Model 1 shows that an increase in the electoral threshold (PR Threshold) tends to slightly increase the level of split-ticket voting (of about 1.4%). The expectation originally developed was that, if anything, a higher electoral threshold should have decreased the level of ticket-splitting in order to keep intact the chances of a party to get seats after the elections. So despite the fact that the results are only marginally significant and the impact very low, the findings run against our expectation. This however may simply be an artifact due to the fact that among the three regions that have increased the electoral threshold, two of them (i.e. Calabria and Toscana) are usually characterised by the highest level of split-ticket voting; for this reason, even if it is true that a higher electoral threshold has decreased vote switching in these regions, this change is not being appreciated by the statistical models. The electoral supply has some effect on split-ticket voting but perhaps not as much as one would have expected. Forced voters are the ones who split more as the positive and significant coefficients of the forced variable suggests. Additionally, a policy-congruent coalition is likely to decrease the amount of splitting.

[11] Since it is not possible to completely rely upon the assumption of independency of the observations, I have checked for clustering of the observations by year of election and/or by district. Because the results with clustered standard errors were not statistically different from the ones with robust standard errors I only used the latter to obtain the tables presented in this chapter.

Table 7.4: Explaining party-level defection: Marginal change

	Model 1	Model 2	Model 3
	All	Centre-Right	Centre-Left
PR Threshold	0.014**	0.014*	0.012*
	(0.005)	(0.007)	(0.006)
Forced	0.159***	0.134***	0.162***
	(0.010)	(0.012)	(0.017)
Incumbency/Leader	−0.021	−0.040	−0.009
	(0.013)	(0.023)	(0.015)
Policy-Congruent	−0.025***	0.006	−0.042***
Coalition	(0.007)	(0.012)	(0.009)
District Margin	0.389***	−0.409	0.363**
	(0.109)	(0.272)	(0.116)
District Margin 1st	−0.375***	0.269	−0.281*
	(0.111)	(0.272)	(0.118)
District Margin 2nd	−0.365***	0.450	−0.334**
	(0.111)	(0.272)	(0.118)
District Margin low	−1.114***		
	(0.309)		
Centre regions	−0.056***	0.002	−0.046***
	(0.013)	(0.013)	(0.011)
South regions	−0.102***	−0.076***	−0.085***
	(0.009)	(0.013)	(0.011)
Centre regions/	0.015		
Left parties	(0.015)		
North regions/	−0.076***		
Right parties	(0.010)		
Observations	2763	1027	1736
LL	1034.086	461.753	615.979
AIC	−2040.173	−901.506	−1209.958

Notes: The dependent variable is the proportion of split-ticket voting received by each party at the district level (pooled data 1995-2010).The table shows the marginal change in the predicted amount of splitting calculated using the `dbetafit` command in Stata when holding categorical variables constant at their mode and continuous variables constant at their mean. Estimates of the standard errors of the marginal effects are shown in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.Complete coefficients in Table A7.4.

The features of the regional candidate (Incumbent/Leader[12]) have surprisingly no specific effect on the level of split-ticket voting. With regard to district competitiveness instead the results are quite interesting and they may help to explain why the variable Incumbent/Leader is found to be not significant. The overall effect of 'District Margin', regardless of the position of the candidate, is positive suggesting that, everything held constant, closer district race feature less split-ticket voting which is in line with strategic expectations as described in section 2 of this chapter. The variables 'District Margin 1st', 'District Margin 2nd' and 'District Margin Low' control for the effect of District Margin for different candidate ranking. For the two top contenders (District Margin 1st, District Margin 2nd) one would expect a positive impact if the vote has to be

[12]The variable takes a value of 1 if the candidate is an incumbent and/or a party leader and 0 otherwise. It is not possible to control for these two features separately because the two variables, incumbency and party leader, are highly correlated in the Italian regional setting.

considered strategic. Table 7.4 however indicates that the coefficients for both variables are negative. For supporters of the parties linked to the first-ranked candidate this result suggests that as the gap by which the candidate is winning gets larger, less likely his party's supporters are to split by voting other candidates. Similarly supporters of the parties linked to the second-ranked candidate are less likely to split when this candidate is losing by a larger gap. Both results make little or no sense from a strategic point of view and appears to be more consistent with a personal voting hypothesis. These interaction terms may have captured the effect of incumbency that is indeed only significant and negative as expected, when district margin is omitted from the model. Concerning smaller parties supporters, their coalition candidate has no chance of winning. For this reason one would expect that, as the district race gets closer, smaller parties supporters should strategically split towards one of the two top-ranked candidates to increase the least-worst option chances of winning (and thus a negative effect of District Margin Low is expected). The results support this expectation. As Moser and Scheiner (2005) suggest however this behaviour is entirely consistent with a personal vote and a strategic voting hypothesis.

Finally concerning socio-political variables, most of them are significant. Recalling the discussion in section 2, the multivariate models tested if voters in one specific area of the country are more likely to split than others. The results in the table show that levels of split-ticket voting are statistically different across macro areas of the country with voters from the central (Centre) and southern (South) regions less likely to split than voters from the north of the country (reference category in the models). Previous sections highlighted that Italian centre-left parties are expected to be characterised by lower levels of split-ticket voting in the Centre of the country where they have always been traditionally very strong. The same reasoning applies to the centre-right parties in the northern regions. Table 7.4 illustrates the presence of a party effect in line with these theoretical expectations. In the party-level models (Model 2 and 3) all the findings are confirmed with two exceptions that deserve attention. The first one is that the variable controlling for a policy-congruent coalition displays no effect in the case of the centre-right parties; specifically the level of split-ticket voting for this coalition will not usually depend on the coalition composition itself. The second specificity regards the variable District Margin which is never significant in the model for the centre-right parties. With regard to the distribution of votes across macro areas, both groups of parties feature less split-ticket vote in the south of country; centre-left parties are characterised by lower split-ticket voting also in the central regions of the country when compared to the centre-right parties and as the theoretical expectations would have suggested. Overall, these results suggest that voters' defection is a mixed function between the coalition composition and the long-term socio-political features of the Italian regions.

7.6 Who are the Defectors?

This section uses surveys to extend the evidence found using aggregate data by including also individual-level determinants. The dependent variable in this case is not the amount of split-ticket voting received by each party at the district level but the probability of casting a split rather than a straight vote. When using surveys, a straight vote is defined as having voted for the SMD candidate endorsed by the party voted on the PR tier. On the other hand, splitting the vote is defined as having voted for a party and a candidate that are not linked. First, Table 7.5 shows the inter and intra-coalition flow of votes for the 2010 election as obtained using surveys. The results are remarkably similar to the ones displayed in Table 7.3 obtained through estimations.[13] The main conclusions reached using estimates are all confirmed when surveys are used to measure split-ticket voting. First, the overwhelming majority of respondents who have voted for one of the party endorsing a big coalition's candidate (Centre-Left or Centre-Right) are coalition stickers.

Regarding the party-level switching, supporters of big parties such as PD and PdL tend to remain loyal to their coalition's candidate more often than smaller parties running inside the same coalition, such as IDV. This pattern is probably due to the fact that smaller parties' supporters inside a big coalition are usually forced since the big coalitions' candidate is most of the time from one of the two biggest parties (PD or PdL). This assumption is strengthened by the findings that LN voters, despite being supporters of a relatively small party when compared to the PD and PdL, tend on average to be coalition stickers more often than the other small parties' supporters and the coalition candidate was from this party in several regions in the North of the country. In the case of surveys the very small number of observations for smaller parties do not allow for generalization. Overall surveys tend to slightly underestimate straight voting when compared to estimates at the aggregate level. Despite the straight vote option being the most common one, there are discernible patterns of split-ticket voting that are worth investigating via a multiple regression.

Table 7.5: Intra-coalition ticket-splitting as derived from surveys (%)

	Centre-Left (CL)				*Centre-Right* (CR)				*Other Coalitions*				
	N	C	S	*ToT*	N	C	S	*ToT*	N	C	S	*ToT*	N
PD	94.21	96.11	93.74	94.59	3.36	1.52	3.97	3.30	2.43	2.37	2.29	2.37	2,109
IDV	85.80	88.89	79.25	83.83	9.26	6.17	7.55	7.96	4.64	4.94	13.21	8.21	402
Other(CL)	83.49	89.23	89.08	87.41	7.87	3.08	5.24	5.70	8.66	7.69	5.68	6.89	421
PdL	4.10	5.71	10.87	7.57	93.92	88.89	85.67	89.20	1.98	5.41	3.46	3.23	2,074
LN	3.49	10.34	–	4.64	93.95	81.61	–	91.88	2.56	8.05	–	3.48	517
Other(CR)	11.11	11.11	17.31	14.57	88.89	88.89	82.69	85.23	0.00	0.00	0.00	0.00	88
UDC	37.50	43.18	26.00	33.48	27.50	22.73	58.00	40.18	35.00	34.09	16.00	26.34	224
Other*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	100.00	14

Notes: Key to parties: see Table 7.3. UDC run alone in Lombardia, Veneto, Emilia-Romagna, Toscana, Umbria and Puglia. *Results for third-party coalitions are shown but not discussed due to the low number of observations available. *Source*: IPSOS post-election opinion poll (main investigator Prof. Paolo Natale).

[13] Unfortunately I can only access survey data for the last year of regional elections (2010).

7.6.1 Individual-Level Multivariate Results

Model 1 in Table 7.6 presents marginal changes in the probability of splitting the ticket using only aggregate-level determinants (complete logit results are presented in Table A7.5 in the Appendix). The findings are broadly consistent across survey and aggregate data even if not completely so.[14] First and foremost the effect of electoral rules as measured through the electoral threshold variable is again positive but very small confirming the results using aggregate-level data. Concerning the electoral supply, being a forced voter increases the chances of splitting the vote: as expected those who do not find the party voted also available on the candidate ballot are more likely to split their vote when compared to those voters who find the party voted available on both ballots. Running an incumbent and having a policy-congruent coalition decreases this probability as theoretical expectations would have suggested. It is worth noticing that incumbency had no effect in the model using aggregate data but it is negative and significant in this context in line with the expectations.

The variables measuring district competitiveness (District Margin, District Margin 1st and District Margin 2nd) show exactly the same sign and effect as they did in the aggregate model suggesting the presence of personal rather than strategic voting. Unfortunately the very low number of observations for small parties do not allow to test the interaction effect between margin and lower-ranked candidates. The socio-political features that I found having an impact on the switching are all confirmed in this context. In particular the results of Model 1 suggest that centre-right parties are characterised by less split-ticket voting in the norther regions; conversely, the centre-left parties feature less split-ticket voting in the central regions. There also appears to be a regional effect with voters from the souther regions being generally less likely to split their vote when compared to the voters in other regions of the country.

Model 2 the shows results including only the individual-level indicators and it suggests that voters with higher levels of education and/or political interest are less likely to split as expected from H1a-H1b. In other words, because of the peculiarities of the Italian electoral rules, the wasted vote hypothesis, mentioned extensively in other chapters of this thesis, suggests that more aware voters, via education or political interest, should be less likely to split to avoid decreasing the chances of their most preferred party to obtain seats. The model also controls for party identification. Generally existing studies of split-ticket voting have found evidence that higher levels of party commitment decrease the likelihood of splitting the ticket. And this is what I find in this context as well. Model 3 brings both individual and aggregate-level indicators together. Whereas the broad conclusion do not change for each of the coefficients, the power of the model is now at its highest suggesting that the simultaneous account of both factors, individual and aggregate, is indeed an important one. Finally Model 4 and Model 5 include all the variables but use data for each of the two big coalitions

[14] Since the analysis takes into account both individual and aggregate-level indicators I test the need for random-effects models. Likelihood ratio tests however suggest that the mixed strategy is not needed and the results provided by the logit and random logit models are almost identical.

separately. What remains significant in the case of the centre-right coalition parties is the nature of forced voters and party identification. On the other hand, for centre-left parties the district variables appear to have an impact. Overall the investigation using survey data suggests that district-level factors are important determinants of split-ticket voting and they remain so when using both sets of data. However surveys enable to show that individual long and short-term voting predictors have both a relevant impact on the likelihood of splitting the ticket.

Table 7.6: Explaining individual-level defection: Marginal change

	Model 1	Model 2	Model 3	Model 4	Model 5
	Only aggregate	Only individual	All	Centre-right	Centre-Left
PR Threshold	0.026**		0.024**	−0.000	0.007
	(0.008)		(0.009)	(0.005)	(0.010)
Forced	0.038*		0.035*	0.036*	0.034*
	(0.021)		(0.025)	(0.023)	(0.040)
Incumbency/Leader	−0.054***		−0.043*	0.000	0.054
	(0.015)		(0.018)	(0.011)	(0.050)
Policy-Congruent	−0.044		−0.030	0.022	0.124
Coalition	(0.024)		(0.024)	(0.012)	(0.064)
District Margin	0.494***		0.426***	−0.118	−0.389*
	(0.090)		(0.086)	(0.072)	(0.165)
District Margin 1st	−0.678***		−0.605**	0.038	0.014
	(0.186)		(0.190)	(0.089)	(0.149)
District Margin 2nd	−0.756***		−0.662***	0.132	0.611**
	(0.099)		(0.099)	(0.080)	(0.229)
Centre regions	0.008		0.011	0.013	0.023
	(0.030)		(0.030)	(0.018)	(0.033)
South regions	−0.080***		−0.070***	0.029	0.101
	(0.020)		(0.019)	(0.026)	(0.055)
Centre regions/	−0.053*		−0.053**		
Left parties	(0.021)		(0.018)		
North regions/	−0.039*		−0.037*		
Right parties	(0.017)		(0.016)		
PID		−0.042***	−0.037***	−0.040***	−0.001*
		(0.011)	(0.008)	(0.007)	(0.013)
Education		−0.025*	−0.026**	−0.012	−0.025
		(0.011)	(0.009)	(0.009)	(0.014)
Political Interest		−0.037***	−0.028***	−0.012	−0.033
		(0.010)	(0.008)	(0.009)	(0.017)
Observations	5777	5201	5201	2466	2538
Pseudo R^2	0.101	0.014	0.113	0.061	0.103
Nagelkerke R^2	0.133	0.019	0.144	0.073	0.131
LL	−1698.334	−1620.345	−1474.782	−461.491	−658.584
AIC	3420.667	3248.689	2979.564	948.982	1343.167

Notes: The dependent variable is the probability of splitting the vote in the 2010 elections. The table shows the marginal change in the probability, calculated using the `mfx` command in Stata, when holding categorical variables constant at their mode and continuous variables constant at their mean. Estimates of the standard errors of the marginal effects are shown in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Complete logit coefficients are presented in Table A7.5.

7.7 Summary & Concluding Remarks

Scholars of voting behaviour under mixed-member electoral systems have often highlighted that split-ticket voting is a result of strategic behaviour. Previous findings in this thesis have shown that the framework strategic/sincere voting is not always an appropriate one to account for the variation observed. In particular the comparative analysis explained that the two votes tend to be very similar when it comes to influence of sincere and strategic voting predictors. The Japanese case study, through the use of both aggregate and survey data, has confirmed the intuition from the comparative chapter showing that strategic voting is a residual category of split-ticket voting and that the two votes are cast differently by voters.

The main focus of the analysis conducted in this chapter has been on the effect of intentions versus formal electoral rules and party supply on split-ticket voting. The peculiarity of the Italian mixed system has indeed permitted to shed light on the effects of long-term features of the society when compared to the influence of short-term factors such as parties and candidates appeal. Furthermore, the peculiar Italian mixed system which allows variation of the mixed rules across sub-national units permitted an additional investigation on the forced nature of split-ticket voting. The analysis of forced voters suggests that the features of the district race are important determinants of party defection however it confirms that voter preferences remain paramount to explain the observed variation. The fact that the forced variable explains relatively less than one would have expected indicates that forced voters would have probably split their ticket anyway. This confirms the findings in the Japanese setting where I found that it is not the nature of forced that matters to predict split-ticket voting but rather whether or not voters pick candidates and then parties or vice versa. Moreover the relationship between strategic vote and split-ticket voting is more complicated than the current literature would suggest and most of what appears consistent with a strategic hypothesis, at a closer look, reveals to be in line with personal voting.

With regard to socio-political features, the analysis in the Italian case shows that intentional and unintentional sources of split-ticket voting are mediated by the social and cultural context in which people cast their vote. Intentions concern sincere and strategic voting whereas unintentional sources refer to the electoral rules and the features of the district race. Voters from some areas will be more or less likely to split than others in different areas of the same country regardless of what is on offer on the electoral ballot. Ultimately, the Italian case showed that long-term features of the electorate have a rather important effect and consequently, the literature on split-ticket voting should take them into account when examining vote choice.

Chapter 8

Conclusion

8.1 Introduction

This thesis studied voting behaviour under mixed-member electoral systems with a specific focus on split-ticket voting. Mixed systems give voters the opportunity of voting for the same representative body by casting two votes: one for a national party and another one for a local candidate. Whereas much is known today about how people vote when they have one vote, still very little is known about how people vote when they have two votes at their disposal. This is surprising if one considers that many voters vote under mixed systems today. This thesis began by outlining that the study of the way people split is important not only because so many voters engage in this behaviour but also because the manner in which voters split offers observable implications on a wide range of theoretical explanations of voting behaviour. The purpose of this chapter is to summarise the findings of this thesis and to discuss the consequences for our understanding of split-ticket voting and how they relate to our knowledge of voting behaviour. This chapter identifies the contribution of each individual chapter plan, as well as the overall contribution of the thesis. It maps the way forward for the study of vote switching in all of its forms and specifications.

8.2 Chapter Contributions

Chapter 1 of this thesis outlined the general approach of this thesis. It discussed extensively the reasons why it is important to look at voting behaviour under mixed systems and how its study relates to our knowledge of voting behaviour generally. Chapter 1 explained that the study of voting behaviour under mixed systems is both substantively and theoretically important. It is substantively important because many people vote under these systems today and because the levels of split-ticket voting have an impact on the electoral outcome. Chapter 1 also explained that as well as being substantively important, vote switching is a theoretically important phenomenon as the manner in which voters split their ticket offers observable implications on a wide range of theoretical explanations of voting behaviour.

Despite several explanations existing today, although still much debated, our knowledge of why people split is still limited by substantive and methodological issues. Chapter 1 started to discuss these limitations and it also explained in detail how this thesis was intended to fill in the gaps in the existing literature. There are three key weaknesses with current studies. The first major limitation is the lack of systematic cross-national analyses. The second drawback is that the existing literature relies on one type of data at a time, examining either the individual or aggregate-level data. The third gap in the literature is the lack of investigation of what has been defined as 'forced' split-ticket voting as often the existing literature does not control for the presence of the candidate on the electoral ballot. Chapter 1 made it clear that so far no one has provided a study of split-ticket voting that was comparative in nature and that used both surveys and aggregate electoral data across many years of election. For this reason, this thesis represented the first systematic study of split-ticket voting and generally voting behaviour under mixed-member electoral systems.

Substantive issues associated with the study of voting behaviour under mixed systems have started to be addressed in Chapter 2 of the thesis which provides a thorough account of the body of the literature concerning the study of vote switching. Despite, Chapter 2 provides a review of the general literature on vote switching looking at both vertical and horizontal split-ticket voting, the chapter devotes its main focus to the review of the existing studies on mixed systems, which is the topic of this thesis. To discuss gaps and limitations with current investigations, off-the-shelf explanations have been grouped in three general models according to whether they stress the intentional nature of ticket-splitting both with regard to sincere preferences and strategic motivations or the unintentional features of the electoral competition. It has been explained that whereas sincere voters are concern primarily with preferences for parties and candidates, strategic voters take into account the election outcome when casting their vote. On the other hand, unintentional split-ticket voting is linked to institutional factors and the availability of the candidate on the electoral ballot. Chapter 2 made clear that the thesis tries to address almost all theories of voting behaviour that have been used to explain the variation of split-ticket voting. As these theories are common to the study of vote switching across all types of electoral systems, the broad aim of the thesis is to advance the study of electoral behaviour generally.

Chapter 3 discussed the substantive and methodological issues associated with current studies of split-ticket voting in the context of the research design of this thesis. In particular, Chapter 3 outlined the dependent and the independent variables as well as the cases being examined in the thesis. Chapter 3 also presented the operationalization of the independent variables recalling the distinction among sincere voting preferences, strategic motivations and the unintentional features of the electoral competition. The chapter recalled how the variables have been measured in the existing literature, highlighted strengths and limitations and charted the way forward. In this chapter particular care is also paid to explaining the selection of the cases of study with regard to the methodological, comparative and case studies analyses. Why all three inves-

tigations are needed and how they improve our knowledge of how people vote under mixed-member electoral systems is explained. An exploratory analysis of the dependent variable is also provided in this chapter which shows the variation of split-ticket voting at the individual, party, district and country-level.

The methodological issues associated with the study of voting behaviour under mixed systems have been extensively discussed in Chapter 4. The chapter began by explaining that the study of vote switching through the investigation of its methodological issues can also be useful to the study of voting behaviour in general. Often scholars interested in voting behaviour are prevented from investigating a specific phenomenon because of the lack of surveys. When available, surveys allow us to explore differences in the characteristics of voters but they do not allow us to study spatial variations within each country. In order to study variations between constituencies, scholars need to use district-level data. Aggregate electoral results are usually freely available but they are limited by the well-known problem of 'ecological fallacy' (Robinson, 1950). With reference to the case of split-ticket voting, from aggregate data district variations, voter behaviour can only be investigated using net measures of the difference between a party and a candidate vote. The problem is that these measures provide only the minimum level of vote switching. Ecological inference techniques which would enable one to address this problem exist but have not been tested yet through an application to large amount of data (King et al., 2004, p.78). Chapter 4 addressed the general debate about individual and aggregate-level data in the context of the measurement of split-ticket voting.

Concerning the use of surveys, Chapter 4 showed ways of corroborating current usage by employing additional matrix formats, and through the merging of aggregate-level district features to individual-level information. This chapter explained in detail how the use of both pre and post-electoral survey data can help to investigate vote choice in all cases when observed actual voting is compatible with different individual-level explanations. On the other hand, looking at two votes separately instead of in conjunction as is the practice in the existing literature allows one to assess the impact of sincere and strategic voting predictors more broadly. Chapter 4 has also expanded on the measurement of the dependent variable when using aggregate electoral results. Chapter 4 has tested several advanced techniques available to make estimates from the aggregate split-ticket voting quantities at the party and district level. The countries used to perform these methodological tasks were New Zealand and Scotland's legislative elections where exceptionally the actual levels of ticket-splitting are available. The availability of this data allows for the comparison between estimations and actual values. The analysis illustrated that all the available techniques provide reliable quantities of split-ticket voting. Among the three estimation methods tested, the Rosen et al. (2001) method performed best. In particular, since split-ticket voting estimates are very similar to the actual values, when used as dependent variable in regression models, they provide similar results to the ones obtained using the actual values. This feature of the model is particularly important since the actual levels of split-ticket voting are not normally

available to the researchers. As the issue of measurement of split-ticket voting is a common one, the results of the analysis conducted in Chapter 4 can be regarded as useful in all other settings where researchers only have aggregate data available but are interested in explaining the variation at a disaggregated level.

The rest of the thesis focuses on explaining substantively the variation of split-ticket voting at both the individual and aggregate-level. At the outset of the thesis it has been established how an investigation of how people vote under mixed systems can add on our knowledge of the object of electoral choice. Specifically because under mixed systems voters can vote for candidates and parties at the same time, this enables us to assess the relative importance of candidates and parties features on the vote for candidates and parties simultaneously holding the electoral context constant. In this regard the comparative investigation of split-ticket voting conducted in Chapter 5 using survey data had a twofold purpose. It had the aim of assessing the object of the electoral choice on the two votes separately with specific regard to sincere, strategic and contextual voting predictors. The analysis also aimed to generalise the results using the same sets of variables across several countries spanning all types of combination of mixed rules, different familiarity with the electoral systems as well as different political systems.

From the analysis it clearly emerged that voters consider the two votes, the party and the candidate vote, differently and that several factors impact the two votes in a different manner. Whereas parties and national issues play a larger role when voters are asked to vote for parties, candidate features and local issues are better used to account for the candidate vote. At the same time, candidate features explain very little of the vote for parties whereas party features remain important when people vote for candidates. This ultimately suggests that voters still use parties as the principal cue for vote choice but candidates are increasingly important in deciding about the local level vote. By assessing how people make up their minds when they have more than one vote at their disposal, the analysis conducted in Chapter 5 was also important for our understanding of the contamination effects between elections. From the analysis conducted it emerged that contamination effects across the two votes are present but they affect the two votes differently: national issues impact the vote for the local context but not the other way round. In other words, when voting for the local context, the vote is more likely to be influenced by the nature of the national competition; on the other hand the electoral race at the local level matters much less when voters are asked to vote for the national parliament.

At the outset of the thesis it was also asserted that the study of voting behaviour under mixed systems can help assess the impact of the electoral rules on the way people vote. Since under mixed systems voters cast the two votes under opposite electoral rules, these systems allow us to understand how different vote choice is under majoritarian versus proportional rules. This is important for instance for our understanding of strategic voting. The analysis conducted in Chapter 5 has shown that both votes should be considered as reflecting a sincere voting preference and that split-ticket voting is at

least in part a consequence of the electoral campaign. Some support has been found for the standard argument that the vote on the proportional ballot is more sincere than the one under majoritarian rules as often assumed by the current literature. Despite this however the evidence contradicts the one-party preference assumption, indicating that the two votes are used by voters to express a more nuanced electoral choice which cannot be accounted for by using a simple strategic versus sincere voting explanation.

There are two specific issues that have been left unclear from the comparative discussion. First, because of the inclusion of several countries and since in the majority of these countries questions on candidate preferences are not available, the analysis has been constrained to look at voting behaviour using individual-level information on parties' preferences. On the other hand, the comparative analysis was unable to control for 'forced' voting. This limitation stems from the fact that information on the district in which the candidate vote is cast is only available for less than half of the countries analysed. Consequently it was not possible to control whether voters had the same party available on both electoral ballots or if they were forced to split. Another important issue that has not been investigated in Chapter 5 but that it is worth investigating when studying mixed systems is the question of the rationality of the voting act. In other words since mixed systems are often regarded as having complicated, if not the most complicated, electoral rules, it is worth investigating to what extent vote choice is correlated with misunderstanding of the mixed rules.

These additional investigations are carried out using the Japanese and the Italian cases in Chapter 6 and Chapter 7 of the thesis. Starting with Chapter 6, it explored in detail the Japanese case since the introduction of a majoritarian mixed-member electoral system in 1996. The investigation has served the purpose of providing useful evidence to add to the specific literature on split-ticket voting as well as more generally to our knowledge of electoral behaviour. With regard to a more specific contribution, because of the availability of detailed electoral surveys the Japanese case enabled the disentanglement of different types of split-ticket voting in relation to the availability of voter preferences on the two ballot tiers. Moreover, because surveys ask Japanese voters why they intended or have split their vote directly, these data enable us to compare the substantive conclusions inferred indirectly using multivariate analysis with respondents across several years of election. Concerning the more general literature on voting behaviour the Japanese case is used to provide additional evidence on the issues addressed in Chapter 5. Among these are sincere versus strategic voting, the questions regarding misunderstanding of the electoral rules, coalition voting as well as the impact of candidates and parties' availability on the way people vote.

The Japanese analysis revealed that strategic voting is only a residual voting category. Findings in Japan suggest that it is not the nature of force that matters to predict split-ticket voting but rather whether voters pick a candidate and then a party or vice versa, that is if they are party or candidate-centered. In fact, most of the variation can be accounted for by personal voting for candidates. This means that a large part of what current studies have considered strategic split is simply a result of

sincere contrasting feelings for parties and candidates that are not linked. These results perhaps also driven by the strong personalistic culture of Japanese politics, have important implications for the existing literature. Existing investigations, in fact, have generally used feeling questions for parties to explain both the party and the candidate vote, illustrating that voter preferences explain the party vote better. The analysis conducted in Japan however, where feeling questions for both candidates and parties are available, makes it clear that voters like candidates regardless of their party affiliation. With regard to coalition voting the result is fairly low in Japan and no evidence is found for misunderstanding of the electoral rules.

Chapter 7 has explored additional aspects of split-ticket voting using the Italian regional elections. Italy is a peculiar setting in which socio-political variation has always been directly linked to voting behaviour. This allows the first comprehensive analysis of the influence of socio-political long-term features of the electorate on the way people split their vote. Furthermore, the Italian regional elections use a peculiar mixed-member electoral system, which allows coalitions to be displayed on the electoral ballot and permits the regional governments to slightly modify the electoral rules to adapt them to the local context. These features of the electoral system allow for an unconventional and original investigation not possible in any other country. With regard to the literature on split-ticket voting and the findings of other chapters of this thesis, the analysis of the Italian case provided only a limited support for the idea that electoral rules impact split-ticket voting. The number of parties and candidates running for elections instead plays a stronger role even if smaller than expected. This supports the findings in Japan where it has been shown that many voters who do not find the same party on both ballots, would have split their ticket anyway. There is also strong evidence that the relationship between ticket-splitting and socio-political cleavages is a strong one. For the general questions that the thesis aimed to address, the Italian investigation showed that vote choice is still mediated by the long-term features of the electorate that are not exquisitely political but are linked to the way people have always voted. Several factors are likely to affect vote choice and only relatively little can be explained by purely strategic incentives.

8.3 General Discussion

The aim of this thesis was to contribute to the understanding of split-ticket voting by providing comparative case studies analyses and by testing and advancing existing empirical methods. In this section the findings of this thesis are interpreted placing them in a general context. These findings have a number of important implications. One of them is of a methodological nature. First, it clearly emerges that substantive results are often, if not always, a consequence of the data at our disposal and this is particularly significant in cases where the object of interest is difficult to gauge with the usual data we have available. In fact closer investigations of split-ticket voting using both surveys and aggregate data reveal that most of what is consistent with

strategic behaviour at the aggregate level is instead a result of sincere preferences. The misleading conclusions are due to the lack of proper information, which have forced scholars to rely on assumptions regarding party preferences that, when tested, do not hold true. This ultimately means that when possible scholars should use more than one typology of data to validate their results. In particular Chapter 4 of this thesis illustrated that today several estimation methods exist for the use of aggregate data and have been shown to work relatively well. This result should encourage their use in future analyses of voting behaviour.

From a substantive point of view, from the analysis conducted in this thesis, it emerges that voters respond to strategic incentives such as candidates viability at the district level. Despite this however the simple presence of strategic incentives does not mean that voters will necessarily act upon them. The first result regards the vote under majoritarian rules when compared to the vote under proportional rules. Many believe that strategic voting is much weaker under proportional rules than under majoritarian systems. Recent analyses however, argued that voters in proportional systems face similar incentives to cast a strategic vote as voters in majoritarian systems do. The analysis conducted in this thesis shows that the vote under proportional rules is only slightly more sincere than the one under majoritarian rules and in most of the cases this is a consequence of the fact that more parties are available in proportional elections than under majoritarian rules. With regard to the object of the electoral choice, voting appears to be quite simple as voters simply vote for what they like. If they like the party, they will vote for it using the party vote. If they like a candidate they will vote for it using the candidate vote. When the candidate and the party they like run linked, voters are more likely to cast a straight vote. When the candidate happens to run for another party, the final decision will be based on how much they like one party over another (not one candidate over another).

The analysis illustrated that many voters like more than one party and will weight them on the two electoral ballots. Voters with strong party attachment are more likely to use the party shortcut by casting a straight vote because for them the party weighs more than candidates features on both ballots. When the split is not sincere and it is not forced by the unavailability of the preferred candidate, it is an attempt to maximise the impact of the two votes on the electoral outcome. The broader picture is the one of a 'simple' voter with 'sophisticated' preferences. Parties still function as the principal cue for voting, but voters are increasingly sophisticated in that they often like more than one party. The two-vote system allows voters to express a more nuanced electoral choice and from the analysis conducted in this thesis, mixed-member electoral systems appear to be the 'best of both worlds' (Shugart and Wattenberg, 2001) for voters; at least for those who have sophisticated preferences. Another important result regards the rationale of the voting act. Despite vote choice under mixed systems being complicated, there is no evidence supporting the conclusion that ticket-splitting is a consequence of voters' confusion with the electoral rules. Highly educated and sophisticated voters are likely to respond to strategic incentives and the district-level

features play a significant role in this regard. In some cases patterns of voting appear to reflect the findings from recent studies in proportional systems stressing that voters do consider the impact of their vote on policy when casting their vote (e.g. Blais et al., 2006; Meffert and Gschwend, 2010). This is ultimately significant for our understanding of the process of electoral democracy and should discourage claims about voters not being able to cope with the electoral rules.

Levels of split-ticket voting are expected to rise in the long run. This will be a consequence of parties' strategic coordination which will restrict vote choice even further on the majoritarian ballot. Higher levels of ticket-splitting are also expected as a consequence of the fact that candidates are increasingly judged by voters regardless of the parties they represent. Furthermore, as voters become increasingly familiar with the electoral rules and thus likely more strategic they may become more inclined to split their vote. In any case, vote switching becomes a crucial area to explore, in order to understand voters and their choice, and to appreciate the working of elections and democracy generally. This can be done by studying ticket-splitting across elections and across countries to track changes over time. Across elections, this is done to check how much the factors influencing voting behaviour change across the two electoral ballots over time. As one vote is for a party and another for a candidate, this analysis can allow for weighting the impact of different factors on the way people vote over time specifically analysing the effect of parties, candidates and leaders on the way people cast their votes. An exploratory study of split-ticket voting across elections in New Zealand has shown that the party vote tends to remain stable over time, with short-term factors mainly influencing the candidate vote. To provide additional evidence with both regard to the familiarity with the electoral rules and control for specific country-effects this analysis needs to be comparative. These investigations should be made easier by the increasing availability of data at both the individual and aggregate-level.

The work conducted in this thesis raises some intriguing issues which merit further investigation moving beyond countries using mixed-member electoral systems. To start with, the thesis has shown that vote choice cannot be accounted for by using a simple strategic versus sincere voting explanation. The broader picture suggests a simple voter with relatively sophisticated preferences. Moreover it appears that voters think ahead about what is likely to happen after the elections. A future line of investigation may build on this conclusion taking into account whether and how these sophisticated preferences correlate with patterns of voting behaviour beyond mixed systems. Only recently scholars have turned their attention to empirically examining whether voters consider the impact of their vote on policy. For instance the recent literature has showed that voters do evaluate coalition building after the elections when casting their vote (Blais et al., 2006; Meffert and Gschwend, 2010; Fortunato and Stevenson, 2012). The proposed line of investigation will consider to what extent voters are party-centred and/or candidate-centred when compared to coalition-centred while paying close attention to policymaking institutions in each country. As this investigation can be potentially conducted in every country and outside a few countries little prior work exists this

naturally opens up avenues for further research in a multitude of electoral settings. Indicative of this lack of research is the claim by Gschwend and Hooghe (2008, p.557) that: "At present, there is no research available on the question of how voters respond to the formation of pre-electoral coalitions".

My thesis has also shown that the nature of the vote choice (such as the number of parties and candidates running for elections, competitiveness of the district race and so forth) matters more when individuals vote for candidates rather than for parties; on the other hand, national issues have a larger impact on the party vote. These findings holds true across countries as diverse as Japan, Germany, New Zealand and Italy. This conclusion has raised some interesting questions about the link between voters and elected officials when voters are asked to vote for candidates as opposed to when they are asked to vote for parties. This can potentially provide the basis for a future line of investigation which tries to establish the degree of congruence between voters and elected officials and how different this congruence is when people vote directly for parties rather then for candidates. Despite 'congruence' between voters and parties being very important for representative democracy (Adams and Ezrow, 2009; Powell, 2009; Golder and Stramski, 2010), little is known today about whether the link between voters and elected officials is different across countries adopting different electoral rules. To conduct this analysis one needs first to define a theoretical model able to establish the dimensionality of the political space as well as the link between voters, parties and candidates. Subsequently, the developed theoretical framework can be tested and applied to several countries to conduct case studies and large-n analyses.

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Appendices

Appendix Chapter 1

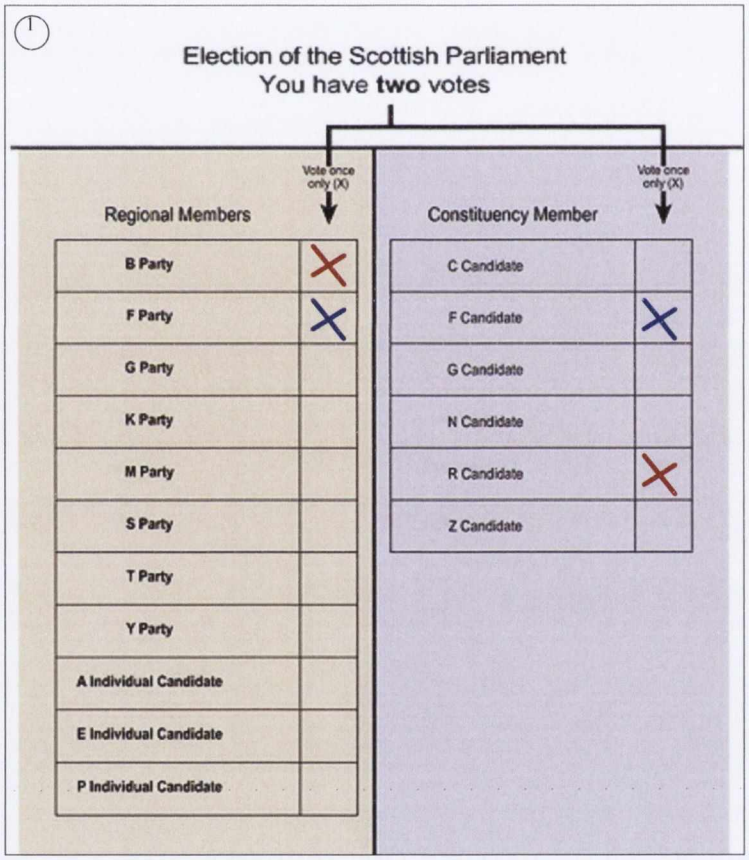
Table A1.1: Country & Data sources

Country	Survey Data-Year/Source	Aggregate Data-Year/Source
Albania	2005 POST-ELECTION: Comparative Study of Electoral Systems (CSES) 2	not applicable
Germany	1998-2002 POST-ELECTION: CSES 1, CSES 2 2005-2009 POST-ELECTION: CSES 3 2009 PRE-ELECTION: GESIS	Constituency-level data: http://www.bundeswahlleiter.de/.
Hungary	1998 POST-ELECTION: CSES 1 2002 POST-ELECTION: CSES 2	not applicable
Italy-national	1994-1996 POST-ELECTION: ITAlian National Election Study(ITANES) 2001 POST-ELECTION: ITANES 2001 PRE-ELECTION: ITANES and IPSO 2001[1]	
Italy-sub-national	2010 POST-ELECTION: Sondaggi IPSOS (main investigator Prof Paolo Natale).	Polling-station data: http://elezionistorico.interno.it.
Japan	1996 PRE and POST ELECTION: Japanese Elections and Democracy Study (JEDS96), conducted by Bradley M. Richardson, Mitsuru Uchida and associates.	The municipality-level Lower House election data (JED-M) do exist, but they are not free. The dataset I have build for my analysis merges information gathered from Prof. Jun Saito[2] with data collected from Prof. Steven Reed website www.fps.chuo-u.ac.jp/~sreed/DataPage.html.
	2003-2005: PRE and POST ELECTION: JES III Project Team (Ken'ichi Ikeda, Yoshiaki Kobayashi, Hiroshi Hirano), by the Social Science Japan Data Archive, Center for Social Research and, Institute of Social Science, The University of Tokyo	The translation of the dataset was conducted by me[3] Aggregate data with spending values have been provided by Asano, Masahiko, and Yuki Yanai, 2013. Stata ni yoru Keiryoseijigaku [Quantitative Methods in Political Science Using Stata]. Tokyo: Ohmsha.
New Zealand	1996-1999-2002-2005-2008: PRE AND POST ELECTION: New Zealand Election Study http://www.nzes.org/	Polling-station data: www.electionresults.org.nz/. District-level data: www.electionresults.org.nz/
Scotland	1999-2003: POST ELECTION: Scottish Social Attitudes (part of the British Social Attitudes) 2007-2011: PRE and POST ELECTION: Scottish Election study http://www.scottishelectionstudy.org.uk/	2007: Polling-station data: http://www.scotlandoffice.gov.uk/scotlandoffice/10202.html. District-level data: http://www.scottish.parliament.uk/
South Korea	2004-2008 POST-ELECTION: CSES 2, CSES 3	not applicable
Thailand	2007 POST-ELECTION: CSES 3	not applicable
Wales	1999-2003: POST ELECTION: Scottish Social Attitudes (part of the British Social Attitudes) 2007-2011: PRE and POST ELECTION: Welsh Election study http://www.aber.ac.uk/	not applicable not applicable

[1] I am grateful to Prof. Paolo Segatti for sharing his data with me.
[2] I am deeply grateful to Prof. Jun Saito for sharing his data with me.
[3] I am grateful to Dr. Koji Kagotani for the help and support in all the Japanese data collection process.

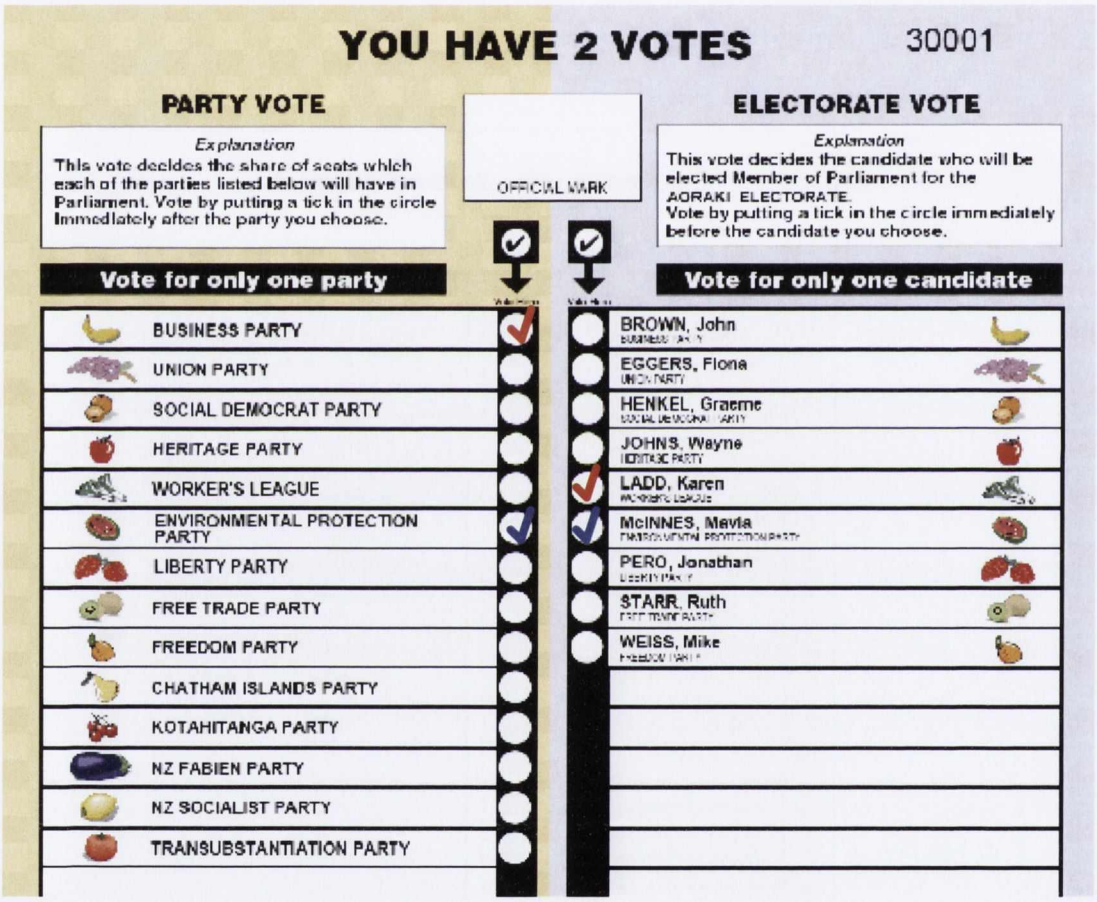
Appendix Chapter 4

Figure A4.1: Ballot paper for the 2007 Scottish Parliament election



Notes: The red vote choice represents an example of split-ticket vote while the blue a straight- ticket one.

Figure A4.2: Ballot paper for the Lower House elections in New Zealand



Notes: The red vote choice represents an example of split-ticket vote while the blue one a straight-ticket example.

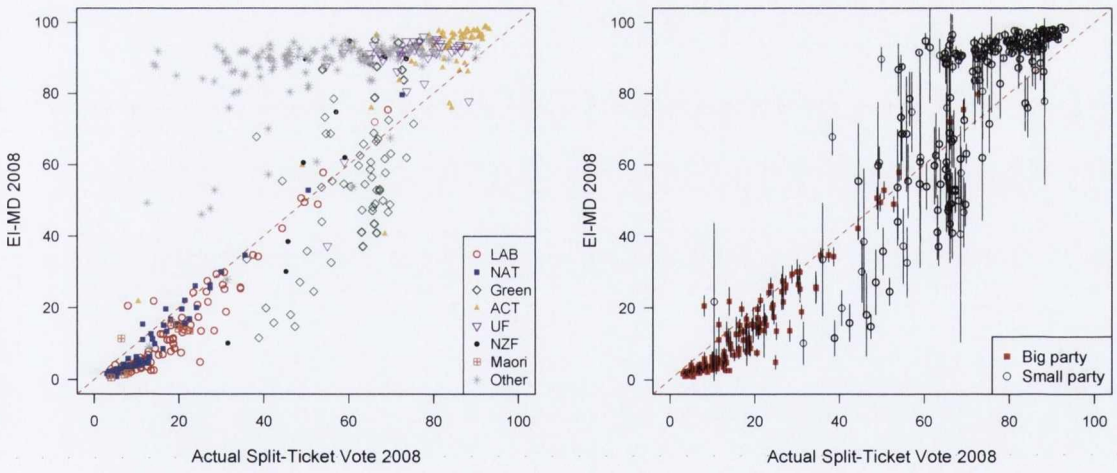
4.4.3 Testing Available Methods

The following sections provide additional details, graphs and tables useful for the discussion presented in Chapter 4 of the thesis. To ease the comparison for each section in Chapter 4 a parallel one is provided below.

The Multinomial Dirichlet method

In Figure A4.3, Figure A4.4 and Figure A4.5 the actual party percentage of the split vote in each district is plotted against the corresponding estimated quantities. The closer the dots are to the diagonal line, the better the EI-MD performs and the more similar the estimated quantities are to the actual values. The plot on the right excludes the parties receiving less than 1% of the votes and it displays the confidence intervals as provided by the EI-MD method. As the figures show, there is a striking difference between bigger (Labour and National), smaller (Green, ACT and NZF) and the very small ('other') parties. The results for Scotland are displayed in Figure A4.6 and Figure A4.7. As the figures show, the estimates are appropriate in this context with a few exceptions.

Figure A4.3: EI-MD versus actual split-ticket voting by district (%), 2008 New Zealand

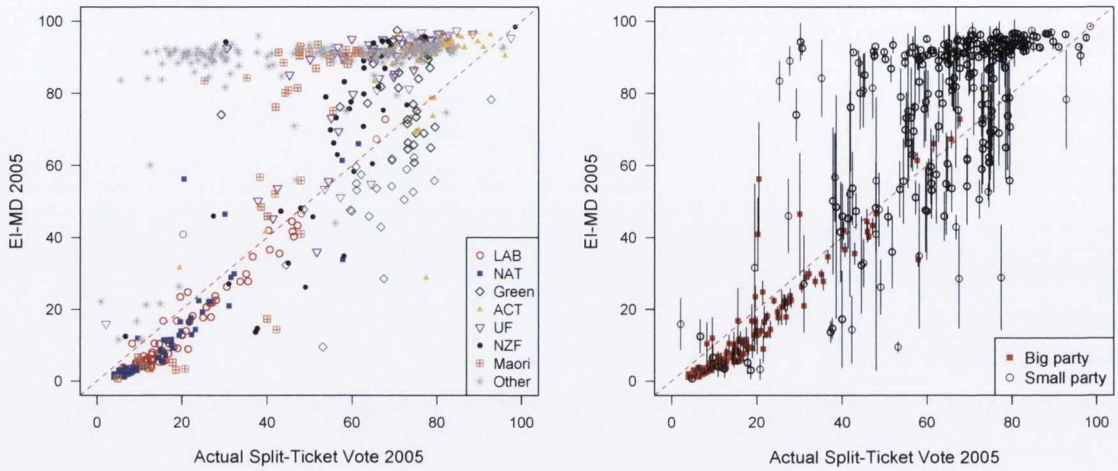


(a) 2008 election All parties

(b) 2008 election with confidence intervals

Notes: EI-MD refers to Ecological Inference Multinomial Dirichlet method. Each dot represents the amount of split vote received by each party in a certain district. Further notes see Figure 4.2.

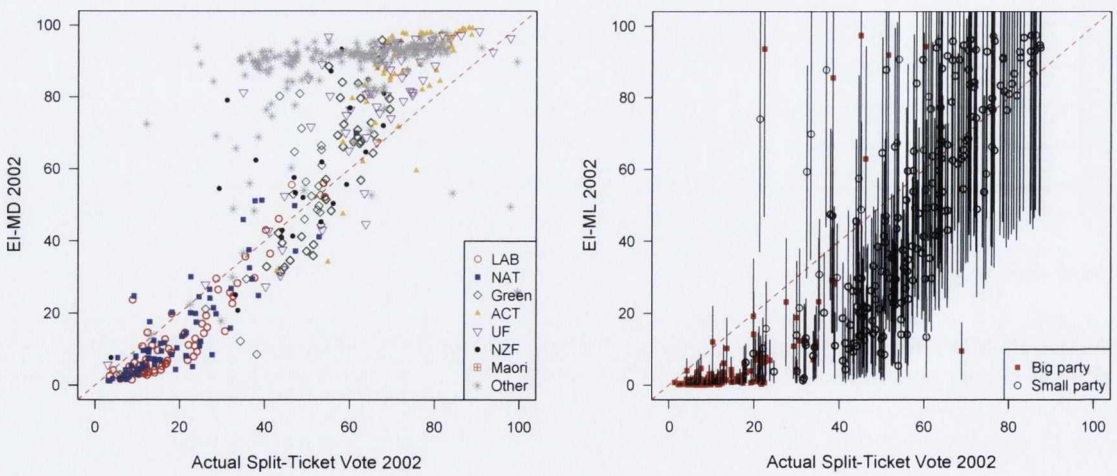
Figure A4.4: EI-MD versus actual split-ticket voting by district (%), 2005 New Zealand



(a) 2005 All parties (b) 2005 with confidence intervals

Notes: See Figure A4.3.

Figure A4.5: EI-MD versus actual split-ticket voting by district (%), 2002 New Zealand

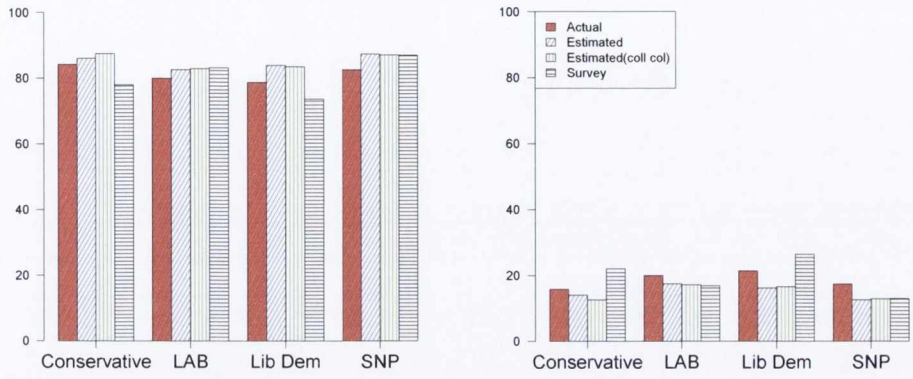


(a) 2002 All parties (b) 2002 with confidence intervals

Notes: See Figure A4.3.

The figures below show the results for the application of the EI-MD method to the Scottish case.

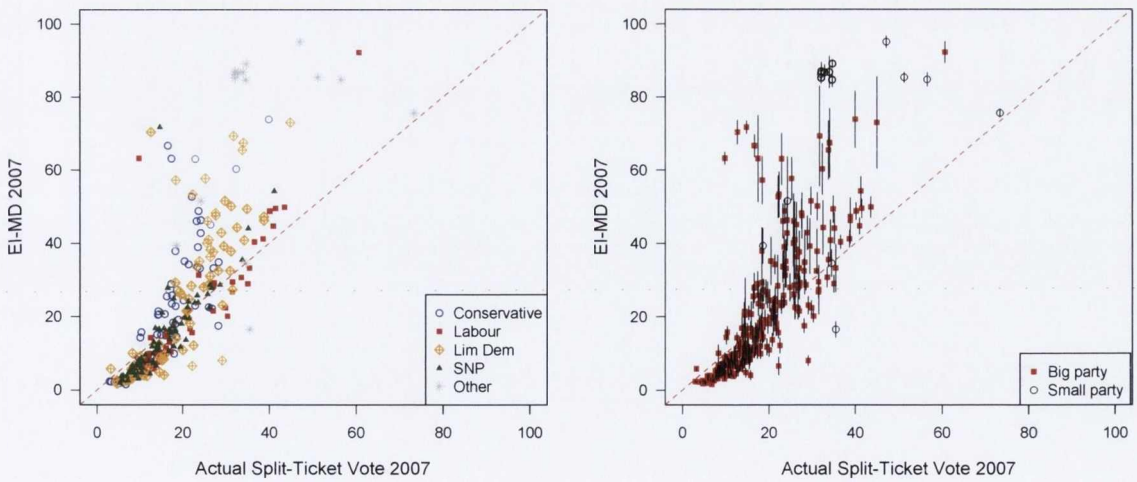
Figure A4.6: EI-MD versus actual split-ticket voting by party (%), Scotland



(a) Straight vote (b) Split vote

Notes: EI-MD refers to Ecological Inference Multinomial Dirichlet method. The figures show the national average of split-ticket vote by party. Key to party: Conservative-Conservative party; LAB-Labour; Lib Dem- Liberal Democrats; SNP-Scottish National party. *Source*: own elaboration from data available at `http://www.scotlandoffice.gov.uk/scotlandoffice/10202.html` (Accessed 3 July 2013).

Figure A4.7: EI-MD versus actual split-ticket voting by district (%), Scotland



(a) 2007 election All parties (b) 2007 election with confidence intervals

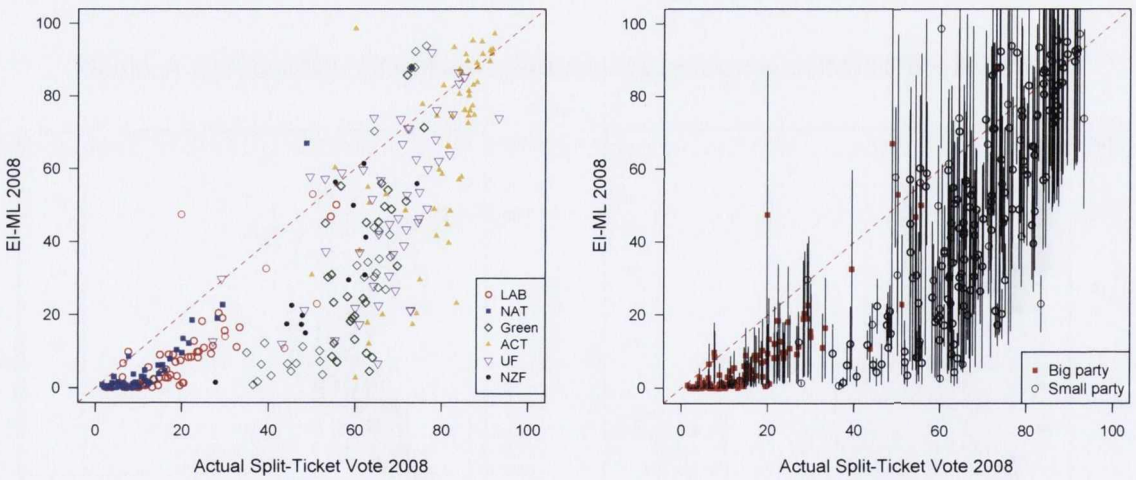
Notes: Further notes see Figure A4.3.

The EI-MD method offers the possibility of adding covariates with the aim of improving estimations of split-ticket voting. The use of covariates is important as it allows the possibility of isolating the problem of aggregation bias. The choice of covariates depends on the setting under scrutiny, however it usually needs to take into account sub-units features of the electoral context. For instance, Burden (2009, p.37), in the analysis of split-ticket vote in the 2000 Japanese election, tests the use of two covariates, population density, to isolate rural Liberal Democratic Party stronghold and the effective number of candidates in a district. In that specific case, the overall estimates were not sensitive to the choice of the covariates. In this setting, I have re-estimated the parameters with the two covariates, district margin and total number of candidates running for elections for New Zealand and the total district population and total number of candidates running for elections for Scotland. The results were not significantly different from those obtained without using covariates. For this reason the chapter presents only the default values obtained using no covariates[1].

The Multinomial Logistic Method

Figure A4.8, Figure A4.9 and Figure A4.10 show the results of the application of the EI-ML model at the district level for the 2008, 2005 and 2002.

Figure A4.8: EI-ML versus actual split-ticket voting by district (%), 2008 New Zealand



(a) 2008 All parties

(b) 2008 with confidence intervals

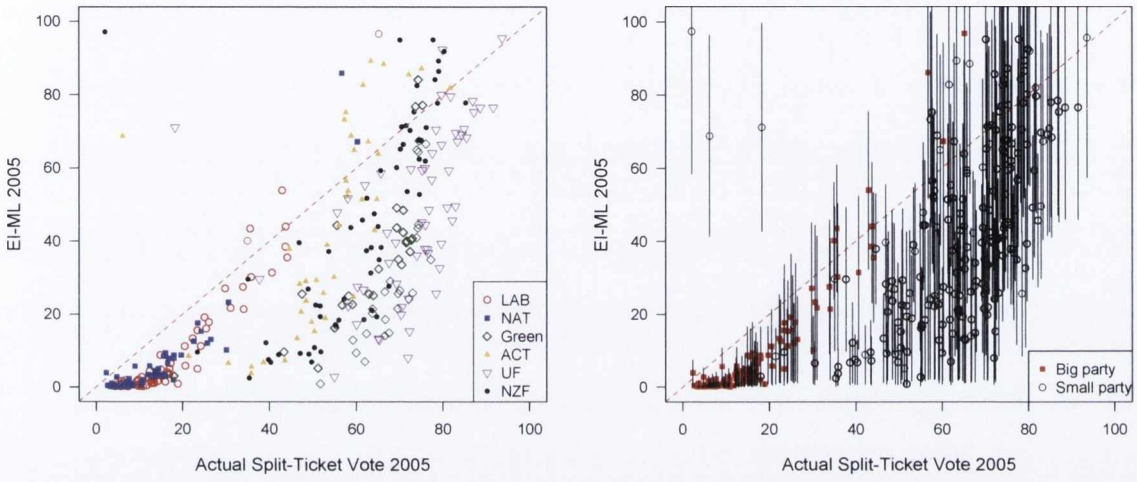
Notes: See Figure A4.3.

Concerning the 2002 election, among 338 observations, in about 15% of the cases the difference between actual and estimated is less than 5% while in almost 25% this

[1]It is important to notice tough that the addition of covariates dramatically increases the estimation time and might not be feasible when the electoral unit (in this case polling station) of observation is not small enough.

difference is less than 10%; for the remaining observations the difference lies between 10% and 25%. For the 2005 and 2008 elections a difference smaller than 5% is found in 12% and 23% of the cases respectively, while in almost 45% of the cases in both elections the difference is smaller than 10%.

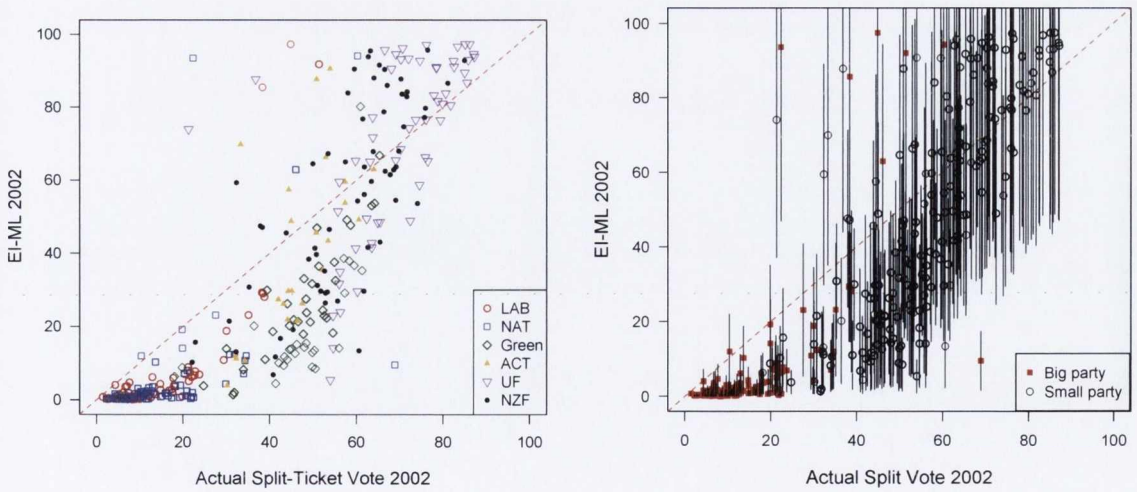
Figure A4.9: EI-ML versus actual split-ticket voting by district (%), 2005 New Zealand



(a) 2005 All parties (b) 2005 with confidence intervals

Notes: See Figure A4.3.

Figure A4.10: EI-ML versus actual split-ticket voting by district (%), 2002 New Zealand

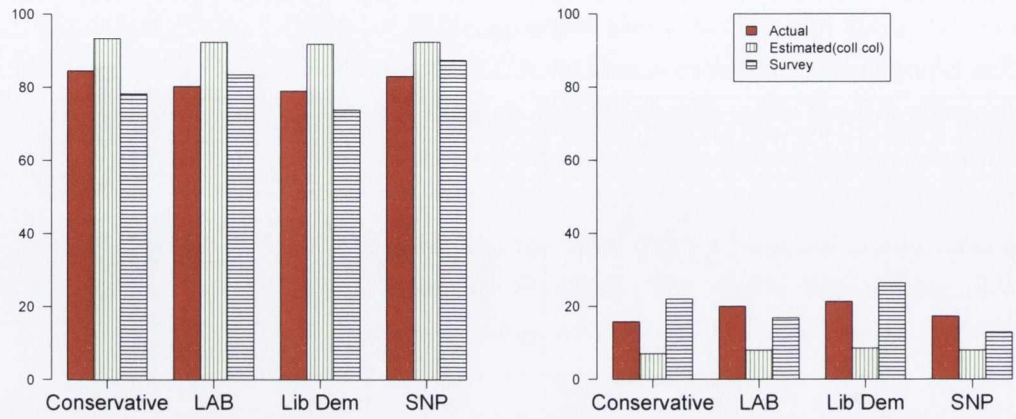


(a) 2002 All parties (b) 2002 with confidence intervals

Notes: See Figure A4.3.

The graphs below show the results at the party and district level when the EI-ML is applied to the Scottish case.

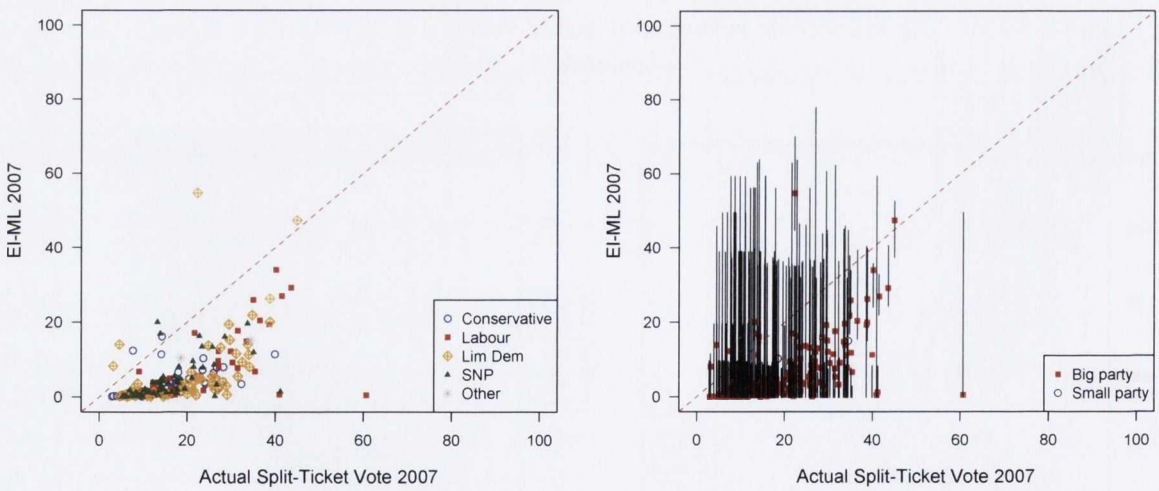
Figure A4.11: EI-ML versus actual split-ticket voting by party (%), Scotland



(a) Straight vote (b) Split vote

Notes: EI-ML refers to Ecological Inference Multinomial Logistic method. Further notes see Figure A4.7 and Figure A4.6.

Figure A4.12: EI-ML versus actual split-ticket voting by district (%), Scotland



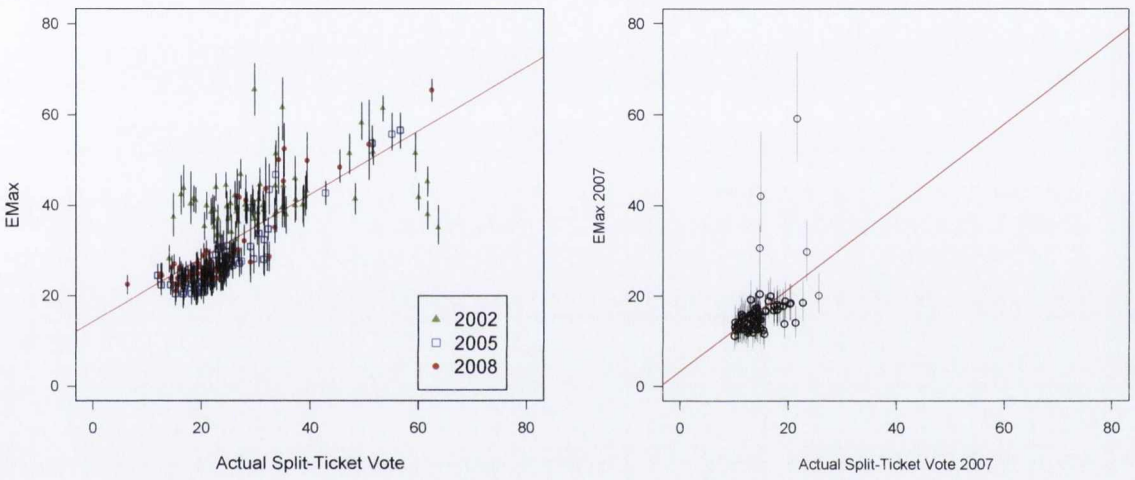
(a) 2007 election All parties (b) 2007 election with confidence intervals

Notes: EI-ML refers to Ecological Inference Multinomial Logistic method. Further notes see Figure A4.7.

The Maximum Entropy Method

In Figure A4.13 the actual percentage of split-ticket vote in each district is plotted against the corresponding estimated quantity using the EMax[2]. Concerning New Zealand, Figure A4.13a shows that the EMax is very accurate for the 2005 and 2008 elections, while it is less precise for the 2002 election. There is on average a slight overestimation of split-ticket vote[3]. Figure A4.13b shows results for the application of the EMax method to the Scottish case. The outliers in this figure represent the districts with extremely large number of parties and candidates running for election as discussed in Section 4.4.4 in Chapter 4 .

Figure A4.13: EMax versus actual split-ticket voting (%)



(a) New Zealand all years

(b) Scotland 2007

Notes: EMax refers to the Maximum Entropy method. Each dot represents the total amount of split-ticket vote in a certain district.

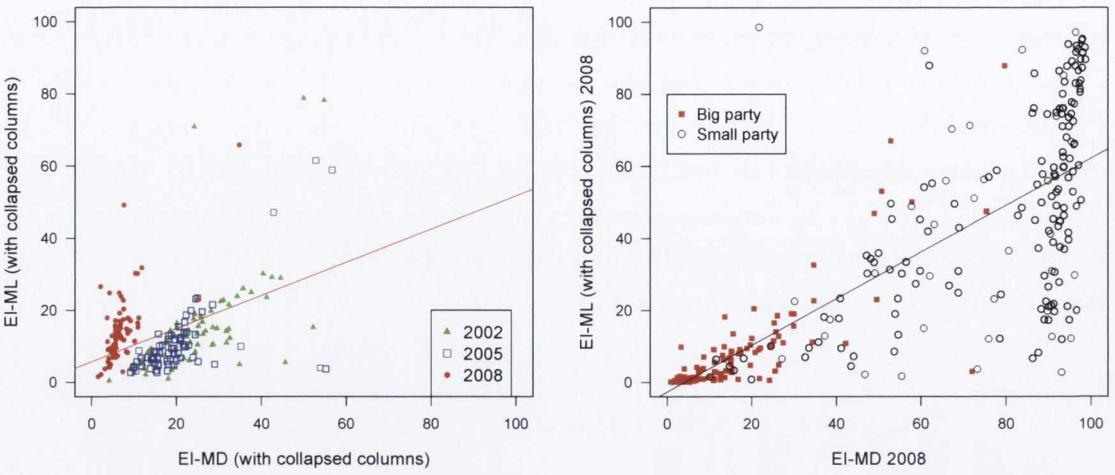
4.4.4 Overall Comparison and Methods Limitations

Figure A4.14 provides a comparison of the two parametric methods both at the district and at the party level. This comparison demonstrates that the two methods are not too different especially at lower levels, while the estimates tend to diverge in the case of small parties and in all the instances where the error is larger.

[2]Figure A4.13 shows results after collapsing third parties results in one 'other' column as applied for the parametric methods. The results without collapsing are very similar even if slightly less precise.

[3]For the 2002, 2005 and 2008 elections respectively, in 32%, 73% and 41% of the cases the estimates are very good with a difference between actual and estimated smaller than 5%. In the other cases the difference is smaller than 10% except for the 2002 election where in about 40% of the cases the difference between actual and estimated is beyond the 10% level.

Figure A4.14: EI-MD versus EI-ML by district and by party (%), New Zealand



(a) All years, district level

(b) 2008 party level

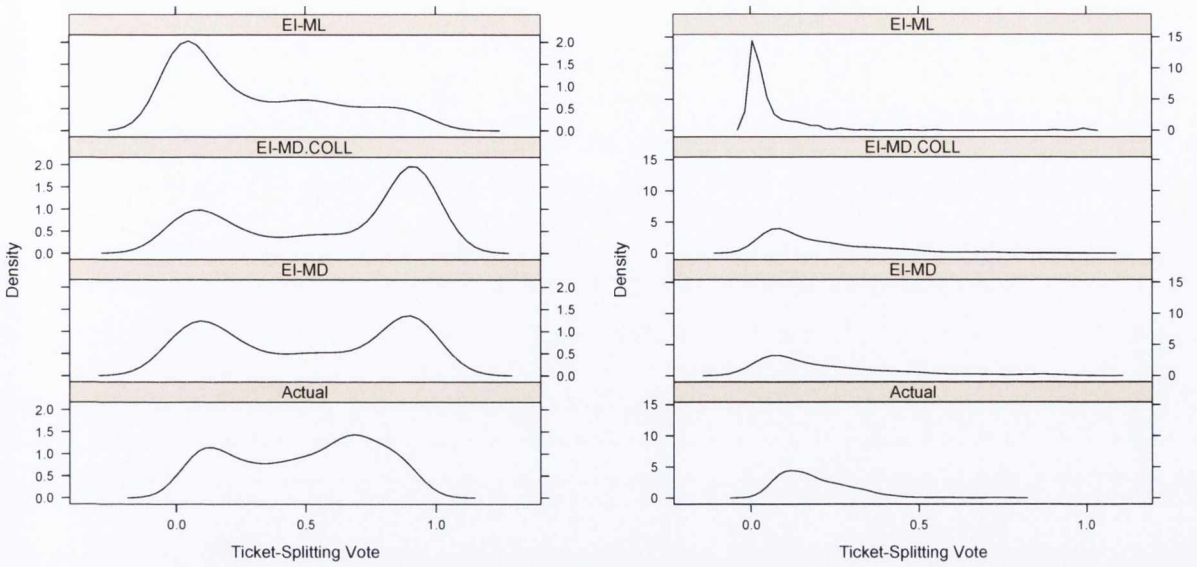
Notes: See Figure A4.13.

4.5 Using Point Estimates in Regression Models

Figure A4.15 shows the dependent variable distributions for the 2008 election in New Zealand and the 2007 Scottish elections where the unit of analysis is the level of split-ticket voting received by each party at the district level. The lowest box in each figure shows the distribution of values using the *actual* value of split-ticket voting and it indicates a bimodal distribution with mode close to 0 and 1 for New Zealand, while the distribution is highly skewed to the right for the Scottish case. In the New Zealand, this shape is due to the presence of big parties receiving very low levels of ticket-splitting (close to 0), very small parties receiving high percentages of split voting (above 60% of their total party vote) and a third group of parties (smaller) such as Green and NZF receiving between 20% and 50% of split-ticket voting. In the case of Scotland, smaller parties do not usually contest the candidate vote and the majority of observations concern bigger parties which generally receive very small percentages of ticket-splitting (usually less than 20%). The EI-MD point estimates distribution is very similar to the actual one (both with and without columns collapsing). Concerning the EI-ML, the distribution looks slightly different almost unimodal in the first case and with a mode around 0 in the Scottish case due to the underestimation of values of split-ticket voting.

Figure A4.16 provides a closer look to the performance of the EI-MD by comparing actual values of split-ticket voting with the estimated quantities for all years of elections in New Zealand. The figure suggests that the distributions are all bimodal (with modes close to 0 and 1) but the estimated distributions have more pronounced picks. The estimated distributions show higher level of split-ticket voting because it tends to underestimate values of split-voting for bigger parties and overestimate these values for smaller parties.

Figure A4.15: Dependent variable distributions

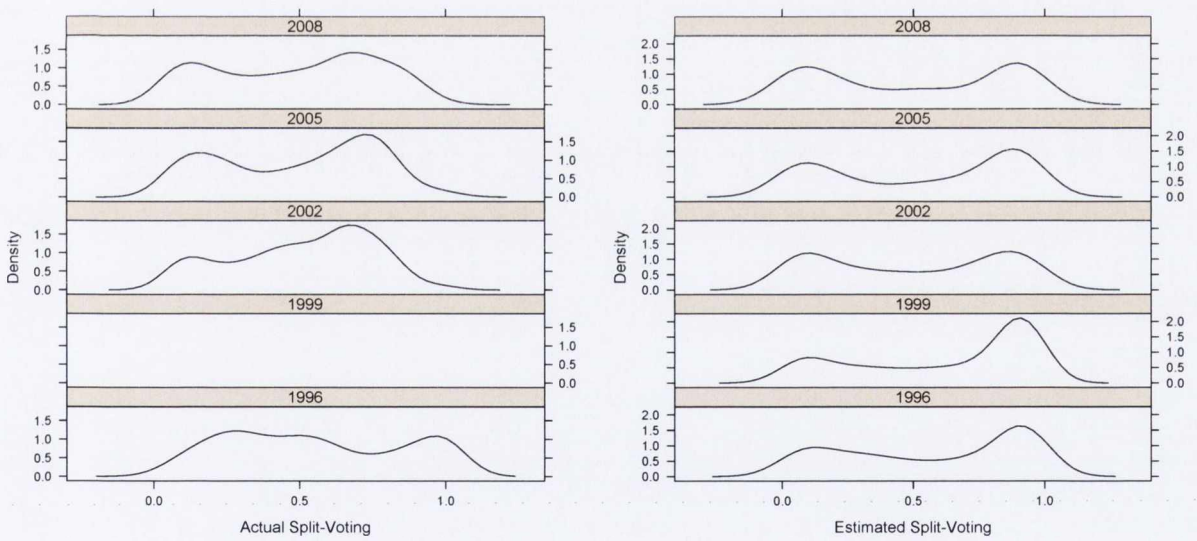


(a) New Zealand 2008 election

(b) Scotland 2007 election

Notes: The unit of analysis is the amount of split-ticket voting received by each party at the district level.

Figure A4.16: Dependent variable distributions (%), New Zealand



(a) Actual Split-Ticket Voting

(b) Estimated Split-Ticket Voting

Notes: Actual values of split-ticket voting are not available for the 1999 election. Further notes see Figure A4.15

Table A4.1 shows the results using the actual level of split-ticket voting as the dependent variable modeling the observations using several regression techniques. The table presents marginal effects to ease comparisons across methods whereas complete results are provided in Table A4.2. Table A4.1 shows as the Ordinary Least Squares

regression (OLS) and the Tobit models provide identical results, confirming the findings in Kieschnick and McCullough (2003). Column 3 shows the results using the generalized linear model and shows this model rejects the statistical significance of the variables 'Female', 'District Margin' and 'Ballot'. The beta distribution model brings back to fully significance all the variables and the hypothesized effect is rather similar to what the OLS and the Tobit model would suggest. It is straightforward from the table that the four models provide all pretty similar results[4].

Table A4.1: Estimates of the marginal effects of regressors

	OLS	Tobit	GLM	Beta
Incumbency	-0.13^{***}	-0.13^{***}	$-0.23.$	-0.20^{***}
	(0.02)	(0.02)	(0.54)	(0.12)
Female	$-0.02.$	$-0.02.$	-0.03	-0.04^{*}
	(0.01)	(0.01)	(0.28)	(0.06)
Candidate Spending	-0.00^{***}	-0.01^{***}	-0.01	-0.01^{***}
(1000 $)	(0.00)	(0.00)	(0.03)	(0.01)
District Margin	0.28^{**}	0.28^{**}	0.36	0.37^{***}
	(0.06)	(0.06)	(1.27)	(0.31)
DContention	1.32^{**}	1.32^{***}	1.48^{***}	1.52^{***}
	(0.07)	(0.07)	(1.52)	(0.38)
Observations	342	342	342	342

Notes: Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, $^{\cdot}p < 0.1$. The table shows marginal effects when all dummy variables are set at their mode and continuos variables at their mean. The dependent variable is the percentage of split-ticket voting received by each party at the district level. For complete results see Table A4.2. OLS refers to Ordinary Least Squares; Tobit refers to the Tobit model; the GLM refers to the generalized linear model (logit link function) and Beta refers to Beta regression model. All models have been estimated using *Stata 12*.

Table A4.2: Multivariate analysis with actual split-vote as dependent variable: models comparison, 2008 New Zealand election

	OLS	Tobit	GLM	Beta
	1	2	3	4
Incumbency	-0.13^{***}	-0.13^{***}	$-0.98.$	-0.86^{***}
	(0.02)	(0.02)	(0.54)	(0.12)
Female	$-0.02.$	$-0.02.$	-0.12	-0.16^{*}
	(0.01)	(0.01)	(0.28)	(0.06)
Spending	-0.00^{***}	-0.01^{***}	-0.05	-0.04^{***}
(1000 $)	(0.00)	(0.00)	(0.03)	(0.01)
District Margin	0.28^{**}	0.28^{**}	1.45	1.50^{***}
	(0.06)	(0.06)	(1.27)	(0.31)
DContention	1.32^{**}	1.32^{***}	5.96^{***}	6.08^{***}
	(0.07)	(0.07)	(1.52)	(0.38)
(Intercept)	0.26^{***}	0.26^{***}	$1.15.$	1.16^{***}
	(0.03)	(0.03)	(0.05)	(0.17)
Observations	342	342	342	342
R^2	0.85			0.83
LL	252.46	252.46	-111.50	304.31
AIC	-488.93	-488.83	237	-592.62

Notes: $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\cdot}p < 0.1$.Models estimated using *Stata 12*.

[4]This is also consistent with the findings presented in Burden and Kimball (1998) when using previous version of the EI-MD model.

After assessing that the choice of the model does not greatly affect the result, I test, if several conditions are fulfilled for the proper application of these regression techniques, as suggested by the methodological literature (Kieschnick and McCullough, 2003). Specifically for each model, I run the Shapiro-Wilk test for the normality of the residuals, Box-Cox models to test the nonlinear expectation functions, as well as the Breusch-Pagan's test to assess heteroskedasticity. All the tests do not lead to the formal rejection of any models specification. Notwithstanding this they suggest that the beta regression specification is superior to the other models. Concerning least squares models, both the Shapiro test and the Jarque-Bera tests do not lead to the rejection of the normality assumption. The Breusch-Pagan test and the test for non constant variance suggest the acceptance of the null hypothesis with a p value of 0.05, however it is rejected at a 0.001 level. Because the censored normal model provides estimates and residuals almost identical to the linear normal regression model, the results of these tests also apply. Concerning the generalized linear model, the Shapiro-Wilk and the Jarque-Bera tests fail to reject the normality of the residuals at 0.001 level. However, tests for kurtosis and skewness provide mixed results. Concerning the beta distribution model, tests and the q-q plot in particular do not suggest that the data is inconsistent with this model. Finally, values of the AIC suggest that the beta regression specification is superior to the other models.

The tables below show complete beta models results for the 2005, 2002 New Zealand elections and the 2007 Scottish election whereas Chapter 4 only showed the results for the 2008. Column 1 shows findings using as dependent variable the actual value of split-ticket voting. The results using the point estimates derived from the application of the EI-MD and EI-ML methods are shown in column 2 and 3 respectively. Logit regression is used when dealing with surveys when the unit of observation is the voter's choice in a certain district (column 4). The dependent variable in this case takes the value of 1 when a voter splits his/her ticket and 0 otherwise. The *Switch* columns provide pairwise comparisons between the actual values and the use of one of the estimation methods. In the case the switch column says 'no' it means that the results are not statistically different when when point estimates are used in place of the actual values of split-ticket voting where the latter are not available.

Table A4.3: Multivariate analysis, 2005 New Zealand election

	Actual	**EI-MD**	*Switch*	**EI-ML**	*Switch*	**Survey**	*Switch*
Incumbency	-0.81^{***}	-0.82^{***}	*No*	-0.46^{**}	*No*	-0.29^{*}	*No*
	(0.12)	(0.15)		(0.16)		(0.14)	
Female	−0.01	−0.02	*No*	−0.08	*No*	−0.18	*No*
	(0.08)	(0.12)		(0.13)		(0.13)	
Candidate Spending	-0.04^{***}	-0.03^{*}	*No*	−0.03.	*No*	-0.07^{***}	*No*
(1000 $)	(0.01)	(0.01)		(0.01)		(0.01)	
District Margin	−0.03	0.93^{**}	*Yes*	−0.41	*No*	0.62.	*Yes*
	(0.24)	(0.35)		(0.38)		(0.33)	
DContention	7.21^{***}	10.61^{***}	*No*	6.99	*Yes*	0.11^{***}	*No*
	(0.40)	(0.60)		(0.63)		(0.01)	
(Intercept)	0.86^{***}	1.28^{***}		1.58^{***}		-1.51^{***}	
	(0.11)	(0.16)		(0.18)		(0.16)	
Observations	460	338		339		1927	
Pseudo-R^2	0.61	0.65		0.49		0.21	
LL	232.6	178.5		223.8		1904.17	
AIC	−451.27	−342.95		−433.63			

Notes: $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\cdot}p < 0.1$. Models estimated using the command *betareg* in Stata. Logit regression has been estimated using the command *logit* in *Stata 12*. Further notes see Table 4.6.

Table A4.4: Multivariate analysis, 2002 New Zealand election

	Actual	**EI-MD**	*Switch*	**EI-ML**	*Switch*	**Survey**	*Switch*
Incumbency	-0.87^{***}	-0.88^{***}	*No*	-0.64^{***}	*No*	-0.19^{**}	*No*
	(0.13)	(0.16)		(0.18)		(0.05)	
Female	−0.05	−0.88	*No*	−0.08	*No*	−0.09	*No*
	(0.08)	(0.16)		(0.14)		(0.15)	
Candidate Spending	-0.04^{***}	-0.03^{*}	*No*	−0.03.	*No*	-0.07^{***}	*No*
(1000 $)	(0.01)	(0.01)		(0.01)		(0.01)	
District Margin	0.07	0.68.	*Yes*	−0.38	*No*	−0.11	*No*
	(0.26)	(0.36)		(0.42)		(0.44)	
DContention	4.91^{***}	7.29^{***}	*No*	5.27^{***}	*No*	0.07^{***}	*No*
	(0.32)	(0.60)		(0.52)		(0.01)	
(Intercept)	0.89^{***}	1.11^{***}		1.45^{***}		-1.04^{***}	
	(0.12)	(0.16)		(0.19)		(0.18)	
Observations	392	334		338		1408	
Pseudo-R^2	0.60	0.57		0.53		0.23	
LL	202.5	181		239.4		1589.55	
AIC	−390.98	−313.47		−464.76			

Notes: $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\cdot}p < 0.1$. Models estimated using the command *betareg* in Stata. Logit regression has been estimated using the command *logit* in *Stata 12*. Further notes see Table 4.6.

Table A4.5: Multivariate analysis, 2007 Scotland election

	Actual	**EI-MD**	*Switch*	**EI-ML**	*Switch*	**Survey**	*Switch*
Incumbency	-0.49^{***}	-0.37^{**}	*No*	$-0.33.$	*No*	-0.63^{**}	*No*
	(0.08)	(0.13)		(0.17)		(0.23)	
Female	-0.01	0.04	*No*	-0.09	*No*	-0.12	*No*
	(0.06)	(0.10)		(0.14)		(0.19)	
District Margin	0.13	0.61^{*}	*Yes*	0.23	*No*	0.00	*No*
	(0.17)	(0.30)		(0.42)		(0.01)	
DContention	2.93^{***}	3.81^{***}	*No*	1.56^{*}	*No*	3.98^{***}	*No*
	(0.24)	(0.29)		(0.73)		(0.99)	
(Intercept)	-1.75^{***}	1.82^{***}		2.39^{***}		-1.55^{***}	
	(0.08)	(0.14)		(0.20)		(0.26)	
Observations	302	287		241		986	
Pseudo-R^2	0.53	0.32		0.17		0.04	
LL	397	233.6		402		-450.83	
AIC	-780.09	-453.26		-792.04			

Notes: $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{.}p < 0.1$. Further notes see Table 4.6.

Appendix Chapter 5

Table A5.1: Data sources

Country	Year/Source	Parties included
Albania	2005 POST-ELECTION: CSES 2 www.cses.org/	1.Democratic Party 2.Socialist Party 3.Republican Party 4.Social Democratic Party 5.Socialist Movement Party 6.New Democratic Party
Germany	1998-2002 POST-ELECTION: CSES 1, CSES 2	1.Christian Democratic Union/ Christian Social Union 2.Social Democratic Party 3.Free Democratic Party 4.Alliance '90/The Greens 5.The Left (DIE LINKE)
	2005-2009 POST-ELECTION: CSES 3 2009 PRE-ELECTION: GESIS	
Hungary	1998 POST-ELECTION: CSES 1	1.Hungarian Socialist Party 2.Alliance Young Democrats 3.Independent Smallholder Party 4.Alliance of Free Democracy 5.Hungarian Justice 6.Hungarian Workers Party
	2002 POST-ELECTION: CSES 2	1.Hungarian Socialist Party 2.Fidesz 3.Alliance of Free Demo 4.Hungarian Justice 5.Alliance for Hungary 6.Hungarian Democratic
Italy	1994-1996 POST-ELECTION: ITANES www.itanes.org	1.Alleanza Nazionale 2.Democratici Sinistra 3. Forza Italia 4.Lega Nord 5. Partito Popolare Italiano 6. Rifondazione Comunista
	2001 POST-ELECTION: ITANES	1.Allenza Nazionale 2.CCD-CDU 3. Democratici Sinistra 4.Forza Italia 5.Lega Nord 6.Lista Pannella 7.Movimento Sociale Fiamma 8.Comunisti Italiani 9.Verdi 10. Italia dei Valori
	2001 PRE-ELECTION: ITANES and IPSOS	
Japan	1996 PRE and POST ELECTION: Japanese Elections and Democracy Study (JEDS96), conducted by Bradley M. Richardson, Mitsuru Uchida and associates. 2003-2005: PRE and POST ELECTION: JES III Project Team (Kenichi Ikeda, Yoshiaki Kobayashi, Hiroshi Hirano), by the Social Science Japan Data Archive, Center for Social Research and, Institute of Social Science, The University of Tokyo	1.Liberal Democratic Party 2.Democratic Party of Japan 3.New Frontier Party 4.Social Democratic Party 5.Japanese Communist Party
New Zealand	1996-1999-2002-2005-2008: PRE AND POST ELECTION: New Zealand Election Study http://www.nzes.org/	1.Labour 2.National 3.New Zealand Fist 4.ACT 5.United Future (UF) 6.Alliance. From 1999 onwards: 1.Labour 2.National 3.Green Party 4.New Zealand Fist 4.ACT 5.UF
Scotland	1999-2003: POST ELECTION: Scottish Social Attitudes (part of the British Social Attitudes) 2007-2011: PRE and POST ELECTION: Scottish Election study http://www.scottishelectionstudy.org.uk/	1.Conservative 2.Labour 3.Liberal 4.Scottish National Party 5.Green Party
South Korea	2004-2008 POST-ELECTION: CSES 2, CSES 3	1.Our Party 2.Grand National 3.Democratic Labor 4.Millennium Democratic 5.United Liberal Democrats (JMY) 6.National Integration
Thailand	2007 POST-ELECTION: CSES 3	1.Palung Prachachon People Power Party 2.Democrat Party 3.Chartthai Party Thai Nation Party 4.Puea Pandin Party For the Motherland 5. Party Ruam Jai Thai Chart Pattana
Wales	1999-2003: POST ELECTION: Scottish Social Attitudes (part of the British Social Attitudes) 2007-2011: PRE and POST ELECTION: Welsh Election study http://www.aber.ac.uk/	1.Conservative 2.Labour 3.Liberal 4.Plaid Cymru 5.Green Party

Notes: Further notes see Table A1.1.

Table A5.2: Variables and operationalization

About Voters		
Education	[Education]	0=No degree, 1=Intermediate, 2=High degree
About VotersXParty		
Party identification	[PID]	Identification with party X=1, 0 otherwise.
Party Ties	[Party Ties]	Scale from 0=no preferred party, 1=more than one preferred party and 2=one preferred party.
Proximity	[Proximity]	Absolute difference between respondent and party on left-right scale.
Coalition preference	[Coalition preference]	Variable takes value 1 when R has preference for a coalition government and would like to see party X as part of that coalition and 0 otherwise.
About Parties		
PR Threshold	[PR Threshold]	Variable takes value 0 if party is at least 3% below the electoral threshold in the party vote; 1 if within a 2% difference and 2 if the party is more than 3% above the electoral threshold.
About Context		
Distance from contention	[DContention]	In the candidate vote the variable measures the percentage difference between ones' most preferred candidate and the votes for the lowest of the two top contenders (or 0 if one's most preferred candidate ranked first or second). In the party vote, it measures the total percentage of vote received by the party at the national level.
District margin	[District margin]	Percentage difference between the first and second best candidates in each constituency.
District margin top-ranked	[District margin Top]	District margin only considering the two top-ranked candidates (see above).

Table A5.3: Comparing the Logit and the Conditional Logit models

Country	VOTE	PID		Party Ties		Proximity		Education		DContention		Margin		Margin Top		Pseudo R^2		N	
		Logit_1	CLogit_2	Logit	CLogit	Logit	CLogit	Logit	CLogit	Logit	CLogit	Logit	CLogit	Logit	CLogit	Logit	CLogit	Logit	CLogit
Albania	PR	0.856	0.720	**2.627**	**1.989**	**-0.220**	**-0.201**	2.313	1.702							0.292	0.363	1744	1717
	SMD	0.236	2.505	**3.162**	**2.340**	**-0.201**	**-0.181**	−1.883	−2.050							0.337	0.401	1744	1717
Germany	PR	**0.619**	**0.572**	**1.681**	**1.234**	**-0.159**	**-0.160**	**4.070**	**3.375**	**-0.584**	**-0.406**	**-3.633**		**5.659**	**4.426**	0.162	0.204	23835	23659
	SMD	**0.893**	**0.893**	**1.613**	**1.194**	**-0.141**	**-0.133**	**4.961**	**4.010**	**-5.056**	**-4.354**	**-2.557**		**2.672**	**1.788**	0.231	0.291	23835	23659
New Zealand	PR	**0.821**	**0.813**	**2.870**	**2.021**	**-0.292**	**-0.267**	**2.126**	**2.014**	**6.141**	**4.866**	−0.015	−0.073	0.082	1.509	0.452	0.514	41091	41182
	SMD	**0.802**	**0.769**	**2.060**	**1.742**	**-0.278**	**-0.256**	0.576	0.713	**-7.619**	**-6.792**	**-1.894**	**-1.565**	**1.810**	**1.626**	0.401	0.480	41091	41182
Scotland	PR	**2.252**	**1.740**	**3.464**	**2.757**			0.792	0.392	**2.605**	**1.908**	−0.165	0.117	0.730	0.398	0.535	0.582	6200	6200
	SMD	**2.120**	**1.790**	**2.577**	**1.751**			−0.125	−0.512	**-3.212**	**-4.460**	−0.858	0.141	0.632	0.035	0.432	0.478	6200	6200
Wales	PR	**2.890**	**1.780**	**2.865**	**2.323**			**1.746**	**2.026**							0.565	0.602	8150	8150
	SMD	**3.190**	**2.020**	**2.607**	**2.082**			**3.799**	**3.481**							0.574	0.609	8150	8150
Japan	PR	**1.412**	**1.076**	**1.916**	**1.467**	**-0.097**	**-0.071**	**3.203**	**2.180**	**5.548**	**4.788**	**-1.240**	**-1.138**	**2.071**	**1.849**	0.367	0.440	6582	6752
	SMD	**1.080**	**0.762**	**1.694**	**1.288**	**-0.109**	**-0.089**	**3.355**	**2.451**	**-7.836**	**-6.865**	**-3.860**	**-3.182**	**3.450**	**2.916**	0.374	0.461	6582	6752
South Korea	PR	**1.765**	**1.763**	**2.533**	**2.045**	**-0.110**	**-0.109**	-0.273	**-1.029**							0.208	0.274	4469	4409
	SMD	**1.535**	**1.500**	**2.275**	**1.827**	**-0.079**	**-0.081**	**3.720**	**3.363**							0.168	0.221	4469	4409
Thailand	PR	**4.073**	**4.216**	**5.340**	**3.800**	**-0.176**	**-0.117**	-1.292	-1.353							0.602	0.686	3957	3937
	SMD	**2.866**	**2.680**	**4.620**	**3.220**	**-0.140**	**-0.095**	-1.293	-1.320							0.520	0.591	3957	3937
Italy	PR	**2.817**	**2.075**			**-0.846**	**-0.754**	**3.186**	**3.188**	**20.179**	**16.668**	**-3.352**	-2.912	**4.204**	**2.892**	0.525	0.708	9843	9486
	SMD	**2.676**	**1.827**			**-0.754**	**-0.714**	**1.564**	**2.374**	**-14.651**	**-13.302**	**-3.352**	**-3.901**	**3.592**	**2.532**	0.474	0.625	9843	9486
Hungary	PR	**2.161**	**2.228**	**2.631**	**2.036**	**-0.284**	**-0.296**	**4.441**	**3.906**							0.297	0.387	4589	4295
	SMD	**1.907**	**1.943**	**2.259**	**1.733**	**-0.267**	**-0.278**	**3.898**	**3.478**							0.245	0.324	4589	4295

Notes: Bold coefficients are significant at the ** $p < 0.01$ level. Coefficients should be compared across columns by variable. $_1$Logit models obtained using the command *logit* with errors cluster by individual. $_2$Conditional Logit models obtained using the command *clogit* with group by individual. All models are estimated using *Stata 12*.

Table A5.4: Vote determinants under proportional mixed rules: Logit coefficients

	Albania		**Germany**		**New Zealand**		**Scotland**		**Wales**	
	VOTE PR	VOTE SMD	VOTE PR	VOTE SMD	VOTE PR	VOTE SMD	VOTE PR	VOTE SMD	VOTE PR	VOTE SMD
PID	-0.856	-0.236	0.619***	0.893***	0.821***	0.802***	2.252***	2.120***	2.890***	3.190***
	(0.513)	(0.447)	(0.065)	(0.061)	(0.060)	(0.054)	(0.253)	(0.250)	(0.171)	(0.174)
Party ties	2.627***	3.162***	1.681***	1.613***	2.870***	2.021***	3.464***	2.757***	2.865***	2.607***
	(0.204)	(0.212)	(0.057)	(0.060)	(0.059)	(0.056)	(0.181)	(0.176)	(0.187)	(0.188)
Proximity	-0.220***	-0.201***	-0.159***	-0.141***	-0.292***	-0.267***				
	(0.027)	(0.031)	(0.012)	(0.012)	(0.011)	(0.010)				
DContention			-0.584**	-5.056***	6.141***	-7.619***	6.031***	-3.212***		
			(0.204)	(0.247)	(0.161)	(0.227)	(0.893)	(0.624)		
District Margin			-3.633***	-2.557***	0.015	-1.894***	-0.165	-0.858*		
			(0.251)	(0.300)	(0.108)	(0.113)	(0.520)	(0.405)		
District Margin Top			5.659***	2.672***	-0.082	1.509***	0.730	0.632		
			(0.317)	(0.410)	(0.220)	(0.208)	(0.860)	(0.783)		
Education	2.313	-1.883	4.070***	4.961***	1.873***	0.745	-0.687	1.508	1.746**	2.778
	(1.230)	(2.362)	(0.516)	(0.657)	(0.328)	(0.468)	(1.241)	(1.256)	(0.676)	(1.843)
Constant	-2.562***	-0.627	-3.338***	-3.324***	-3.894***	-0.693**	-3.577***	-2.988***	-4.012***	-4.590***
	(0.626)	(1.177)	(0.266)	(0.333)	(0.179)	(0.240)	(0.598)	(0.629)	(0.350)	(0.928)
Observations	1744	1744	23835	23835	41091	41091	6200	6200	8150	8150
Pseudo R^2	0.292	0.337	0.162	0.231	0.452	0.401	0.535	0.432	0.565	0.574
Nagelkerke R^2	0.395	0.447	0.247	0.339	0.546	0.493	0.666	0.565	0.679	0.688
LL	-584.101	-552.487	-11211.733	-10309.057	-8505.857	-9290.889	-1567.262	-1916.896	-1721.674	-1682.672
AIC	1178.203	1114.975	22439.465	20634.113	17027.715	18597.779	3148.523	3847.792	3451.348	3373.344

Notes: Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. See Table 5.2 for complete results and additional notes. Data are weighted as to reflect the actual vote distribution.

Table A5.5: Vote determinants under majoritarian mixed rules: Logit coefficients

	Japan		South Korea		Thailand		Italy		Hungary	
	VOTE PR	VOTE SMD	VOTE PR	VOTE SMD	VOTE PR	VOTE SMD	VOTE PR	VOTE SMD	VOTE PR	VOTE SMD
PID	1.412***	1.080***	1.765***	1.535***	4.073***	2.866***	2.817***	2.676***	2.161***	1.907***
	(0.130)	(0.130)	(0.131)	(0.131)	(0.571)	(0.562)	(0.124)	(0.112)	(0.153)	(0.153)
Party Ties	1.916***	1.576***	2.533***	2.275***	5.340***	4.620***			2.631***	2.259***
	(0.125)	(0.128)	(0.112)	(0.110)	(0.198)	(0.172)			(0.123)	(0.118)
Proximity	-0.097***	-0.109***	-0.110***	-0.079***	-0.176***	-0.140***	-0.846***	-0.754***	-0.284***	-0.267***
	(0.021)	(0.021)	(0.019)	(0.018)	(0.034)	(0.030)	(0.444)	(0.036)	(0.022)	(0.021)
DContention	5.548***	-7.836***					20.179***	-14.651***		
	(0.431)	(0.519)					(1.398)	(0.855)		
District Margin	-1.240**	-3.860***					-3.352***	-4.015***		
	(0.458)	(0.578)					(0.907)	(0.760)		
District Margin Top	2.071***	3.450***					4.204***	3.592***		
	(0.567)	(0.633)					(1.204)	(0.995)		
Education	3.203**	3.255**	-0.273	3.720**	-1.292	-1.293	3.186***	1.564*	4.441***	3.898***
	(0.999)	(0.993)	(2.154)	(1.233)	(1.125)	(1.125)	(0.641)	(0.472)	(0.628)	(0.539)
Constant	-4.778***	-2.434***	-1.773	-3.726***	-2.120***	-1.951***	-5.396***	-0.485	-3.899***	-3.511***
	(0.527)	(0.506)	(1.077)	(0.620)	(0.566)	(0.560)	(0.392)	(0.330)	(0.309)	(0.292)
Observations	6582	6582	4469	4469	3957	3957	9843	9843	4589	4589
Pseudo R^2	0.367	0.374	0.208	0.168	0.602	0.520	0.596	0.530	0.297	0.245
Nagelkerke R^2	0.595	0.602	0.298	0.245	0.719	0.645	0.716	0.658	0.402	0.338
LL	-4041.427	-3989.766	-1791.152	-1885.523	-811.658	-980.253	-2092.809	-2442.691	-1532.387	-1644.839
AIC	8098.855	7995.532	3592.303	3781.046	1633.316	1970.507	4199.618	4899.382	3074.774	3299.678

Notes: Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. See Table 5.3 for complete results and additional notes. Data are weighted as to reflect the actual vote distribution.

Table A5.6: A closer look to the coalition hypothesis: Logit coefficients

	New Zealand		Germany		Japan		Scotland	
	VOTE PR	VOTE SMD	VOTE PR	VOTE SMD	VOTE PR	VOTE SMD	VOTE PR	VOTE SMD
PID	1.585***	1.547***	2.560***	2.600***	1.211***	1.012***	2.551***	2.809***
	(0.176)	(0.153)	(0.139)	(0.134)	(0.172)	(0.179)	(0.260)	(0.262)
Party Ties	3.614***	1.765***	0.333*	0.386**	1.778***	1.503***	2.492***	1.731***
	(0.159)	(0.160)	(0.149)	(0.150)	(0.168)	(0.179)	(0.259)	(0.257)
Proximity	-0.362***	-0.300***	-0.010**	-0.009**	-0.070*	-0.068*		
	(0.031)	(0.027)	(0.003)	(0.003)	(0.028)	(0.028)		
Coalition Preference	0.629***	0.680***	0.990***	0.910***	0.058	0.199*	0.617***	0.869***
	(0.092)	(0.091)	(0.100)	(0.099)	(0.092)	(0.082)	(0.141)	(0.122)
DContention	1.332*	-8.048***	-1.228**	-3.230***	5.444***	-8.074***	1.319	-2.116**
	(0.560)	(0.636)	(0.458)	(0.494)	(0.600)	(0.592)	(0.826)	(0.808)
District Margin	-0.134	-2.451***	-3.309***	-1.950***	-0.410	-1.971***	-0.623	-1.373***
	(0.304)	(0.326)	(0.528)	(0.512)	(0.548)	(0.585)	(0.380)	(0.403)
District Margin Top	0.893	3.371***	5.809***	2.429**	0.827	1.727*	1.873*	2.517**
	(0.714)	(0.596)	(0.754)	(0.899)	(0.891)	(0.765)	(0.744)	(0.882)
Education	1.576*	1.083	-0.218	0.402	0.836	1.494	2.856*	4.007*
	(0.796)	(1.450)	(1.445)	(1.542)	(1.300)	(1.334)	(1.172)	(1.881)
Observations	7505	7505	5280	5280	3514	3514	3795	3795
Pseudo R^2	0.534	0.496	0.261	0.273	0.332	0.401	0.549	0.495
Nagelkerke R^2	0.605	0.567	0.364	0.379	0.555	0.632	0.665	0.614
LL	-1004.481	-1087.878	-1962.987	-1929.902	-2278.642	-2040.887	-824.629	-923.890
AIC	2026.962	2193.757	3943.974	3877.804	4575.284	4099.775	1665.257	1863.780

Notes: Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. See Table 5.2 for notes. Data are weighted as to reflect the actual vote distribution.

Appendix Chapter 6

Table A6.1: Split-ticket voting: An overview

Party	1996		2000		2003		2005	
	EI	Survey	EI	Survey	EI	Survey	EI	Survey
LDP	31.2 (283)	10.9 (368)	32.6 (254)	4.6 (154)	27.4 (277)	10.9 (731)	38.1 (293)	13.2 (569)
NFP	38.5 (236)	19.8 (227)						
DPJ	60.4 (143)	39.8 (54)	43.3 (204)	16.7 (126)	34.4 (267)	23.4 (642)	50.4 (287)	14.0 (400)
SDP	62.9 (41)	68.5 (54)	68.6 (74)	52.8 (36)	61.3 (64)	63.1 (65)	86.7 (98)	90.4 (52)
JCP	68.9 (291)	24.1 (79)	74.2 (218)	23.1 (39)	75.9 (298)	31.0 (87)	82.7 (247)	30.0 (60)
Komeito			59.0 (13)	50.0 (24)	47.1 (11)	90.5 (157)	95.0 (74)	93.2 (133)

Notes: EI-Ecological Inference estimations obtained using the Multinomial Dirichlet method applied using municipal-level data provided by Jun Kato. Survey data for the 1996 election come from the "Japanese Election and Democracy Study (JEDS),1996 (Pre and Post-election survey), Committee for Japanese Election and Democracy Study", Data for the 2003 and 2005 elections derive from the "Nation-wide Longitudinal Survey Study on Voting Behavior in the Early 21st Century, 2001-2005, JEDSIII". Both surveys were provided by the Social Science Japan Data Archive, The University of Tokyo.

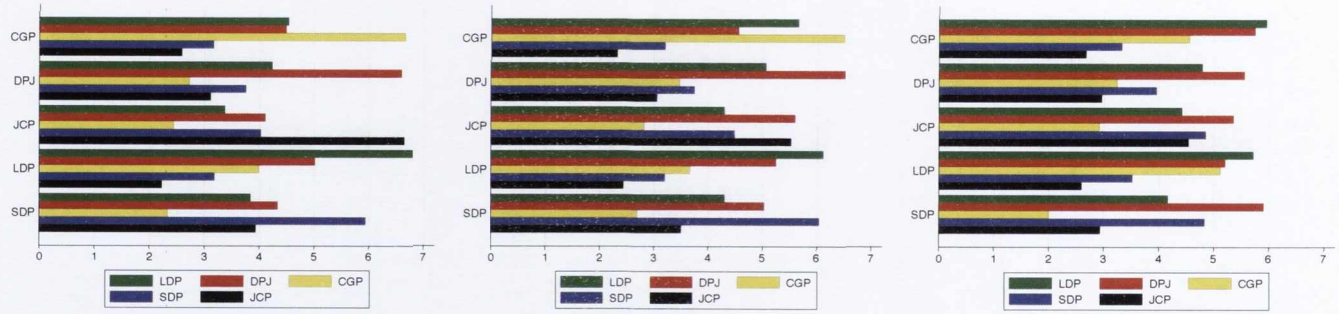
The next paragraphs and graphs offer additional information for the discussion in Section 6.4.1 in Chapter 6. Each Figure a shows the mean ratings for straight-ticket voters whereas Figures b and Figure c show these values for splitters by party and candidate vote respectively. The figures should be compared horizontally (party rating across PR and SMD vote for straight and split-ticket voters) and vertically (party and candidate rating pairwise comparison across PR and SMD vote for straight and split-ticket voters). Looking at the party rating first, Figure A6.1a indicates that those who rate a party highest 'simply' vote for that party. Straight voters rank the party voted at least two percentage points higher than the other parties. In the case of splitters, it makes a big difference if one examines party rating looking at the party (Figure A6.1b) or the candidate vote (Figure A6.1c). In the former case, Figure A6.1b suggests that voters rank highest the party voted, however the difference of rating between the top ranked party and the others is much smaller than it was for straight-ticket voters.

The patterns with regard to the SMD vote are very interesting. First, there is a high rating mean for smaller parties among those voting for LDP or DPJ, which suggests that many smaller parties supporters vote for bigger parties. This confirms the findings from aggregate-level data. Furthermore there is a clear sign that voters follow party suggestions on how to cast their SMD vote. Since the early 2000 election, LDP instructs its supporters to vote for the CGP-Komeito candidate when a LDP one is not available and there is a clear indication that among those rating LDP highest, many have voted for a CGP-Komeito candidate. At the same time, it would appear

that CGP-Komeito supporters voted for the LDP candidate as the mean of rating for CGP-Komeito among those voting for LDP is much higher in Figure A6.1c than it is in Figure A6.1b. Similar patterns, though less pronounced, can be found between DPJ and SDP and DPJ and LDP.

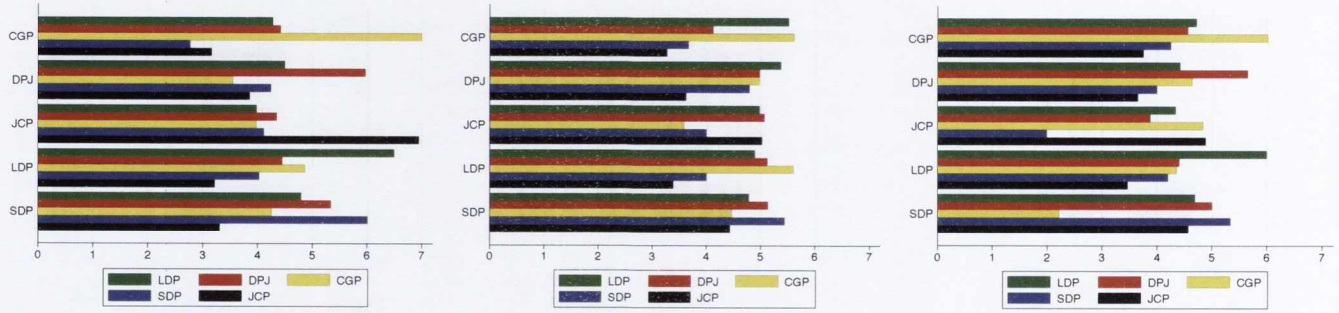
When using candidate ratings the patterns of voting are very similar to the ones obtained using party rating in the case of straight-ticket voters. However, they are almost the opposite when looking at splitters. Perhaps not surprisingly, overall candidate rating explains the candidate vote better than the party vote. However, the patterns in the party vote are quite peculiar. LDP candidates are rated as high as the candidate from the party voted in the PR and this is true across all parties. In some extreme cases, such as for DPJ, LDP candidates are rated even higher than DPJ ones. Those casting a vote for the CGP-Komeito party, rank highest almost equally both the CGP-Komeito and the LDP candidates and very similarly SDP and JCP supporters.

Figure A6.1: Party ratings of splitters and non-splitters (%), Japan



(a) Straight Voters by PR vote (b) Splitters by PR vote (c) Splitters by SMD vote

Figure A6.2: Candidate ratings of splitters and non-splitters (%), Japan



(a) Straight Voters by PR vote (b) Splitters by PR vote (c) Splitters by SMD vote

Notes: Mean rating calculated using a scale from 0 to 10 where 10 means 'like the party (or the candidate) very much'.

Table A6.2: Explaining party defection: Logit Coefficients

	(Model 1)	(Model 2)	(Model 3)	(Model 4)	(Model 5)
		Party-centered			**Candidate-centered**
	All Voters	LDP	DPJ	Others	All Voters
PID	−0.678***	−0.219	−0.931**	−0.442	−1.469***
	(0.196)	(0.265)	(0.330)	(0.392)	(0.205)
Party Sympathy	−0.088	−0.185*	0.100	−0.075	−0.180***
	(0.052)	(0.075)	(0.097)	(0.095)	(0.045)
Party Ties	0.406*	0.517*	0.359	0.005	0.309
	(0.178)	(0.257)	(0.307)	(0.336)	(0.168)
Candidate Sympathy	−0.300***	−0.358***	−0.308***	−0.277***	−0.019
	(0.033)	(0.055)	(0.053)	(0.061)	(0.036)
Candidate Ties	0.102	0.173	−0.080	0.352	0.111
	(0.180)	(0.275)	(0.314)	(0.344)	(0.176)
Candidate Knowledge	−0.259*	−0.269	0.278	−0.453	−0.101
	(0.125)	(0.182)	(0.360)	(0.260)	(0.107)
Coalition Preference	−0.203	0.010	−0.075	−0.403	−0.286
	(0.165)	(0.237)	(0.269)	(0.333)	(0.157)
Education	0.550***	0.566**	0.603*	0.274	0.536***
	(0.145)	(0.208)	(0.235)	(0.282)	(0.137)
Incumbency	−0.596***	−0.223	−0.658*	−0.533	−0.205
	(0.173)	(0.258)	(0.272)	(0.410)	(0.164)
Spending (1000 €)	0.001	0.003	0.004	−0.003	0.002
	(0.002)	(0.003)	(0.005)	(0.004)	(0.002)
Observations	1594	1006	517	342	1594
Pseudo R^2	0.195	0.179	0.164	0.205	0.121
Nagelkerke R^2	0.262	0.227	0.231	0.293	0.167
LL	−512.225	−256.411	−193.201	−135.549	−559.424
AIC	1046.449	534.822	408.401	293.098	1140.847

Notes: Robust Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. For additional notes and sources see Table 6.2.

Table A6.3: A comparison of the two votes: Logit coefficients

	(Model 1)	(Model 2)	(Model 3)	(Model 4)	(Model 5)	(Model 6)
		Party Vote			**Candidate Vote**	
	All Voters	Non-forced	Forced	All Voters	Non-forced	Forced
PID	1.900***	1.944***	2.134***	1.411***	1.713***	−0.166
	(0.108)	(0.130)	(0.430)	(0.122)	(0.137)	(0.310)
Party Sympathy	0.222***	0.193***	0.407***	0.144***	0.159***	0.112**
	(0.016)	(0.018)	(0.051)	(0.016)	(0.018)	(0.038)
Candidate Sympathy	0.251***	0.317***	−0.279***	0.467***	0.486***	0.377***
	(0.025)	(0.026)	(0.073)	(0.027)	(0.031)	(0.061)
Candidate Knowledge	0.049	0.028	0.094	0.095	0.108	0.146
	(0.048)	(0.059)	(0.198)	(0.054)	(0.060)	(0.150)
Coalition Preference	0.440***	0.580***	0.309	0.595***	0.558***	0.788***
	(0.065)	(0.081)	(0.209)	(0.075)	(0.084)	(0.191)
Incumbency	0.370***	0.685***		0.809***	0.744***	
	(0.089)	(0.099)		(0.091)	(0.100)	
Spending (1000 €)	0.006***	0.006***	0.010***	0.004***	0.005***	0.006*
	(0.001)	(0.001)	(0.003)	(0.001)	(0.001)	(0.003)
Dummy	0.083	−0.430*	5.108***	−0.047	0.204	−1.324**
	(0.151)	(0.168)	(1.000)	(0.175)	(0.191)	(0.411)
Observations	8943	7826	1117	8943	7826	1117
Pseudo R^2	0.362	0.471	0.501	0.483	0.499	0.434
Nagelkerke R^2	0.487	0.600	0.635	0.616	0.630	0.581
LL	−3018.705	−2177.195	−306.485	−2521.712	−2101.485	−380.185
AIC	6055.409	4372.389	628.970	5061.424	4220.969	776.370

Notes: Robust Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. The table shows logit coefficients. Additional notes see Table 6.3.

Appendix Chapter 7

Table A7.1: Changes of the electoral rules across the Italian regions

REGION	*Change(when)*	*Possibility of Splitting*	*Regional List*	*Electoral Threshold*	*Preferential votes*
Abruzzo	YES (2005)	YES			
Basilicata	YES (2015)	YES	Abolished		
Calabria	YES (2005)	YES	Abolished	4% regardless of coalition affiliation	
Campania	YES (2010)	YES	Abolished	no electoral threshold for the party level	
E-R	NO	YES			
Lazio	YES (2005)	YES			
Liguria	NO	YES			
Lombardia	NO	YES			
Marche	YES (2010)	NO	Abolished	no electoral threshold at the coalition level	
Molise	NO	YES			
Piemonte	YES (2010)	YES			
Puglia	YES (2005)	YES	Abolished	4% regardless of coalition affiliation	
Toscana	YES (2005)	YES	Abolished	4% regardless of coalition affiliation	no preference vote is allowed
Umbria	YES (2005)	YES			
Veneto	NO	YES			

Table A7.2: The balance of the SMD and PR vote by region: Coalition-level (%)

Region	*Average Percent Difference (SMD −PR)*															
	Centre-Left				*Centre-Right*				*Other Coalitions*				*Total*			
	1995	2000	2005	2010	1995	2000	2005	2010	1995	2000	2005	2010	1995	2000	2005	2010
Piemonte	5.38	7.63	5.71	6.05	4.54	4.69	5.52	6.95	6.30	3.50	0.85	1.06	5.41	5.27	4.03	4.69
Liguria	2.21	3.02	6.09	4.29	3.07	3.09	6.49	4.48	3.30	0.64	0.02	-	2.86	2.25	4.20	4.39
Lombardia	-0.20	7.43	8.20	3.77	2.33	6.81	7.86	4.76	3.19	1.16	0.83	3.10	1.77	5.13	5.63	3.88
Veneto	1.70	9.82	7.69	3.18	5.06	3.89	4.87	6.56	5.02	1.65	0.80	0.27	3.93	5.12	4.45	3.34
North	2.27	6.98	6.92	4.32	3.75	4.62	6.19	5.69	4.45	1.74	0.63	1.48	3.49	4.44	4.58	4.07
E-R	1.56	3.82	6.56	4.44	3.95	2.36	2.03	1.58	3.43	0.40	1.18	1.22	4.47	3.29	4.89	3.62
Marche	3.33	2.63	5.14	2.93	5.04	1.50	2.85	2.11	1.03	0.93	0.66	0.96	4.70	2.53	4.33	3.00
Umbria	1.21	1.58	5.27	3.19	4.87	2.34	2.21	3.65	0.23	1.46	0.80	0.50	3.16	2.69	4.14	3.67
Toscana	3.50	2.35	7.80	6.71	4.77	2.19	3.99	5.47	2.52	2.25	0.78	0.59	5.40	3.40	6.29	6.39
Abruzzo	1.21	1.86	2.81	2.57*	6.22	2.17	1.20	6.55*	1.37	0.36	0.12	0.05*	4.40	2.20	2.07	4.59*
Molise	5.23	2.39	0.61*	0.55*	4.31	-0.33	3.01*	2.80*	0.35	0.67	-	-	4.95	1.21	2.50*	1.68*
Centre	2.67	2.44	4.70	3.40	4.86	1.71	2.55	3.69	1.49	1.01	0.71	0.66	4.51	2.55	4.03	3.82
Basilicata	4.78	-4.30	-0.02	-4.18	4.62	6.83	1.49	1.71	1.03	0.75	0.50	2.15	3.48	1.09	0.66	-0.11
Calabria	4.55	0.97	0.33	1.19	1.29	1.09	2.46	4.88	1.92	0.59	0.46	2.86	2.59	0.88	1.08	2.98
Campania	2.37	4.05	2.23	6.65	5.54	1.88	2.86	-0.97	7.14	0.85	1.24	-0.12	5.02	2.26	2.11	1.85
Lazio	6.63	5.82	8.97	5.30	7.36	3.11	4.12	5.40	0.80	0.48	0.87	0.25	4.93	3.14	4.65	3.65
Puglia	1.40	2.69	4.26	5.85	6.65	3.90	3.79	1.19	1.01	0.77	0.22	0.15	3.02	2.45	2.76	2.40
South	3.95	1.85	3.15	2.96	5.09	3.36	2.94	2.44	2.38	0.69	0.66	1.06	3.81	1.97	2.25	2.15
Total	2.99	3.45	4.78	3.50	4.64	3.03	3.65	3.81	2.58	1.10	0.67	1.00	4.00	2.86	3.58	3.33

Note: The table shows the average percent difference (SMD −PR). The variation across districts inside each regions is not accounted for by this table. * Refers to different years of election which are the 2008 for Abruzzo and respectively 2001 and 2006 for Molise. *Source*: Own elaboration from data available at `http://elezionistorico.interno.it`. (Accessed 3 July 2013).

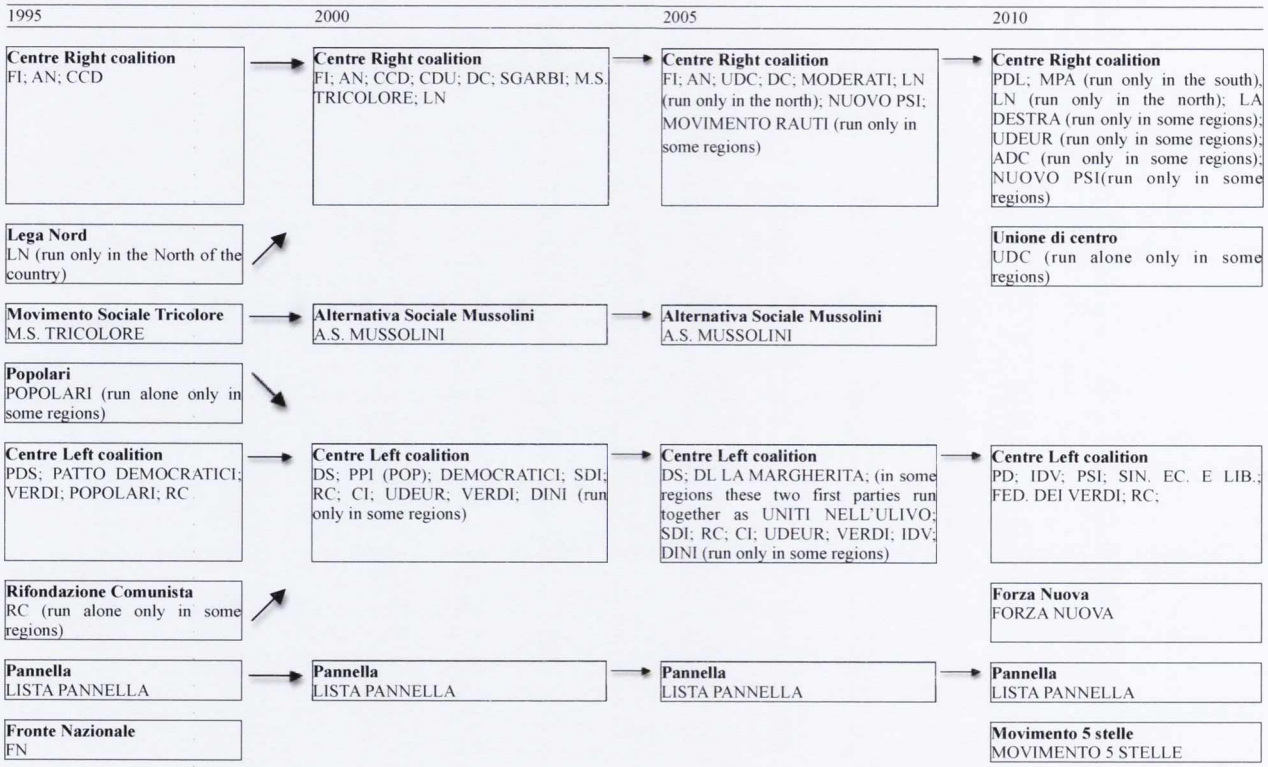
Table A7.3: Variables and operationalization

PR Threshold	Values of the electoral threshold at the district level.
Forced	1 if the party did not run a candidate in the plurality ballot, 0 otherwise.
Incumbency/Leader	1 if party run an incumbent or a party leader, 0 otherwise.
Policy-Congruent Coalition	1 if the coalition did not include extremist party or did not leave out important party, 0 otherwise.
District Margin	Percentage difference between the first and second best candidates in each district.
Centre regions	1 if the district is in the centre of the country, 0 otherwise.
South regions	1 if the district is in the south of the country, 0 otherwise.
Centre regions/Right parties	Interaction between being a left party and running in central regions.
North regions/Left parties	Interaction between being a right party and running in northern regions.
PID	Identification with party X=1, 0 otherwise.
Education	0=No degree, 1=Intermediate, 2=High degree
Political Interest	0=No-Min interest, 1=Interest-Max interest

Figure A7.1: Ballot paper for the Italian regional elections

Note: Campania 2005 elections. The red vote choice represents an example of split-ticket vote while the blue one a straight ticket example. In the example provided, there are four main coalitions, two displayed on the left-most section of the ballot paper with one party endorsing one candidate each, the second coalition in the centre has twelve parties endorsing one candidate while the right-most section displays one coalition formed by seven parties.

Figure A7.2: Coalition composition over time, 1995-2010 Italy



Notes: Bold text indicates the name of the SMD coalition whereas name in upper case text indicates the name of the PR party. Text in brackets provide additional information.

Table A7.4: Explaining party-level defection: Logit coefficients

	Model 1	Model 2	Model 3
	All	Centre-Right	Centre-Left
PR Threshold	0.061**	0.072*	0.054*
	(0.021)	(0.036)	(0.026)
Forced	0.845***	0.761***	0.830***
	(0.067)	(0.083)	(0.103)
Incumbency/Leader	−0.094	−0.207	−0.040
	(0.059)	(0.124)	(0.069)
Policy-Congruent	−0.113***	0.032	−0.184***
Coalition	(0.033)	(0.060)	(0.041)
District Margin	1.764***	−2.035	1.596**
	(0.496)	(1.353)	(0.512)
District Margin 1st	−1.701***	1.341	−1.235*
	(0.503)	(1.353)	(0.519)
District Margin 2nd	−1.657***	2.239	−1.468**
	(0.502)	(1.352)	(0.519)
District Margin low	−5.051***		
	(1.403)		
Centre regions	−0.260***	0.008	−0.204***
	(0.061)	(0.066)	(0.049)
South regions	−0.483***	−0.395***	−0.384***
	(0.044)	(0.074)	(0.051)
Centre regions/	0.069		
Left parties	(0.066)		
North regions/	−0.363***		
Right parties	(0.051)		
Constant	−1.312***	−1.625***	−1.290***
	(0.086)	(0.126)	(0.121)
Observations	2763	1027	1736
LL	1034.086	461.753	615.979
AIC	−2040.173	−901.506	−1209.958

Notes: Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.
For additional notes see Table 7.4.

Table A7.5: Explaining individual-level defection: Logit coefficients

	Model 1	Model 2	Model 3	Model 4	Model 5
	Only aggregare	Only invidual	All	Centre-right	Centre-Left
PR Threshold	0.357***		0.354**	−0.001	0.122
	(0.107)		(0.115)	(0.139)	(0.197)
Forced	0.485*		0.464*	0.788*	0.664*
	(0.266)		(0.331)	(0.449)	(1.200)
Incumbency/Leader	−0.837**		−0.708	0.008	0.855
	(0.305)		(0.374)	(0.295)	(0.771)
Policy-Congruent	−0.627		−0.460	0.547	1.861*
Coalition	(0.379)		(0.397)	(0.281)	(0.941)
District Margin	6.772***		6.259***	−3.113	−6.916*
	(1.102)		(1.084)	(1.985)	(3.242)
District Margin 1st	−9.300***		−8.901***	1.001	0.253
	(2.216)		(2.357)	(2.390)	(2.637)
District Margin 2nd	−10.366***		−9.728***	3.490	10.871*
	(1.601)		(1.662)	(2.114)	(4.887)
Centre regions	0.108		0.159	0.310	0.377
	(0.394)		(0.410)	(0.407)	(0.476)
South regions	−1.411***		−1.327***	0.661	1.262*
	(0.364)		(0.388)	(0.518)	(0.500)
Centre regions/	−0.960		−1.067*		
Left parties	(0.544)		(0.541)		
North regions/	−0.618*		−0.626*		
Right parties	(0.287)		(0.281)		
PID		−0.575***	−0.630***	−1.276***	−0.017***
		(0.157)	(0.161)	(0.258)	(0.225)
Education		−0.326	−0.418*	−0.365	−0.507
		(0.170)	(0.177)	(0.305)	(0.260)
Political Interest		−0.410***	−0.390***	−0.300	−0.518*
		(0.119)	(0.113)	(0.223)	(0.208)
Constant	−2.062***	−1.815***	−1.720***	−2.993***	−2.726***
	(0.397)	(0.096)	(0.396)	(0.490)	(0.623)
Observations	5777	5201	5201	2466	2538
Pseudo R^2	0.101	0.014	0.113	0.061	0.103
Nagelkerke R^2	0.133	0.019	0.144	0.073	0.131
LL	−1698.334	−1620.345	−1474.782	−461.491	−658.584
AIC	3420.667	3248.689	2979.564	948.982	1343.167

Notes: Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. For additional notes see Table 7.6.

Table A7.6 provides a comparison of three main models available to estimate party level split-ticket voting at the district level. Root Mean Squared Error (Root-MSE) is used to compare across models. Root-MSE measures the difference between the predicted and the actual observed values and it is used to assess the similarity across the estimates provided by the estimation models. It ranges from 0 to 100 where 0 means that the values provided by one model are identical to values provided by a second model. The models are the Multinomial-Dirichlet model (EI-MD) Rosen et al. (2001), the Multinomial-Logistic model (EI-ML) Greiner and Quinn (2009) and the classical Goodman's method (Goodman, 1953).

The table shows that the results do not greatly differ across models despite the fact that the EI-ML and the Goodman methods are slightly more similar. On average estimates for bigger parties are more similar than the ones for smaller parties which are generally less precise. When tested across actual available quantities (see Chapter 4 for detail), the EI-MD performs better than the other methods providing estimates that are very similar to the actual values. This is the primary reason why the study conducted in Chapter 7 has adopted the EI-MD method for the discussion of the substantive results. The Goodman's method and the EI-ML tend on average to dangerously overestimate straight ticket for bigger parties (diagonal columns) and underestimate these values for smaller parties. Moreover there is an additional problem encountered when using the Goodman's method since it provides estimates that are often off-mark whereas real cases values are always between 0 and 1. A technique to bring the coefficients admissible is the Iterative Proportional Fitting algorithm of Deming and Stephan (Schadee and Corbetta, 1984). Despite the adjustment however inadmissible coefficients raises additional concerns for the use of this estimation method (Achen and Shively, 1995).

Table A7.6: Estimation methods comparison

Root-MSE	*EI-MD vs EI-ML*	*EI-MD vs Goodman*	*EI-ML vs Goodman*
1995	29.16	24.81	15.14
2000	26.29	27.65	18.32
2005	20.29	25.03	19.52
2010	29.42	23.45	23.12

Note: EI-MD-Ecological Inference Multinomial-Dirichlet model, EI-ML-Ecological Inference Multinomial-Logistic model, Goodman model.