The Only Way is All the Way?

The Dimensionality of Party Competition and the

Functionality of the Left-Right Dimension as an
Information Shortcut for Voters

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# Preface and Acknowledgment

*A model which took account of all the variegation of reality would be of no more use than a map at the scale of one to one.*

Robinson (1962, 33)

When I started my undergraduate studies, Jeannette Brosig-Koch used the above quote on her slides for the microeconomics lecture I attended. It soon became a bit of a running gag among me and my newly made friends. It seemed like a platitude to us, a little bit grandiose, since we did not fully grasp that it captures the most fundamental dilemma of any scientist, especially those trying to understand human behavior – devising a theory that strikes a compromise between being realistic and useful. Ironically, it also captures one of my dissertation's central conclusions now.

It is a common theme of political commentary that modern politics is much more complex than left and right. It turns out *that* is the actual platitude. Of course it is; at the same time, the two notions are incredibly helpful for how we think about politics. They instantly give us an idea of what any political group stands for, without having to read a manifesto of 150 and more pages; they give us an idea how much we have in common with a person politically even before we sat down with her for an in-depth discussion of the political issues of the day. We may get the details wrong, but most of the time, this idea will be close enough.

An *idea* is not a perfect description, and a model is not a map at the scale of one to one. So of course, the spatial model of party competition is not what happens in the real world. No headline ever read "Conservative party resolves to enter the campaign with a position of

7.53" and no one ever said "I am going to vote for the Social Democrats because they are 1.73 points closer to my ideal point than the next-closest party". But it still gets a lot right.

We employ a lot of complex statistical machinery to uncover the overarching patterns within the words that parties use to advance their political causes. This machinery turns claims, statements and demands into nice, orderly numbers. These numbers, being models themselves, leave a lot out. But they reveal meaningful similarities and differences between democratic systems around the world: even if today's debate is different from yesterday's, the contest of ideas is not a formalistic tweedledee-tweedledum. The lyrics to the song that inspired this dissertation's title (probably inadvertently) put this into words: "*Do one thing and say something cryptic/But the styles always clash*" (Slipknot 2004). The data also capture, in a more systematic way, what we know from the above mentioned political commentary: party manifestos do not neatly align on a single line. As the following pages will argue, the reason why people are still able to use the left-right scheme to make sense of them is that it does what models do: it leaves some things out.

I have many people to thank for their help and support during the completion of this dissertation, and here it would not do to leave anyone out (alas, it will happen - my apologies). Before turning to those who helped me complete my dissertation, someone must be mentioned without whom I would never have been in the situation to start it: whenever I had to make important decisions about my academic and professional development, Simeon Vosen gave me invaluable advice. Crucially, this advice was never about what I *should* do, but always about the best way to do what I *wanted* to do. Thank you.

Turning to the people who were most important for my dissertation project, the first mention obviously is due to my advisor, André Kaiser. I thank him for giving me the opportunity to do this, for promoting and encouraging me. I will always admire and strive to attain his ability to turn a hot mess of nice ideas into an actual research design. Among the (current and past) faculty of the University of Cologne, I would like to especially thank my second advisor, Clemens Kroneberg, as well as Ingo Rohlfing, Achim Goerres, Hermann Dülmer and Karsten Hank. A special thanks goes to the late Hans-Jürgen Andreß, academic director of

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I once read in an interview with a musician I do not recall that the best way to improve your skills is to jam with people who are better than you. If that transcends to political science, André Kaiser deserves recognition again for building the perfect environment for me at the Chair of Comparative Politics in Cologne. He assembled a group of people who have decisively shaped how I approach my research.

Leonce Röth is a delightful conference travel companion and an unrelenting debater. He is also a bit of a hipster, so he gets very excited when he has found something new. But just as often as I had to act as his 'parking brake' (Röth 2018, vii), he convinced me that, to say it with Churchill, "to improve is to change". Jan Sauermann is an infinite source of funny puns and piercing mockery of the peculiarities of academic life. He also gave me an insight into the world of social scientific experiments and made me aware of the standing group for decision theory of the German Association for Political Science (DVPW), which I have come to see as my intellectual home. Most importantly, he regularly reminded me that all enthusiasm for the job aside, you have to look out for yourself and appreciate life outside of it as well. Sarah Berens and Saskia Ruth-Lovell, no matter how busy they were themselves, always reached out and offered help. They will always be examples for me to be intellectually rigorous, cut the nonsense and aim high. Christina Zuber inspired me with her curiosity and profoundness. She would also regularly frustrate me by arriving at the office later *and* leaving earlier than everybody else while getting done twice as much. Gregor Zons always made a suggestion (or uttered disagreement) right when I needed to hear it. Paul Beckmann showed me how one succeeds as a doctoral student while having the courtesy of acting as if I was the one giving him advice, and was a wonderful office mate.

When my time at the SOCLIFE Research Training Group ended, I took a job at the Chair of Empirical Political Science at the Johannes Gutenberg University of Mainz. My

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[1] 'Social Order and Life Chances in Cross-National Comparison'

utmost thanks are due to Thorsten Faas and his successor Sascha Huber for not only giving me that job, but also all the freedom, resources and encouragement that a new father with a long-distance commute and an unfinished dissertation needs. Likewise I thank my colleagues there, especially Fabio Best, Arndt Leininger, Nicole Loew, Simon Richter, Benjamin Sack, Sven Vollnhals and Robert Welz. Paul Weingärtner deserves special thanks for scrutinizing the layout of this manuscript.

There were so many others at the political science institutes at the universities of Cologne and Mainz, the (now dissolved) SOCLIFE Research Training Group and all the conferences, workshops and seminars that I attended who in one way or another contributed to the fruition of this project. I thank them all. Some of them shall be listed here, in alphabetical order: Dennis Abel, Berta Barbet Porta (who co-authored chapter 4), Carl Berning, Robert Birkelbach, Kathrin Busch, Laura Cabeza Pérez, Keith Dowding, Jasmin Fitzpatrick, Simon Franzmann, Cyril Gläser-Zolke, Ulrich Glassmann, Philip Gross (who shared my absurd ideas of what qualifies as music), Kristina Gushchina, Sabina Haveric, Sven Hillen, Romain Lachat, Susan Lee, Will Lowe, Lydia Malin, Gianluca Manzo, Armin Mertens, Thomas Mustillo, Christian Neubauer, Ravena Penning, Ulrich Rosar, Jan Rovny, Daniel Saldivia, Alexander Schmidt-Catran, Johannes Schmitt, Katrin Scholz, Susumu Shikano (who can be thought of as the unofficial 'third advisor' of this dissertation), Dennis Spies, Nils Steiner, Stephan Vogel and Conrad Ziller. I sincerely hope you will see the product of my (and your) efforts as worth your while.

The intersecting set between my colleagues and my friends is, fortunately, rather large. However, those friends who are not my colleagues deserve to be grouped in a separate paragraph, together with my family: I am more than grateful to them for supporting, comforting and distracting me. One also had an impact on the contents of this dissertation: Alexa Weiß introduced me to the work of Gerd Gigerenzer, which is an integral part of the theoretical framework to be unfolded below. I cannot thank my partner Christina enough for her advice, her patience and her understanding. Last but not least, I thank our children, Eevke and Jesper, for reminding me that a doctorate is not that important after all.

# Chapter 1

# Introduction[1]

How do voters decide which party to vote for? Two different strands of research are concerned with this question, but their answers differ vastly (Adams *et al.* 2005). On the one hand, there is party competition research, which examines how political parties strategically appeal to voter preferences. Phrasing the research objective in that manner already implies that citizens' political preferences are somewhat meaningful for their voting decision and that the primary strategic tool of a party are its policy promises.[2] Furthermore, this literature has shown that how these promises are combined within and differ between parties has become more and more complex over time (Kitschelt 2004, Green-Pedersen 2007, Franzmann 2009, Albright 2010). On this basis, party competition theorists inevitably need to assume that voters are able to perceive programmatic offers to a considerable degree of detail and cast a rational voting decision on basis of them.

Voter behavior research, on the other hand, has cast fundamental doubt on the plausibility of that assumption. In particular, it has been shown that many voters are less than perfectly informed about politics (Delli Carpini and Keeter 1996, Grönlund and Milner 2006). In its most radical form the 'minimalist perspective' (Brooks 2006) argued that voters mostly lack a coherent system of preferences (Converse 1964), or even that preferences themselves, as

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[1]I thank Sarah Berens, Fabio Best, Christina Dose and Leonce Röth for commenting on an earlier version of this chapter.

[2]Kitschelt (2000) discusses the strategic tools of parties more generally. Still, 'programmatic' competition remains the major focus of the literature.

measured in surveys, are unreliable and erratic (Zaller and Feldman 1992). This questions the very basis of normative democratic theory — if voters' political preferences cannot be regarded as meaningful, neither can their decisions on these matters (Dalton and Klingemann 2007).

A more reconciliatory research strand states that voters, uninformed as they may be, do possess mechanisms to cast reasonable decisions (Ibid.). A central feature of these mechanisms is that voters 'economize' information by prioritizing certain sources of information (Lupia and McCubbins 1998). These prioritized chunks of information thus become 'information shortcuts' or 'heuristics' for voters. Examples for these heuristics include how voters assess the state of the economy (Fiorina 1981), endorsements from others (Lupia 1994) and the personal appeal of candidates running for a party (Lau and Redlawsk 2001). Through their use, it is argued, voters are eventually able to vote 'correctly' (Lau and Redlawsk 1997).

One heuristic that constitutes something of a common ground for party competition and electoral behavior research is the 'political space'. It is the product of a feedback mechanism between parties and voters that combines central tenets from both research traditions outlined above: On the one hand, voters have preferences on a manageable number of political issue dimensions to which parties strategically attempt to appeal. On the other hand, by this very attempt, parties structure the choice set that voters face by tying bundles comprised of several issues (Budge *et al.* 2001, Sniderman and Bullock 2004, McGann 2008, Shikano 2008) and, thus, 'sort' voters into different camps (Baldassarri and Gelman 2008).

We have been used to a *unidimensional* political space ever since during the French Revolution, supporters and opponents of the monarchy chose seats on different sides of the Assembly (Powell 2000, p. 162). The *left-right* scheme is deeply embedded in the thoughts and language of voters and politicians (Fuchs and Klingemann 1990, Benoit and Laver 2012). It has also been one of political scientists' most important analytical tools since Downs (1957) systematized it as a single continuum of political dissent. It thus seems reasonable to adopt it as the theoretical point of departure in any examination of the political space.

However, the left-right dimension is not an inevitable outcome of the interplay between parties and voters. It may just as well result in higher-dimensional political spaces. Parties

have increasingly engaged in multidimensional competition in recent decades (Albright 2010). What is more, political systems vary with regard to how much parties deviate from unidimensionality (Stoll 2011). As Rovny and Edwards (2012) argue, parties not only compete via issue positions, but also 'Struggle over Dimensionality'. The variation in the outcomes of this struggle across systems raises the defining puzzles of this dissertation: If parties compete such that their political offers cannot be summarized by a single dimension of contest anymore, can voters still use that dimension as a reference?[3] If they can, how exactly do they do it? Lastly, if voters decide by a unidimensional schema, how can we adjust the spatial model to reconcile this with multidimensional party competition?

The answer to the first of these questions appears to be that *they can*, as is not only suggested by the ongoing prominence of left and right in political conversation and academic study, but also by the evidence gathered on the matter. Citizens in most societies are familiar enough with the left-right dimension to take a position on it (Dalton 2006, Mair 2007). As regards direct tests of the impact of multidimensional party competition on left-right structuration[4] of party preferences, rather small (Singh 2010) or no effects at all are found (Fortunato *et al.* 2016). This dissertation tests this relationship using both observational (chapter 2) and experimental (chapter 3) data and likewise finds (1) that left-right preference structuration is considerably widespread and (2) that multidimensionality has a very small, if any, effect on it.

This brings the second question into focus. The solution I propose here, plainly said, is that voters only see what they want to see: Gigerenzer (1982) invented the concept of 'idiosyncratic unidimensionality', which basically holds that each individual voter has a unique idea of left and right, and ignores or reinterprets issues that cross-cut this pattern. Chapter 3 finds empirical evidence in accordance with this explanation. Heterogeneity of left-right understandings also appears plausible in light of studies that find a pluralization of the meaning

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[3]While, as hinted in this sentence, dimensionality arises as the summation of individual party strategies, it is ultimately a characteristic of the party *system*. Since the focus of this work is on the effect of this characteristic on the political demand side, these individual party strategies are not dealt with here in detail.

[4]I use the notion 'structuration' in this dissertation to denote the degree to which an individual's party preferences are structured by the left-right dimension, similar to how it is used in e.g. Harbers *et al.* (2013) and Ruth (2016) to describe party systems. Specifically, it is not intended as a reference to 'structuration theory', founded by Giddens (1984).

of left-right (e.g. Knutsen 1995), but by itself it does not resolve the issues raised by the third question posed above: If idiosyncratic unidimensionality becomes too pervasive, parties cannot be sure how the electorate as a whole will react to their policy proposals. These proposals then lose their strategic utility. In other words, excessive idiosyncratic unidimensionality takes the 'competition' out of 'party competition'. Thus, as I argue below in this introduction and in chapter 5, there must be sufficient correlation of left-right understandings for strong left-right structuration of party preferences and multidimensional party competition to occur in the same model simultaneously.

Even more profoundly, the possibility of inter-individual differences in the meanings ascribed to left and right emphasizes the need to appreciate the "*epistemological distinction between the* analyst's mathematical description *of a set of outcomes as points in a space, and a* human agent's cognitive perception *of these same outcomes in spatial terms*" (Humphreys and Laver 2010, 14, original emphases). The political space is often treated as if it was material, which obscures its very nature as a theoretical approximation and makes it appear as if positions and dimensions estimated to operationalize it were precise measures. This has been somewhat amended on the political supply side, by conceptualizing party competition as issue-based. Based on the insight that parties often do not address the same, but *different* issues (Robertson 1976), issue- and salience-based theories posit that parties try to attain 'issue ownership' vis-à-vis their competitors (Budge and Farlie 1983). Political dimensions arise as the product of different clusters of issue emphases (Franzmann 2013). While these clusters can contain issues that are mutually exclusive by logic (Robertson 2006), they are not necessarily mirror images of each other. As I argue in section 1.1.1, this theoretical framework, while originally intended to be an alternative to spatial theories of party competition (which posit that parties *confront* each other on each and every issue), provides a bridge between the "*verbal images of the good society*" (Downs 1957) expressed in political manifestos and the spatial analogies used to organize them.

Such a bridging framework needs to be (re-)discovered and further developed for the voter side as well. While there is research which emphasizes the role of issue ownership in voting behavior (Petrocik 1996) and that left-right is made up from a variety of different issues and

meaning elements (Conover and Feldman 1981, Fuchs and Klingemann 1990, Bauer *et al.* 2017), a lot remains to be gained from studying the variation across individuals of how these elements are weighted and ascribed to the different poles. This research could be extended and synthesized into a comprehensive framework of how individual citizens process political information and construct a political space from it. At the same time, scholars of party competition should take recent research in electoral behavior and its more realistic models of decision-making more seriously and incorporate them more thoroughly.

This dissertation makes a step in that direction and contributes to each of these strands of literature by combining their respective strengths: On the one hand, the literature on voter heuristics has gathered considerable knowledge on how voter decisions come about, but has not so much taken a comparative perspective on system level factors. It also frequently does not appreciate the role of parties for how voters make up their minds about politics. Instead, it tends to treat parties as 'given'. Research on party competition, on the other hand, has a deep understanding of how political debate translates into spatial analogies, but tends to make ad hoc assumptions about the mechanism of party-voter linkage and to uphold rather demanding models of voter decision making. Bridging these approaches may also contribute to the understanding of an interesting puzzle raised by Adams (2012, 401): While the research he reviews has well established that parties shift their left-right positions in reaction to election results and public opinion shifts, he cites only unreliable evidence that voters actually perceive, or react to, party policy shifts (also see Ferland and Dassonneville 2019). This, Adams states, leaves the spatial account of political competition in the peculiar situation that *"the predictions of spatial theory are largely verified, whereas the assumptions that underpin spatial theory are called into question"*. Integrating and reconciling more realistic submodels for voter and party behavior, as pointed out above, is an essential step to resolve this puzzle.

The remainder of this introduction is structured as follows: The next section (1.1) positions the dissertation within the existent literature strands of different subdisciplines and points out debates taking place in these disciplines that pertain to the object of study. Section 1.2 builds the specific theoretical framework of the dissertation and points out its main

contribution, specifying how the aforementioned debates can be resolved and how different literatures can be combined such that multidimensional party competition, left-right preference structuration and idiosyncratic unidimensionality can coexist without ending up being contradictory. One important scope condition is that the arguments here specifically relate to systems where party competition is sufficiently *programmatic*. While other logics of competition such as clientelistic appeals obviously impact on the functionality of left-right (Harbers *et al.* 2013, Ruth 2016), they also fundamentally change the relationship between voters and parties (Kitschelt 2000). Since non-programmatic competition is arguably mostly prevalent in imperfect and developing democracies, they are excluded from the analyses presented here. Having built the theoretical framework, I include a discussion of how party competition dimensionality can be conceptualized and measured, before I present the different articles that form the chapters of the dissertation in depth. I close by addressing potential criticisms and point to further research that could bring along a deeper understanding of the role of the left-right dimension in political processes (section 1.3).

## 1.1   State(s) of the Art(s)

As mentioned in the preceding section (and signified in the somewhat peculiar heading above), this dissertation engages with several research fields (arts) that all necessarily include submodels of both vote choice and party behavior, but rely on very different assumptions in building either of them. What is more, in each of these fields there are different approaches (states), i.e. they comprise more or less compatible subdivisions, literature strands and competing theories, which sometimes exist in fruitful symbiosis, but also in open disagreement or, which is worst, in mutual ignorance. In this section, I present and discuss the most important advances within the fields of party competition, vote choice, and ideology with regard to the topic at hand, before the succeeding section synthesizes them and presents my overarching arguments.

A natural starting point for any work on the interaction between parties and voters is the original spatial model of party competition as formulated by Downs (1957), which is a

classic reference in either of these fields. Like any classic, it has been recounted, adapted and misrepresented countless times (see Grofman 2004, Kaiser 2007 for discussions). However, its analytical yield, combined with its relative simplicity, still makes it indispensable as a first approximation to political processes related to elections and representation. In its basic form, it posits that parties compete by choosing locations on a single left-right dimension, on which voters' ideal points are unimodally distributed. Voters choose a party by a proximity logic, i.e. they vote for the party that is closest to them.[5] The following subsections present the most prominent criticisms and alternative approaches as they pertain to the subject matter of this dissertation.

### 1.1.1 Party Competition

Two criticisms of the Downsian model with regard to party behavior are particularly pertinent for the question of dimensionality and left-right preference structuration: (1) findings that parties compete on more than one dimension and (2) the argument that parties do not compete on a space at all. Regarding the former, Rovny (2015) discerns two logics of how dimensions of political discourse come about: the 'Rokkanian' logic (named for the cleavage approach by Lipset and Rokkan 1967), according to which political space is defined by historical lines of dissent and on which side of these 'cleavages' societal groups find themselves, and the 'Rikerian' logic, by which political factions introduce new topics of debate strategically to exploit potentials for disunity among their opponents (Riker 1982, 1986 discusses inter alia the abolition of slavery in the US as an example of that practice; also see van de Wardt *et al.* 2014). Both sources of dimensions of political conflict are relevant for the research question of this dissertation, and both stress the importance of parties, either as institutionalizations of the way cleavages intersect in a given society or as 'political entrepreneurs' (Hobolt and

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[5]Of course, there are other logics of spatial voting, in particular the directional model of voting, in which voter utility is determined by whether voter and party are on the same side of the left-right spectrum and how far they are positioned from the middle (Rabinowitz and MacDonald 1989). Preliminary analyses for chapter 2, to which this alternative is most relevant, suggest that the degree to which party preferences are structured by directional voting is not affected by dimensionality. While a rigorous empirical investigation, although outside the scope of the article, remains a worthwhile endeavour, the general empirical findings of strong left-right structuration of party preferences and the absence of a dimensionality effect remain, especially since they also turn out in chapter 3, which circumvents the issue of the voting logic.

de Vries 2015), who transport new issues into political debate (Carmines and Stimson 1986).
Consequently, there is now a large body of research which aims to discover the 'true' dimensionality of party competition (e.g. Pennings 2002, Warwick 2002), describe its change over time (e.g. Kitschelt 1994, Green-Pedersen 2007, Albright 2010), or examine whether a given issue constitutes a new dimension or cleavage (e.g. Kriesi *et al.* 2012).

Multidimensionality is, in fact, the motivation for this dissertation. If the dimensionality of party competition increases, this automatically raises the question whether the Downsian model can still function – one of the earliest critiques of the Downsian model, formulated by Stokes (1963), was that it relies on the assumption of a common set of ordered dimensions. While the effect of a breach of this assumption will be examined in the following chapters, a more fundamental critique worth of discussion is that party competition cannot be approximated by spatial models at all because it functions by an entirely different logic. This is the premise of different *issue-based* theories of party competition, which start from the observation that parties try to avoid messages that could drive segments of the electorate away - which they would if they countered their competitors' positions on all issues. Stokes (1963) therefore argued that parties talk about so called 'valence' issues as much as possible, i.e. issues that are equally valued by all of the electorate (e.g. reduction of unemployment). The *salience* theory of party competition rests on a similar argument: Usually building on Robertson (1976), accounts of this kind argue that parties do not *confront* each other by taking different positions on the same issue (e.g. redistribution), but talk about different issues to avoid making unpopular statements (e.g. they talk about social security instead of tax increases and about tax relief instead of welfare cuts). At the same time, they avoid topics which would benefit other parties. Through this mechanism, patterns of 'issue ownership' arise, i.e. certain parties come to be associated with certain issues (Budge and Farlie 1983, Budge *et al.* 2001).

More recent research, however, seems to show that the gap between confrontational and issue-based models is not as wide as it appears at first, because the conceptual differentiation between the two cannot be maintained with the same rigor when it comes to empirical patterns of party competition. As de Sio and Weber (2014) argue, issues vary both with regard to their

valence or positional character and whether they offer a strategic advantage to parties. While of course, dynamics of issue ownership and issue avoidance can be observed, these patterns of 'selective emphasis' on the other hand give rise to dimensions again (Franzmann and Kaiser 2006, Franzmann 2013), so that issue position and issue ownership cannot be completely separated empirically (Seeberg 2019). Thus, it appears that issue-based and confrontational models either culminate in the same thing or at least both can be constructed such that spatial representations remain useful - "*There are always positions*" (Lowe 2016, 16). In fact, issue-based conceptions could be the bridge across the above mentioned gap between these representations and the actual behavior of parties.

### 1.1.2  Electoral Behavior

In electoral research, the Downsian model is one face of the 'holy trinity' (Faas and Reinermann 2018) which formed the field for a long time - also known as the schools of Rochester, Columbia and Michigan (Adams *et al.* 2005, 3). The Downsian model's two competitors in this view are a sociological model (based on seminal publications by Lazarsfeld *et al.* 1944 and Lipset and Rokkan 1967) and a social psychological model (Campbell *et al.* 1960). The sociological model explains vote choice by belonging to certain societal groups; the social psychological model, most importantly, models partisanship as a part of an individual's social identity (Green *et al.* 2002), which in turn drives voting decisions. A latter addition to this trinity was a growing appreciation of retrospective voting, e.g. in the economic voting literature (Fiorina 1981, Lewis-Beck 1992, Duch and Stevenson 2005). These traditional approaches later were faced with a decline in explanatory power (Dalton *et al.* 1984, van der Brug 2010). The search for new models and the input by social and cognitive psychology has led to a veritable explosion of theoretical approaches (Faas and Reinermann 2018).

These new approaches introduced new variables, such as emotions (Abelson *et al.* 1982, Redlawsk 2006), but also entirely new theoretical models, inspired for instance by dual-process models of decision-making (e.g. Marcus *et al.* 2000). The achievements of this literature most pertinent to this dissertation were (1) to stress that voters do not systematically think through

all the information theoretically available to them, but rely on heuristics and information shortcuts, and (2) that not all voters rely on the same heuristics (Lau and Redlawsk 2006). The former echoes the aforementioned psychological research on decision-making, which argues that individuals, faced with a trade-off between decision quality and cognitive effort, often shift their information base: They want to make *good* decisions, but tend to make *easy* decisions instead (Kahnemann 2011; also see Simon 1990, Gigerenzer *et al.* 2001, Lau and Redlawsk 2006). Because of that, they often ignore some of the available information and rely on decision rules which are not necessarily rational, but quite efficient with regard to cognitive effort. Interestingly, the case for the use of information shortcuts was made by Downs (1957) as well: He argued that the left-right dimension is such a shortcut that reliefs voters from having to learn about entire party platforms. The addition of this new literature was that there can be different kinds of decision making styles, even in the same electorate. This spawned a large and quite heterogeneous body of research into which kinds of voters use which kinds of heuristics (e.g. Rivers 1988, Schaffner and Streb 2002, Bartle 2005, Baldassarri and Schadee 2006, Boatright 2008, Reinermann and Faas 2020)

### 1.1.3   Ideology

Left-right, both in everyday conversation and in academic resarch, is closely connected with the topic of ideology. Like left-right, ideologies are said to be used to order and assess political information (Freeden 2003). However, they are not interchangeable: The way ideology is conceptualized in the Downsian model and electoral research generally only represents a small portion of the many different ways in which it is commonly employed (see Leader Maynard and Mildenberger 2018 for a detailed review of those ways). While many people, especially outside of political science, probably relate the notion of ideology either to comprehensive philosophies of how the world can be changed for the better, which build on explicit theories of society, or to a false and/or manipulative interpretation of the world that obscures the identification of societal reality (also see Freeden 2003), more parsimonious definitions of ideology simply declare it to be "*some sort of systematized political thinking*" (Leader Maynard

and Mildenberger 2018, 564), which implies that ideologies merely need to have a certain degree of 'coherence' (Gerring 1997).

The Downsian model subscribes to this minimal definition in that it posits that ideology is a single dimension along which policy preferences are distributed. Converse (1964) referred to this concept of ideology as a 'belief system' and coined the term 'constraint' for the degree to which citizens have such a system. Constraint *"may be taken to mean the success we would have in predicting, given initial knowledge that an individual holds a specified attitude, that he holds certain further ideas and attitudes"* (Ibid., 207). The finding that Converse is most renowned for is that most voters are rather unconstrained, and only the most politically sophisticated possess a coherent belief system. The debate over whether this is (still) true continues (see Carmines and D'Amico 2015 for a review). While there are important findings that indicate that Converse's verdict of 'ideological innocence' does not hold up (Azevedo *et al.* 2019), several studies indicate a substantial degree of multidimensionality in political preferences (Baldassarri and Gelman 2008, Carmines *et al.* 2012, Klar 2014, Malka *et al.* 2017, Wheatley and Mendez 2019, Hillen and Steiner 2020).

Whether citizens' preferences are constrained or not may, but does not necessarily need to have a bearing on whether they use left-right as a decision-making device. While left-right may be attached to an ideology and/or a belief system, its relative indeterminacy (see section 1.2.1) provides it with an orienting function that works independently from them by merely ordering parties into groups: Although citizens are found to have rather unconstrained preferences and/or cannot fill left and right with concrete meaning, they seem to have enough of an idea of it to handle the two notions (Dalton 2006, Klar 2014) - even if that means that the two camps merely serve as labels attached to groups of parties (Vegetti and Širinić 2019). As the preceding section argued, citizens will use these labels for a decision if they find them helpful.

## 1.2   Theoretical Framework

The preceding section embedded the questions of this dissertation in the wider literature, and discussed some important concepts that will be employed throughout. In this section, I make the specific argument why dimensionality should affect the left-right structuration of party prefences. One contribution this dissertation makes is to bring some important measurement refinements and methodological innovations to bear on the testing of this relationship, specifically in chapters 2 and 3. Finding no (or a very small) effect, I explore a mechanism that explains this absence, namely that citizens differ with regard to how they understand left and right and which weight different issues have in these understandings. Showing this mechanism at work in the data and in theory (using a computational model) is the second main contribution I make here. I discuss it in more detail here as well.

As section 1.1.2 pointed out, voters will frequently employ heuristics and shortcuts to save cognitive effort in making their voting decisions. This entails that, if only subconsciously, people may abandon one style of decision making in favor of another if it turns out to involve too much cognitive strain in a given situation (Payne *et al.* 1993). This raises the question whether the political context voters are situated in affects their heuristic use by altering the levels of cognitive strain these heuristics exhibit (D'Amico 2013). One context factor that immediately comes to mind is the party system. Since its structure defines the logic of situation that voters face, it seems obvious that it also influences their decision-making style (cf. Simon 1990). Thus, several party system characteristics have been tested for an effect, such as the number of parties (Singh 2010) and polarization (Lachat 2008). The argument for an effect of party system dimensionality follows the same logic: voters will be likely to judge parties by their left-right positions (even if their preferences are not completely described by this dimension) if they think the parties can be told apart by it well. If that is not the case because parties position themselves on multiple dimensions, the effort needed to align them on a single dimension will make left-right a worse heuristic and thus one that is employed less (Mair 2007, van der Brug 2010).

This argument, however, has been tested much less often. To my knowledge, the only

studies that do so directly are Singh (2010) and Fortunato *et al.* (2016). Moreover, the evidence arising from these studies is inconclusive: Singh uses a measure of dimensionality derived from a unidimensional unfolding of party ratings provided by survey respondents. He finds a small, but statistically significant effect of that measure on the likelihood of a voter to choose the party that is closest to her on the left-right dimension. Fortunato *et al.*, on the other hand, compute dimensionality as the average Spearman correlation between party positions on a general left-right dimension and several subdimensions and then look at its impact on whether respondents are able to order parties on a left-right scale correctly. They do not find a significant effect.

Because of these discrepant findings, chapters 2 and 3 of this dissertation test extensively for an effect of dimensionality on the ability to process party systems in left-right terms (see below). While the patterns found are as expected, like Fortunato *et al.* I find mostly insignificant, unstable or negligible effects. While, with the still small amount of work on the topic, the matter has not been dealt with exhaustively, it appears that the left-right dimension is a surprisingly robust heuristic with regard to dimensionality. This is in line with findings that citizens in many different contexts handle left-right quite well (Dalton 2006, Mair 2007). This resilience opens a puzzle in want of a theoretical explanation. How do citizens order parties in a unidimensional space when parties compete multidimensionally?

As with every other heuristic, citizens clearly do not observe, or at least do not process all of the available information. Rather, they focus on a specific part of political debate: as Gigerenzer (1982) has argued, individuals compress party positions into a unidimensional pattern. If this pattern were the same for all voters, this mechanism alone would not lead to multidimensionality on the party side, however: parties would just align with that pattern. While this issue is not much discussed by Gigerenzer, he does provide an argument to resolve it: voters do not all have the same understanding of left-right, but exhibit 'idiosyncratic unidimensionality', i.e. they combine and weight issues differently. For instance, some voters may equate left-right with the desired degree of government intervention in the economy, like Downs; others may see it more in terms of socio-cultural issues; again for others, it may be

a mix of different issues. This, in turn, allows parties to differentiate in a multidimensional space[6] and citizens to still use a unidimensional standard to judge them.

This unidimensional standard, however, is constructed by focusing on specific bits of information and leaving out others - a composition that need not be the same for all voters. The design of the left-right heuristic could itself be subject to heuristic decision making, so to say (Fortunato and Stevenson 2013, Adams *et al.* 2014, Reinermann and Faas 2020). This also does not need to mean that citizens are completely oblivious of political information outside of their left-right conception. As Fuchs and Klingemann (1990, 233) have argued, political information can be simplified by use of left-right, but can be re-specified if need be:

> *The frequently advanced argument that the left-right dimension cannot do justice to the multifaceted nature of political conflict in differentiated political systems fails to see the specific character of the left-right schema. The reduction or simplification of political reality through symbolic generalization does not exclude the possibility of situation-specific respecification. The potential of the generalized medium is based precisely on the situation-specific alternation of reduction and differentiation.*

This conception somewhat echoes Stokes' (1963) critique of the Downsian model (in which he argued that the model relies too much on the assumption of an universally preceived political space), but paints a more positive picture of the left-right dimension as being specified narrowly enough to be of communicative and heuristic value, but broadly enough to allow for individually diverging views. However, it is somewhat at odds with 'strongly spatial' models, i.e. those that posit that actors actually have a space in mind and think about distances in that space in a meaningful way (Humphreys and Laver 2010). This emphasizes the need to keep in mind the distinction between a helpful, but wrong model (paraphrased from Box 1979) and the real behavior of actors. In the realm of research on party competition, this divide has been bridged by the aforementioned, newer understandings of party competition, which see it as fundamentally issue-based, even if differential issue emphases can be organized by a spatial

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[6]This includes the possibility that parties not only compete over positions on, but also over the salience of dimensions, and may deliberately take no clear position on some dimensions (see Rovny and Edwards 2012, Rovny 2013).

approximation. Taking the above cited perspective described by Fuchs and Klingemann and allowing for idiosyncratic unidimensionality could be part of such a bridge for the political demand side. One prerequisite is that for the left-right dimension to still function as a political heuristic, idiosyncratic understandings can not be *too* heterogeneous - a point I return to in section 1.3.

### 1.2.1 Some Remarks on Conceptualization and Measurement

While of course in each of the individual chapters of this dissertation I engage with a number of specific methodological challenges, there are also some more general aspects, especially surrounding the primary independent variable, that pertain to all of the articles included here, or rather to the general research interest of the dissertation as a whole than either of the pieces individually. Moreover, there are some conceptual considerations which would go beyond the scope of a conventional article. These aspects shall be discussed in this section.

First, regarding party system dimensionality, before even considering the question of how to measure it, one has to specify *which kind* of dimensionality to measure. Stoll (2011) defines three characteristics by which to distinguish different types of dimensionality of the political space: which political actors are used as data source (*voter*- vs. *party*-based dimensionality), the aggregation level of these data (*ideological* vs. *issue* dimensionality), and the specific understanding of what makes a dimension (*raw* vs. *effective* dimensionality). This last characteristic revolves around the question whether dimensionality is determined by actors' positions or independently of them. Specifically, raw dimensionality is a count of all the discernible political conflicts within a system. Effective dimensionality takes the correlation between these conflicts as manifested in actors' positions into account. It thus accommodates Robertson's (2006) definition of a dimension: e.g., to be truly bidimensional, a political space not only has to contain two conflicts; these conflicts also need to be orthogonal to each other.

To make a choice among these options, it helps to reconsider the primary research question of this dissertation: it asks whether the way *parties* strategically *position* themselves impact on whether voters make use of an encompassing, *ideological* dimension to form their vote

choice. This research question somewhat predicates that dimensionality be conceptualized as party-based, ideological, and effective. However, this hardly limits the enormous array of possibilities to measure dimensionality. While the precise method of measurement used in each chapter differs somewhat, the underlying principle (also discussed in chapter 4 and the accompanying appendix C) is to measure how well party positions in a high-dimensional space can be mapped onto a single dimension (which, apart from the data that enter the measurement, is not specified regarding its meaning). This is achieved through obtaining the *Stress* from a Multidimensional Scaling model in chapters 2 and 4 and the average correlation between subdimensions in chapter 3.

This approach assures a close conceptual connection between the research question and measurement, especially in comparison to the often used approach of defining a political space with more, well-defined dimensions and examining to what extent parties make use of it (e.g. Lijphart 1999, Bakker *et al.* 2012, also see Warwick 2002). It also is more parsimonious as regards the presupposition of the number and meaning of relevant dimensions. All attempts to make party positions and concepts that are based on them (such as dimensionality) measurable define some sort of 'meta' space in which parties could *in principle* take positions. As chapter 4 (co-authored with Berta Barbet) argues, this is inevitable, since the design of data collection already includes a decision what should be included in the measurement and what should not. However, it also creates problems, especially in comparative research, if this meta space fits some systems better than others. As we go on to claim, this problem can be alleviated by using very high-dimensional raw data, such as those from the Manifesto Project (e.g. Volkens *et al.* 2019), and thus keeping the meta space as broad and unspecific as possible.

Another question that needs to be answered in this context is about the meaning of left-right (both whether it has a concrete meaning and if so, what it is). What left-right means to specific actors, or in specific contexts, is a longstanding debate (see, examplarily, Knutsen 1995, Franzmann and Kaiser 2006, Rovny and Edwards 2012, de Vries *et al.* 2013, Röth 2018). Chapter 3 engages with this debate to a certain degree in finding that cultural issues drive left-right assessments much more strongly than economic ones. Notwithstanding this,

although there are some regularities (see next paragraph), it has proven difficult to define a core of issues that exhaustively defines left and right. Cochrane (2012) chraracterizes them as a 'family resemblance'-type concept, where like members of a family, members of a category are similar to each other but there is no single feature that all members possess and all non-members do not possess. Similarly, (Huber and Inglehart 1995, 90) state that:

> *The left-right dimension, then, can be found almost wherever political parties exist, but it is an amorphous vessel whose meaning varies in systematic ways with the underlying political and economic conditions in a given society.*

This apparent lack of a definitive meaning also manifests in the definitions of left-right that have been devised. With the exception of Downs (1957), who narrowly defined it as the degree of state intervention in the economy an actor supports, the most prominent approaches steer clear of stating specific core issues. Bobbio (1996) sees the left-right cleavage as one pitting the promoters of equality (left) against those of hierarchy (right; also see Laponce 1981). Inglehart's (1984) definition is based on a similar premise, but includes the political status quo as a reference, the defense of which is the defining characteristic of conservatism. Left positions then are those that demand to change the status quo towards a state of more equality; right ones promote more inequality. Franzmann (2009) somewhat synthesizes these definitions, stating that the right stands for the existant societal hierarchy and the left for the challenging of this hierarchy. This accommodates the conventional empirical findings of interventionist economic policy positions being combined with libertarian socio-cultural positions on the left and of promotion of the free market with authoritarian positions on the right. More recent research, however, shows that especially in many younger democracies, economic and socio-cultural positions are paired the other way around (Ibid., Rovny and Edwards 2012). Malka *et al.* (2017), based on such findings, posit that the underlying principles of left-right are not hierarchy and equality, but freedom and protection. Jost *et al.* (2013) discern two underlying dimensions, i.e. advocacy of vs. resistance to social change and rejection vs. acceptance of inequality.

It becomes apparent that left-right is defined, if at all, only at a very abstract level

(Bauer *et al.* 2017) and is 'filled' with a particular meaning only by individuals (Rovny and Whitefield 2019). In fact, one result of the aforementioned literature (and a fundamental premise of this dissertation) is that these meanings can vary across countries, time, and even individuals. Therefore, I employ a minimal definition of left-right: on the party level, left-right dimension is merely the 'line of best fit' on which party platforms can best be assembled in a unidimensional fashion. On the voter side, since the main question is how notions of left-right play into party choice, I can afford to be even more agnostic: left-right simply is some imagined continuum on which a voter places herself and the parties, the meaning of which may, but need not conform to the one other voters assign to it.

### 1.2.2   Chapter Overview

The bigger part of this dissertation translates the theoretical considerations detailed above into empirical research designs and analyzes the empirical effects of party systems that deviate from a unidimensional competition pattern on how citizens perceive these party systems (chapters 2, 3 and 4). The former two of the three chapters both take a look at the question that is constitutive for the dissertation, i.e. the functionality of left-right – the first with observational (chapter 2), the second with experimental data (chapter 3). Chapter 4 (prepared in cooperation with Berta Barbet) broadens the picture somewhat and looks at the implications of party system dimensionality for the quality of democratic representation. The last chapter (ch. 5) is theoretical in nature, combining the preceding chapters' empirical findings with the conceptual and theoretical insights presented in section 1.2 and putting them to a sort of 'theoretical consistency test' in an agent-based model.

In chapter 2, I combine manifesto data (Volkens *et al.* 2014) with modules two and three of the Comparative Study of Electoral Systems (CSES 2007, 2013) to take a comprehensive look at political supply side effects on how strongly party preferences are structured by the left-right dimension, one of the aspects included being party competition dimensionality. I make two measurement-related refinements in comparison to the relevant literature (Boatright 2008, Lachat 2008, Singh 2010, Joesten and Stone 2014, inter alia). First, I deliberately

operationalize supply side factors strictly based on data measured on this level. Too often, measures are used which conflate voter and party data, which I argue should be avoided. Second, I employ a measure of left-right preference structuration that offers a finer grained picture than the previously used ones. Many studies in the field employ as the dependent variable a dummy variable that indicates whether or not a respondent voted for the party closest to her on the left-right dimension. As I argue in greater detail in the chapter, by instead using the correlation between party ratings and left-right distances for all parties for each respondent, I not only replace a binary with a continuous measure, but also one that only uses the top of the preference order with one that makes use of the entire preference profile. At the same time, it retains the dummy measure's clarity and modeling ease, as opposed to approaches that use conditional logit regression or similar techniques, which are also frequently employed.

The findings suggest that the structure of party competition, especially left-right polarization, does have a systematic influence on left-right structuring of party preferences. Dimensionality, however, does not have a statistically significant effect, which implies that the left-right dimension is a quite robust voting heuristic in this regard. This is also the general insight of the piece: as the correlation-based measure reveals, if we move beyond a mere dichotomy between people who conform to proximity voting and people who do not, we find that generally, the guidance that left-right exerts for party preferences is considerable. This article is currently under consideration for publication in *Rationality & Society*.

Although offering (I would venture to claim) a number of worthwhile innovations, this first article is in line with the existing literature insofar as it relies on observational data. Chapter 3 goes a step further by being, to my knowledge, the first study to test the effect of party sytem dimensionality on citizens' handling of left-right positions with original, experimental data. This not only strengthens the inference that can be drawn from the data, it also extends the possibilities to explore the cognitive process by which citizens translate party messages into a political space. I use a quota sample of 505 respondents, obtained from a German online access panel (provided by *Respondi*) to carry out a conjoint analysis of party placements made by the respondents as they are confronted with fictional party programmes.

These programmes are created by randomly combining positions on five issue subdimensions. Respondents are then asked to judge which of two party programmes presented to them at a time is to the left of the other. I analyze whether the dimensionality of the hypothetical party systems impacts on the ability of voters to place parties on a left-right continuum, operationalized by whether the placements create a transitive ordering or not.

Similar to the observational study, this analysis provides only scant, if any, evidence of an effect of dimensionality on citizens' ability to process politics in left-right terms. However, the data allow tracing how exactly respondents succeed in establishing a unidimensional pattern where there is none, or only vaguely so: they compensate for the lack of unidimensionality by focussing on specific issues and ignoring others. This is shown by computing the 'part-worths' (Vriens 1995) of each issue for each respondent, i.e. the individual effect of each issue on the left-right judgments she makes, and analyzing the spread of these part-worths. Two additional insights from these part-worths (especially figure 3.4) are that the understandings that respondents have of left-right are (1) quite heterogeneous and (2) not dominated by economic issues, but often based quite strongly on issues like same-sex marriage and immigration (although the latter may have to do with the time of data collection in 2016, when the issue was quite salient in Germany). While the debate what issues make up left-right in the eyes of the electorate is not a new one (see, e.g. Knutsen 1995), this is an interesting addition of case knowledge, especially since in the literature, left-right is still often equated with economic interventionism vs. liberalism. More importantly for this dissertation, it is an indication that there is indeed considerable idiosyncracy in left-right understandings. This article is currently under review for publication in *Electoral Studies*.

While the question *how* voters arrive at a decision is a very relevant one and material to this dissertation, it is also intertwined with the question how much they like *where* they end up. This is also pertinent to party competition dimensionality, because when parties simplify the political space, they necessarily diminish its capacity to represent the entire variety of voter preferences. If, for instance, two subdimensions are condensed into a single dimension by the parties, only specific combinations of positions on the two subdimensions can actually be satisfied. Voters with preferences that lie, say, on the perpendicular to

the main dimension cannot see their preferences fulfilled, and thus arguably will not be satisfied by the political process. This argument has been made for specific cases, such as left-authoritarians (i.e. individuals who have economically left, but socially right positions; see Hillen and Steiner 2020) and the economic preferences of voters (Otjes 2016, 2018). As Otjes (2016, 582) brilliantly put it, these voters *"are like vegetarians in a fish restaurant. They can get potatoes and cod or salad and salmon, but they cannot order potatoes and salad"*.

In chapter 4 (joint work with Berta Barbet), we develop a generalized version of this argument, and add another aspect that relates to the questions of this dissertation even more strongly - namely that party system dimensionality might overburden voters cognitively. Our argument is that the literature appears to imply a trade-off between preference representation and heuristic value of the political space: While greater dimensionality of the space that parties compete on increases the chance that citizens' preferences are met and thus should make them more content, it purportedly also makes it harder to comprehend. Put short, with party competition too narrow, voters increasingly see themselves not represented anymore and become less satisfied with the political process. Broader political competition on the other hand is cognitively more straining for them and decreases their perceived ability to make sense of it. We thus hypothesize party system dimensionality to have a positive relationship with satisfaction with democracy and a negative one with the self-declared ability to make sense of what goes on politically. We find some evidence for the former relationship, but not for the latter. This again suggests that the complexity of political debate may be less of a burden for voters than frequently thought. This article has been published in *Party Politics* and is therefore also referenced as Reinermann and Barbet (2019). Both authors contributed equally to all parts of the piece.

Having gathered this empirical knowledge, I combine it with the theoretical considerations assembled above and in the literature on the topic and explore how a model can be developed that incorporates multidimensional party competition and unidimensional vote choice in a consistent fashion. Agent-based models are an excellent tool for this: the consistency of a set of assumptions that a theory about any phenomenon entails can best be assessed within formal models, because they force the researcher to be absolutely explicit on all aspects of

her theory, and clearly indicate if the assumptions produce implausible predictions (Schmitt 2015). All models, but models of party competition especially, face a problem here since to be formalized in an analytically tractable fashion, they often require prohibitively strict assumptions (Laver and Sergenti 2012). Agent-based models solve this problem, since they use computer simulations of the actual agent behavior as a solution strategy instead of an equation-based approach. This enables them to allow just about any conceivable behavior to be modelled: whereas conventional formal models often presume some form of (even imperfectly) rational behavior, the agents in agent-based models can have all different kinds of decision rules.

One setting in which agent-based models are particularly helpful is simulating the behavior of actors on the micro level to assess whether this configuration reproduces a well known macro level correlation - and thus check whether it constitutes a viable micro-foundation. This approach has been aptly summarized by Epstein (1999, 43) under the motto "*If you didn't grow it, you didn't explain its emergence*". Following this approach, I formulate three 'stylized facts' that I argue are sufficiently established in the literature: (1) party competition dimensionality varies strongly across political systems, (2) voter preference dimensionality is generally high and (3) voter decision making is largely structured unidimensionally. This on the one hand incorporates the findings from the first two chapters that left-right structuration of party preferences is largely unaffected by party system dimensionality and, on the other hand, the often-repeated finding that voters mostly lack a coherent, strictly structured 'belief system' (Converse 1964) that one might associate with the concepts of ideology and left-right. These two aspects do not necessarily contradict each other, but create a puzzle as regards dimensionality: while voters' preference structure would suggest high levels of party competition dimensionality, their decision-making style would suggest it to be low. Neither seems to explain the broad variation that is observed empirically.

I explore different voter decision rules, including the above discussed concept of idiosyncratic unidimensionality, aiming to replicate (and reconcile) these stylized facts. I judge the empirical plausibility of different model specifications by assessing whether they are capable of generating variation in party system dimensionality (like the real world does) and (curso-

rily) checking whether they reproduce the empirical relationship between number of parties and dimensionality. It turns out that a model with a degree of idiosyncratic unidimensionality achieves these objectives best. Although this is not conclusive proof of the model, it is suggestive of how spatial models of party competition may be adjusted (see next section). This article is currently under review for publication in the annual edited volume of the standing group for decision theory of the German Political Science Association (*Jahrbuch für Handlungs- und Entscheidungstheorie*).

## 1.3 Conclusions & Implications for Spatial Models of Politics

What remains of spatial models of politics, and the left-right dimension in particular? On the face of things, the articles assembled here and the discussion above seem to corroborate and hollow them out at the same time: while the empirical tests I carried out testify to the left-right dimension's robustness as a voting heuristic, the idea of idiosyncratic unidimensionality seems to void it of any substantial meaning. Even if it did, left-right would remain an important puzzle piece in understanding voting decisions. However, this would mean to both overstate its implications and to miss an important opportunity to re-appreciate the distinction between theoretical model and real-world behavior, and develop a framework that links them while further integrating electoral research with modern models of decision-making.

This dissertation starts out from the observation that the conception of voter behavior is rather different in party competition and electoral research. While a prominent part of the latter argues that voters to a large extent do not think about politics in a particularly well structured way, or even in terms of policy, the former has found that party positions often can only be described in multiple dimensions, and thus also assumes that voters' utility functions can accommodate all of these dimensions. I then combine the traditional idea of left-right as an 'information shortcut' with newer research which allows for heterogeneity in voter decision making and the use of various heuristics to examine whether higher dimensionality of party

competition impacts on the functionality of this particular shortcut, a relationship which as of yet has only rarely been tested. Both the existing literature and the analyses included here find little evidence of such an effect. This, in combination with the ongoing relevance of left-right in voting models and political debate, creates the puzzle of how multidimensional party competition and left-right preference structuration can be reconciled. The answer offered here is that voters have different understandings of what left-right means, i.e. they exhibit idiosyncratic unidimensionality.

Against this reasoning, one could argue that if voters do have different understandings of left-right, it may still structure their party preferences, but, bereft of a core issue set, be turned entirely devoid of any substantial meaning. In fact, one of the earliest critiques of the Downsian model, published by Stokes (1963, 375), warns that *"Relaxing the assumption of common reference necessarily opens Pandora's box. [...] We may, in fact, have as many perceived spaces as there are perceiving actors"*. This warning appears a bit exaggerated: ways how spatial models can be amended to accommodate individual differences have been discussed early on (Davis *et al.* 1970, Riker and Ordeshook 1973). Also, Stokes seems to conflate *idiosyncrasy* with *uncorrelatedness* - just because left-right understandings differ across citizens, they need not have no similarities at all. In fact, there are strong historical, social and psychological structures which induce such similarities (Jost *et al.* 2013, Rovny and Polk 2019).

However, because these structures provide rather broad foundations to be filled with concrete meaning, and because these meanings are subject to change (Knutsen 1995, de Vries *et al.* 2013), there remains room for inter-individual differences. Indeed, the idea of a 'pluralization' of the meaning of left-right (Knutsen 1995) already implies these differences, since it is unlikely that all citizens change their understanding in the same way at the same time. Finally, just like multidimensional party competition and widespread left-right structuration of party preferences are incompatible with a universal left-right understanding, they are with too much heterogeneity in understandings: as argued above, if all citizens perceived of left-right in the same way, there would be little strategic advantage for parties in differentiating along multiple dimensions. In the same way that this argument rules out a universal understanding

of left-right, it makes party competition hard to reconcile with too much heterogeneity in left-right understandings: If heterogeneity were too high, parties would not be able to make predictions on how citizens would react to changes in their programme.

Much more than invalidating the left-right dimension and the Downsian model, the findings of this dissertation underline its character as a broad approximation, both for citizens who use it to make up their minds about politics and for researchers who use it to make up their minds about the thought processes of said citizens. The political space is not a physical entity, but an abstraction, a thought map that individuals impose on real political events to attain as much epistemic traction and/or analytical yield as possible (Benoit and Laver 2012). This character also means that they can dispose of this map if need be and take a closer look at the actual 'terrain', i.e. they enter a *"dual process of reduction and respecification* [which allows the meaning elements of the left-right schema] *to fulfill the orientation and communication functions described above"* (Fuchs and Klingemann 1990, 216). In this sense, the lack of definition of the left-right dimension that is often criticized (Bauer *et al.* 2017) is its strength because it increases its generalizability.

By focussing on the effect (or rather, its absence) of party system dimensionality on the use of left-right as a party preference structuring device, this dissertation makes a contribution both to the conceptualization of left-right and to attempts to arrive at a unified model of both party competition and electoral behavior. Still, despite the absence of a dimensionality effect and the rather strong left-right structuration in most voters, there is variation in left-right preference structuration both on the individual and the context level in want of an explanation. There is, thus a lot of potential for future research to fulfil that want. One source that was pointed out in the beginning of this chapter was that party competition needs to be sufficiently programmatic. Also, a specific dimension of heterogeneity that this dissertation looked into only indirectly is the change in ideological voting over time (see van der Brug 2010), which could also be linked to the manner in which parties compete.

Another objective for further research that arises from this work is to further examine the meanings that citizens ascribe to left-right, how these meanings differ across individuals and (at best) how these inter-individual differences can be operationalized for studying party

competition and electoral behavior. This requires careful conceptual and methodological work: on the one hand, these endeavours need to be separated from research on attitude constraint since, as section 1.1.3 argued, constraint of preferences and understanding of left-right are conceptually different. On the other hand, methods must be found to measure these understandings at the individual level. The predominant approach in the existent literature is to look at the relationship between left-right self-placements and various subdimensions (as well as partisanship and social structure attributes, see Inglehart and Klingemann 1976, Huber 1989, Knutsen 1995, Freire 2008, de Vries *et al.* 2013) on the aggregate level and compare it across countries and/or over time. A different approach is taken by e.g. Meyer and Wagner (2020), who use party-placements as the dependent variable and show that left-right understandings are shaped both by parties' salience strategies and the system-wide, 'structural' salience of issues. While making an important contribution, these approaches mostly miss the opportunity to capture variation on the individual level (but see Lachat 2018). While this is methodologically challenging, chapter 3 provides one idea how to attain it; other interesting advances have been made with the 'Q-Sort' technique (Zechmeister 2006), topic modeling (Bauer *et al.* 2017) and Correlational Class Analysis (Barbet 2020). Another approach that could be adopted is the use of anchoring vignettes (Bakker *et al.* 2014). Two research fields that could be enhanced by achieving this goal would be the perception of party positions by citizens (e.g. Busch 2016) and how change in left-right understandings comes about (e.g. whether by intra-individual change or cohort replacement; see Rekker 2016).

How political debate is structured is absolutely central to the functioning and understanding of representative democracy. This is not only true of the positions that are occupied by the actors in the system, but also of the dimensionality of political space, not least because it does have an impact on policy outcomes by itself (Iversen and Goplerud 2018). An ever more detailed knowledge of how actors conceive of political discourse and how they, together, form the arena in which political decisions are made is therefore a pursuit of paramount importance. As new and old political challenges have arisen and continue to arise, the question

of whether and how citizens order the answers on offer to these challenges into the categories of left and right becomes all the more important.

# Chapter 2

# Party Competition and the Structuring of Party Preferences by the Left-Right Dimension[1]

**Abstract:** There is a wide selection of theoretical approaches claiming to explain party preferences, among them the spatial model in which voters choose based on ideological proximity. However, it has not ultimately prevailed against its competitors. Thus, a literature has emerged that allows for heterogeneity, asking whose preference are ideological and whose are not. However, research on how context affects ideological structuring, is still sparse. Therefore, I combine CSES survey data with manifesto data in a sample of established democracies to examine the effects of party competition structure, measured by the effective number of parties, polarization and dimensionality, on ideological structuration of party preferences in a single model. While I do not find significant context effects with a conventional measure of proximity voting, I propose a different operationalization which shows that while there are systematic effects of the party system, party preferences are mostly quite strongly structured by ideology.

## 2.1 Introduction

There is a plethora of reasons why a voter might choose one party over the other(s). Consequently, theoretical models that claim to explain voter behavior have proliferated over the

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[1]This paper is based on an earlier one that was presented at the 2016 MPSA Annual Conference and the 2015 ECPR General Conference, and preliminary work I carried out for chapter 4. I thank the participants of the conferences, and a number of anonymous reviewers, for valuable feedback.

decades. One of the major contestants in this arena is the spatial model of party competition, which posits one or more ideological continua that map political discourse and on which political actors position themselves. Spatial voting, and other theories likewise, have been studied in great depth, and a lot of work has gone into which of them explains voting behavior best. However, despite all this effort, this question has not been answered conclusively. Recently, this has induced some scholars to shift the focus from whether the voting behavior of individuals can be predicted by a given theory to the question why some individuals behave in correspondence to a theory and some do not (Rivers 1988, Lachat 2008, Singh 2010). The question is not anymore which theory works best, but under what conditions a given theory works.

This kind of research has produced a lot of insight on how individual traits are a part of these conditions: for instance, as regards spatial voting, political sophistication has been found to be an important correlate of whether party preferences correspond to ideological positions. How the context of party choice affects this correspondence, however, is still in the process of being understood. There are relatively few cross-nationally comparative studies on the subject, and those that exist differ considerably in methodological approach and findings. They do, however, demonstrate the need for this kind of work. The explanatory power of left-right positions for party choice does vary over countries (van der Eijk *et al.* 1999, Lachat 2008). This brings the party system and the shape of the political space into focus (Kroh 2009). The clarity of ideological patterns in a party system arguably has a direct impact on wether citizens can employ these patterns to form a preference (Facchini and Jaeck 2019). The seminal work of Downs (1957) assumes two parties competing on a single left-right dimension. As a result of these and other assumptions, parties are predicted to converge on a single position, i.e. that of the median voter. This understanding is still priming how most political scientists (and citizens and politicians) think about political competition today.

However, political space does not always accommodate this understanding. Most obviously, there are many systems with more than two parties. As regards party convergence, Downs himself discusses at length that this prediction holds only under specific conditions (also see Grofman 2004), so that in reality, party system polarization varies (Dalton 2008).

Even the number of dimensions that parties compete on varies over time and across systems (Pennings 2002, Stoll 2004, Albright 2010). The potential consequences for how well the left-right dimension explains party preferences are straightforward: Having to accommodate more parties on it makes it harder to do so consistently (Wessels and Schmitt 2008); so does being confronted with parties whose positions are not clearly discernible, i.e. not very far apart from each other (Lachat 2008, Pardos-Prado and Dinas 2010); and, as Singh (2010) argues, processing political information within the framework of the left-right dimension becomes more cognitively straining (and thus less prevalent) if the political space is not unidimensional. In short, the complexity of political space should matter for how strongly it structures citizens' party preferences. Empirical findings on this relationship, however, are mixed: while Singh does find an effect, Fortunato *et al.* (2016) do not.

In this paper, I take a consistently supply side focused look at these context effects. I focus on the role that political parties play in shaping political discourse and communicating it to citizens. Parties are central actors in the formation of the political space because they transport issues into political debate (Carmines and Stimson 1986, van de Wardt *et al.* 2014, Hobolt and de Vries 2015). While in principle, there is a vast number of issues that could be politicized and dimensions these issues could form, parties deliberately and strategically pick up some of these issues and combine them in a specific manner, thus forming specific dimensions of political conflict. This makes certain thought patterns more accessible for citizens and increases their inclination to make up their minds about politics in a certain way (Zaller 1992, Sniderman and Bullock 2004). Programmatic competition hence plays an important role for the understanding that citizens have of political debate (de Vries *et al.* 2013). Whether their party preferences are structured by the left-right dimension therefore is likely to be influenced by the degree to which the political space, as formed by the parties, resembles this dimension. I try to capture that by incorporating three parameters in my analysis: the effective number of parties, their spread (i.e. polarization) on the left-right dimension, and their alignment with it (i.e. dimensionality). I make a point of measuring these variables by use of party-based instead of voter-based data: often, studies in this area operationalize concepts that belong to the political supply side by use of survey data, i.e. data

gathered on the demand side. This is suboptimal from a conceptual point of view because it departs from the theoretical objective of exploring supply side effects. Moreover, it somewhat muddles genuine context effects and those of the sample composition. By using data measured on the party level, e.g. derived from manifestos, I introduce a clear distinction between the dependent and the independent variables.

Alongside this conceptual focus, I propose a novel operationalization of the extent to which party preferences are structured by the left-right dimension. The agreement between the spatial model and individuals' actual party preferences is measured as the rank order correlation between actual evaluations of the parties and the utility implied by spatial voting theory and the left-right dimension. As I argue in greater detail below, this measure on the one hand displays more nuance than the commonly used dummy measure that focusses on the party eventually voted for, and on the other hand makes for a more consistent and intuitive analysis than designs that use party-respondent dyads instead of individuals as units of observation, not least because it provides a continuous measure of how well the left-right dimension describes party preferences at the individual level. It also makes testing the influence of all context variables in a single model much easier.

I present my analysis and the reasoning underlying it as follows: the following section elaborates on the concepts and theories invoked here, presents the relevant literature and derives empirical expectations from it. Empirically, I rely on data from the *Comparative Study of Electoral Systems* (CSES 2007, 2013) and the Manifesto Project (Volkens *et al.* 2014). I explain how I process these data in section 2.3 before moving on to the empirical analysis. I use multilevel regression models that account for the clustering within these data to study the relationship between party system characteristics and the 'spatiality' of individual party preferences. Curiously, using the conventional dummy variable operationalization, I do not find systematic context effects. With the correlation-based measure mentioned above, I find that in line with the existing literature, a higher effective number of parties diminishes ideological structuration, while polarization increases it. Dimensionality, if at all, appears to have a negative effect only on the very least politically informed. Generally, by this measure party preferences seem mostly quite strongly structured by ideology. The last section

summarizes these findings and concludes with a few thoughts on what the results might mean for normative demands that we make on the process of vote choice.

## 2.2 Spatial Structuring of Party Preferences, its Correlates, and the Shaping of Political Space

As alluded to above, accounts differ on whether and how ideology plays into vote choice. The classical conception of Downs (1957) sees the distance between ideological positions as the sole driver of party-voter linkage. Voters are assumed to vote for the party that is closest to them on a single dimension of ideology. This mechanism is labeled 'proximity voting'. This perspective is challenged especially by proponents of the concept of partisan identification (Campbell *et al.* 1960, Green *et al.* 2002). The respective merits of either approach have been debated emphatically (e.g. Inglehart and Klingemann 1976, Huber 1989, Greene 2004, Abramowitz and Saunders 2006, Medina 2015). Another prominent mechanism is sociological, group-based electoral alignment (Lipset and Rokkan 1990 [1967], Hellwig 2008). Last but not least, the criticism of the spatial model has been fueled by findings that most voters, except for the most knowledgeable and attentive ones, do not form structured, encompassing belief systems as is required for ideological voting (Converse 1964, Kinder 1983).[2]

Since no single theoretical model has ultimately asserted itself, a more recent strand of literature has shifted the focus to whether there are subgroups of the electorate for whom ideological voting has more or less explanatory power than for others, effectively asking *"Who are the spatial voting violators?"* (Boatright 2008). A lot of this research deals with the US case, focusing on individual characteristics. Spatial voting, it has been found, is for instance more prevalent among the politically knowledgeable (ibid.). This line of research has also been able to add new ideas how to accommodate the competing explanations mentioned above, since there are two different arguments that warrant controlling for them, but imply different empirical expectations: From the first point of view, it is a means to correct for

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[2]Proximity voting is also not the only spatial approach to voting (see e.g. Rabinowitz and MacDonald 1989), but arguably the dominant one in the literature.

'projection bias', i.e. respondents' tendency to perceive parties as close to themselves because they are positively inclined towards them and not the other way round (Kedar 2005, Simas 2013). According to this perspective, variables capturing alternative decision mechanisms should correlate positively with ideological voting. The other perspective holds that these mechanisms are genuine alternatives to ideology, i.e. that some respondents follow these cues *instead* of ideological ones (Joesten and Stone 2014). In this perspective the correlation should be negative. Both of these perspectives figure in the empirical literature: spatial voting is more prevalent among those with a partisan identification (Simas 2013, Joesten and Stone 2014) and weakened by alternative information cues such as personal information about the candidates (Boudreau *et al.* 2013, Joesten and Stone 2014).

While comparative work that looks at the effects of the decision context is less prevalent, a lot of work suggests that it does play an important role. The explanatory power of ideology for vote choice, i.e. the extent of proximity voting, has often been found to vary across countries (Granberg and Holmberg 1988, van der Eijk *et al.* 1999, 2005). This variation draws attention to what political parties have to offer citizens: as Wessels and Schmitt (2008) argue, it is primarily linked to structures of political supply that do or do not provide 'meaningful choice sets', i.e. that contain a number of competitors that are *"distinguishable in terms of ideology and/or in terms of competence"* (p. 20). The significance of political supply is also emphasized by the wider literature on voter behavior: most voters do not pay a lot of attention to politics and do not make up their mind about it in great detail. In running on succinct programmatic platforms, parties serve as 'information providers' (Lupia 1994): by issuing and bundling policy statements (cf. Budge *et al.* 2001, de Vries *et al.* 2013), they set landmarks on the political map which anchor and make available certain ideas in voters' minds (Zaller and Feldman 1992, Zaller 1992, Sniderman and Bullock 2004). This enables voters to infer ideological patterns that they can use as an heuristic or 'information shortcut' in lieu of detailed political knowledge (Downs 1957).

Accordingly, one context factor that has been studied is party system polarization. The general argument of the respective literature is that if parties present clearly discernible policy bundles, voters find it easier to cast their voting decision in accordance with ideology

(Lachat 2008, Kroh 2009). Another recurrent finding of this literature is that a higher number of parties correlates negatively with proximity voting, presumably because it is cognitively more straining to consistently position a great number of parties on an ideological dimension. Lastly, while a relatively scarcely researched factor, the dimensionality of political competition should be an important factor: The yardstick of ideological voting, across the existing literature, is the left-right dimension (Downs 1957, Fuchs and Klingemann 1990, Huber and Powell 1994). Thus, if parties play an important role in communicating the political space to voters, and the extent to which voters' preferences follow the spatial paradigm is measured against a *unidimensional* political space, parties are implicitly assumed to adhere to this unidimensional conception.

On the party side, however, left and right is increasingly seen to be of varying empirical reach. It has repeatedly been found that a single dimension does not always suffice to describe party positions (Pennings 2002, Warwick 2002, Dalton 2017), and that dimensionality varies across time (Albright 2010) and space (Stoll 2011). Even the meaning of left-right itself shows a lot of variation across systems (Franzmann and Kaiser 2006, Rovny and Edwards 2012). A rich literature shows the prominent, and proactive, role of parties and their competing with each other in establishing dimensions of the political space (Riker 1982, Carmines and Stimson 1986, Elias *et al.* 2015, Lee and Schutte 2017). Specifically, parties strategically choose to emphasize or to remain silent on certain issues (Robertson 1976, Budge and Farlie 1983). These issues are "the smaller pieces from which ideological dimensions are constructed" (Warwick 2002, p. 104), and, depending on their composition, give rise to specific kinds of dimensions. Because of this contingency however, the political space could in theory have all kinds of dimensions. On the basis of this reasoning, the left-right dimension and spatial voting will be much less functional as a decision-making mechanism for voters the less political discourse aligns to a pattern that is, in fact, unidimensional. However, empirical evidence on this relationship is both scarce and inconclusive. Two studies, in my knowledge, test for such an effect: while Singh (2010) finds that in party systems where voters' evaluations of parties are harder to map unto a single dimension, voters have a lower probability to vote in line with the proximity paradigm, Fortunato *et al.* (2016) find no effect of the complexity of party

competition on how strongly party preferences are guided by left-right positions. Among the context factors discussed here, dimensionality therefore is arguably the one that most calls for more research.

Of course, some voters are better prepared to find their way around the political space than others. A classical variable in this regard is political sophistication. In the case of the left-right dimension, we might hope that this relatively simple heuristic makes it easier for rather unsophisticated citizens to make political decisions. However, findings as early as those of Converse (1964) suggest otherwise. In fact, it might be that "[i]ronically, heuristics are most valuable to those who might in fact need them least" (Lau and Redlawsk 2001, p. 967). In the context of this article, this would mean that not only do politically more sophisticated voters have party preferences more strongly structured by the left-right dimension by themselves, but they also make use of the cues from their environment more efficiently. This should manifest in them being less sensitive to inhibitive context factors and more receptive to facilitating ones. Indeed, the effect of party system polarization on proximity voting seems to be stronger for political 'experts' (Lachat 2008). The number of parties and the dimensionality of party competition, on the other hand, presumably are not as straining for politically more adept individuals. Conversely, individuals who are less acquainted with politics are likely to be less aided in structuring political debate by the degree of polarization, and more challenged by a higher number of parties and higher dimensionality. Below, I test this heterogeneity of effects through an interaction between the respective context variables and the level of political information. The hypotheses to be tested are the following:

*H1:* The higher the number of effective parties, the less strongly party preferences will be structured by the left-right dimension.

*H2:* The more polarized the party system, the more strongly party preferences will be structured by the left-right dimension.

*H3:* The more difficult it is to map party positions on a single dimension, the less strongly party preferences will be structured by the left-right dimension.

*H4:* The interaction effects between political information and the variables in *H1 - H3* will
    be negative.


## 2.3   Data and Operationalization

To provide an examination of the political space's effect on the structuring capacity of the
left-right dimension for individuals' party preferences that is as comprehensive as possible,
I use the effective number of parties, polarization, and dimensionality as indicators, as dis-
cussed in section 2.2. They are operationalized through data derived from the *Manifesto
Project (MARPOR)* data set (Volkens *et al.* 2014).[3] The MARPOR data set classifies all the
statements a party makes in its manifesto into 56 issue categories via quantitative content
analysis and computes the importance that a given issue has in that manifesto as the ratio
between the number of statements made on that issue and the sum of all statements made in
the manifesto. Because they are based on party manifestos, these data consistently capture
political supply, unlike other data that are based on e.g. survey data aggregates and thus
affected by characteristics of the political demand side (as is the case with the data used by
e.g. Kroh 2009 and Singh 2010).

I combine these data with survey data from the second and third module of the *Com-
parative Study of Electoral Systems* (CSES 2007, 2013). They allow measuring the extent
to which party preferences align with positions on the left-right dimension in a novel and, I
would argue, more comprehensive fashion than before, which is presented in greater detail
below. Combining the different data sets, and implementing the operationalizations and ad-
justments detailed below, I arrive at a final sample of 50562 respondents, nested in 47 election
studies, which were carried out between 2001 and 2011. A list of the elections covered, as
well as descriptive statistics of the variables in the analysis can be found in appendix A. As
introduced above, I expect the spatiality of party preferences ceteris paribus to be higher in
more polarized systems, and lower in systems with more parties, as well as systems where

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[3]Another possibility would have been to use expert survey data such as the Chapel Hill Expert Survey
(Bakker *et al.* 2015). However, this would have both considerably diminished the data basis and broken the
close temporal correspondence of the data sets currently used, which are all collected around elections.

parties deviate more from a unidimensional pattern of competition. At the same time, I expect these effects to differ with political sophistication such that the effect of polarization is stronger, and the effects of the number of parties and of dimensionality weaker for politically more competent citizens.

Some adjustments are made for theoretical reasons, but also because of considerations regarding data coverage. The first is predicated on the democratic experience of the countries in the sample. While there is important work on how the left-right dimension is handled in new and emerging democracies, this work also highlights that party-voter linkages work quite differently there than in established ones (Zechmeister 2006, Ruth 2016). Since the arguments above rest so much on the proposition of political parties freely strategizing and contesting each other, it seems fair to assume that this contest needs to have had some time to evolve, and citizens to have been exposed to it before, for these effects to unfold (also see Singh 2010). I therefore exclude countries which have not continuously been rated "free" in the Freedom House (2014) data base from at least 1995 on (with the second CSES module starting in 2001, this corresponds to at least six years of unhindered democratic competition). In the relevant data, this applies to Romania and Slovakia. Also, since the parties covered in the MARPOR and the CSES data are not the same in all instances, I harmonize the data sets by including only those parties contained in either of them. This primarily affects very small parties not included in the CSES, and specifically the election in Italy of 2006 (because there was a large number of parties forming two electoral alliances) and that in Spain of 2004 (because there are a lot of only regionally competing parties, which I exclude); a detailed list of the included parties, as well as any other coding decisions, can be found in appendix A. Finally, most of the MARPOR data points can directly be linked to the election studies in the CSES, except for Japan, where surveys were conducted on occasion of upper house elections, while the manifesto data cover lower house elections. Thus the survey data obtained in 2004 and 2007 are combined with party system data measured in 2003 and 2005, respectively.

## 2.3.1 Dependent Variable: Ideological Structuring of Party Preferences

To study how much party preferences align with the spatial voting model, two concepts have to be related to each other: the preferences a citizen actually has and those she would have if she behaved completely according to said model. Earlier studies of left-right spatial voting have primarily solved this problem in two different ways. The first is to combine the two concepts in a dummy variable that indicates whether the actual party choice coincides with the one that the spatial voting paradigm predicts (Boatright 2008, Singh 2010, Joesten and Stone 2014). Conversely, the other separates measured and implied preferences. Here, variables such as vote choice, propensities to vote or 'electoral utilities' are employed as the dependent variable and the utility implied by spatial voting theory as the independent variables, for instance in a conditional logit model (Blais *et al.* 2001, Lachat 2008, Wessels and Schmitt 2008, Jessee 2009, 2010, Pardos-Prado and Dinas 2010, Boudreau *et al.* 2013, Simas 2013). This specification requires that voter-party dyads, instead of voters, are chosen as units of analysis. Either of the two, however, leaves room for improvement in my opinion.

The dummy variable captures the essence of spatial voting theory, but actually loses a lot of information by only assessing its fit in reference to the party the voter eventually chooses. It may not even say much about to what extent ideology is the standard by which voters assess the political offer: It is both possible that the spatial voting rule coincides with vote choice, but does not structure the evaluation of parties as a whole, and that a voter who generally thinks very ideologically does not vote for the closest party (e.g. for strategic reasons, see Blais *et al.* 2001). I give an example of this possibility below. Moreover, working with vote choice censors the sample in a specific way: By design, this measure can only be used for respondents who cast a ballot. This would not necessarily be a problem for a model with a narrow focus on explaining (or forecasting) vote choice. However, if the focus is on the circumstances under which the proximity logic is more or less valid, it turns on the more general question on how individuals (voters or not) think about politics and how they form party preferences. Given that voters' characteristics arguably differ vastly from those of non-

voters, an answer to this question should include either group, especially in times of declining turnout in most established democracies. As Adams *et al.* (2006) have found, turnout is susceptible to the format of party competition. As far as electoral participation is regarded to be normatively desirable, it is thus also an important question whether non-voters can rely on the left-right dimension as an information shortcut, which would reduce the costs of participation.

The dyadic regression approach includes more information, since it typically takes a citizen's full preference profile into account (Lachat 2008) and (if using propensity to vote) can also include non-voters. However, they make examining the contextual correlates of conformity with the spatial model more complex and less intuitive precisely because the concept of interest is moved to the right-hand side of the equation: Usually, the data set has to be transformed into a 'stacked data matrix', the rows of which represent dyads of each respondent with each party; this detaches the unit of observation (i.e. the respondent) from the unit of analysis. Likewise, the structuration of party preferences ceases to be a characteristic measured on the individual level and becomes a parameter to be estimated for the sample as a whole (i.e., the coefficient of the proximity variable).[4] To analyze conditioning factors thus requires extensive use of interaction terms. For example, to model the context effects, and their interaction with *political information*, equivalently to as it is done here (see below) would require 15 regressors instead of seven (cf. Brambor *et al.* 2006).

Because of the problems discussed above, I use a different measure for spatial party preferences that incorporates all the information from respondents' preference profiles but at the same time retains the straight-forwardness of directly using the structuring of party preferences as the dependent variable, thus combining the advantages of either operationalization. To do so, I make use of the rich information available in the CSES data. I combine the actual party preference orderings of respondents with those that the distances to the parties imply and compute the variable *proximity consistency* as Spearman's rank order correlation coefficient between these orderings. This provides, for each respondent, a continuous measure

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[4]This becomes most apparent in approaches which use a two-stage estimation (e.g. Duch and Stevenson 2005), first estimating the effect of proximity on vote choice and then using this parameter estimate as the dependent variable of a second regression.

of how close her actual party preferences are to predicted ones. For the actual preference profiles, I use party sympathy ratings, which can be seen as "super-generalizations" of different specific evaluations of parties (Wessels and Schmitt 2008, also see Blais *et al.* 2001, Singh 2010).[5]

This operationalization of course requires that respondents placed themselves on the left-right dimension and provided ratings and placements for a sufficient number of parties. I set the minimum for this number to three. If a respondent gave either the same placement or rating for all the parties, the measure is set to missing, since Spearman's $\rho$ cannot be computed in these situations. Being a non-parametric statistic, Spearman's $\rho$ captures how respondents *order* parties, but is insensitive to how the responses that underlie this order are distributed. That relaxes the assumptions required about how respondents interpret the scales used to answer the two items. It also makes it dispensable to specify a utility function: accounts differ on whether citizens should be assumed to have a quadratic or a linear utility function (Singh 2014). Since this measure relies only on ordinal data, it can be agnostic in this regard, unlike the electoral utilities approach discussed above. I also recreate the commonly used dummy variable via this data basis to have a benchmark measure.[6]

Table 2.1 gives an example of the results this measure yields, showing different rankings in terms of both preference and proximity that a respondent might come up with. In the upper row, these rankings are rather similar, leading to a high value of *proximity consistency*, while in the middle row, the preference ranking deviates quite a bit from the one based on ideological distance, which produces a low value. The columns showcase a phenomenon mentioned above: they illustrate how preference rankings can be constructed which for both spatial voting violators and conformers show the same *proximity consistency*.

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[5]The item in question asks respondents to rate each party on a scale from 0 (strongly dislike that party) to 10 (strongly like that party). One question surrounding all approaches discussed here is whether they capture sufficiently similar concepts. While vote choice, propensities to vote and sympathy ratings of course are distinct from each other, to the extent we see preferences as driving choice, the different approaches arguably are comparable, however. Crucially, since the argumentation for the effects tested here mainly works through citizens' preferences, it appears plausible to base the operationalization of the dependent variable on this item.

[6]The *proximity dummy* equals one if the party a respondents voted for in the last election coincides with the closest one and zero otherwise.

Table 2.1: Construction of the *proximity consistency* variable, illustrated with different hypothetical preference profiles

|  | Proximity Conformer ($d = 1$) | Proximity Violator ($d = 0$) |
|---|---|---|
| High proximity consistency ($\rho = 0.9$) | **Voter 1** (voted for Party A) *Party ranking by...*   LR distance: A, B, C, D, E   Sympathy: A, C, B, D, E | **Voter 2** (voted for Party B) *Party ranking by...*   LR distance: A, B, C, D, E   Sympathy: B, A, C, D, E |
| Low proximity consistency ($\rho = 0.2$) | **Voter 3** (voted for Party A) *Party ranking by...*   LR distance: A, B, C, D, E   Sympathy: A, D, E, B, C | **Voter 4** (voted for Party C) *Party ranking by...*   LR distance: A, B, C, D, E   Sympathy: C, D, A, B, E |

## 2.3.2   Context Variables: The Structure of Party Competition

Above, I established three parameters to map the structure of party competition: the number of parties, their polarization on the left-right dimension, and how strongly they adhere to it. For the former two, there are already fairly standard ways to measure them: I use the effective number of parties (*ENP*, Laakso and Taagepera 1979) and Taylor and Herman's (1971) index of *polarization*, based on the scores computed by Franzmann and Kaiser (2006) as party positions.

Measuring the dimensionality of party competition is a more intricate task. Not only does it include many conceptual and methodological choices (for a discussion see Stoll 2011). Another challenge is to devise a measure on the election level. Nearly all existing and available dimensionality measures (e.g. Lijphart 1999, Nyblade 2004, Stoll 2004, Bakker *et al.* 2012 and Ganghof *et al.* 2015), to the best of my knowledge, are time-invariant. Singh's (2010) approach avoids this problem by employing multidimensional scaling (MDS) to party sympathy ratings of the CSES respondents, thus arriving at a measure of how well these ratings can be represented by a single dimension. However, this technique appears suboptimal in a different respect since it measures *voter-defined* instead of *party-defined* dimensionality (Stoll 2011). As I argued above, it is important to differentiate party-defined and voter-defined measures. This is especially important in the case of dimensionality, because otherwise, both the independent and the dependent variable eventually are based on the party preferences of the respondents (albeit on two different levels of aggregation). Of course, it is reasonable to

assume that party-defined and voter-defined dimensionality correspond to each other. But to test this assumption and the robustness of Singh's findings, it is ultimately necessary to use a dimensionality measure that is based on data that map party positions instead of voter evaluations.

At the same time, the measure I employ here is methodologically analogous to Singh's in using MDS, based on the relative issue saliences within the parties' manifestos as measured by the MARPOR data. MDS uses the differences in salience scores between parties as measures of 'dissimilarity' between them and tries to reproduce these dissimilarities in a space of given dimensionality by an iterative placing algorithm. This also solves an methodological problem of many conventional approaches: As Warwick (2002) and Stoll (2004) observe, factor analytic methods are not well suited for manifesto data, since they often are not linearly correlated. As van der Brug (2001) has pointed out, this is due to the salience-theoretic conception of the data and can be remedied by the use of MDS. The method delivers an index called *Stress*, which indicates how much the salience differences as reproduced by an MDS solution deviate from the original differences. I use the Stress resulting from a unidimensional MDS model as a proxy for the *dimensionality* of political space (This approach, apart from the harmonization of parties covered in both the CSES and the MARPOR data, is analogous to that of chapter 4/Reinermann and Barbet 2019).

### 2.3.3 Individual-Level Variables: Personal Traits and Alternative Decision Mechanisms

Section 2.2 posited that individual characteristics, namely political sophistication, moderate the impact of context factors on the structuration of voter preferences by the left-right dimension, an argument that is quite well supported in the literature. Thus, on the micro level the central independent variable is *political information*. I make use of three items in the CSES probing factual knowledge about the political system a respondent lives in. I follow Singh (2015), who cautions that because the political knowledge questions asked in the CSES could differ in difficulty across countries, raw counts of correct answers might not be comparable

between them. He proposes to standardize the variable by dividing the individual number of correct answers by the country-specific mean. I subtract one from the result so that a value of zero indicates the country-specific mean. Another variable of interest is whether or not a respondent *voted* in the last election. As mentioned above, including this variable is not possible using the dummy variable operationalization of ideological voting, since that variable can only be constructed for those who actually took part in that election. As Facchini and Jaeck (2019) argue, the structure of party competition and the decision to turn out are themselves intertwined, making the inclusion of non-voters in the analysis all the more important. Moreover, since casting a ballot arguably requires some interest in the political process, it is an important measure of how much attention citizens pay to and how well versed or experienced they are in the political sphere.

To cancel out election-sample composition effects, I control for standard socio-demographics *age*, *education* and whether a respondent is *female*. *Education* is operationalized in the CSES by an eight-level ordinal variable, which I employ as provided. Another aspect to take into account is whether there are mechanisms other than ideology available to respondents to establish a preference order. These are captured by whether or not the respondent identifies with a specific party[7] and her evaluation of the government's performance (to include retrospective voting).[8] These variables are not only likely to be related to the spatiality of party preferences, as was discussed in section 2.2, but also to characteristics of the party system: although partisan identification is an aspect of social identity much more than ideology (Green *et al.* 2002), it has been found to be more intense in more polarized party systems (Lupu 2015). Retrospective voting on the other hand can be assumed to be more pervasive in party systems where accountability for political outcomes can be more clearly assigned to a specific actor, as has for example been found in the economic voting literature (Anderson 2000). On the individual level, it is conceivable that politically better informed respondents are also

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[7]Measured by the following, commonly used item: *"Do you usually think of yourself as close to any particular political party?"*.

[8]The item used reads *Now thinking about the performance of the government in [capital]/president in general, how good or bad a job do you think the government/president in [capital] has done over the past [number of years between the previous and present election OR change in govt.] years. Has it/he/she done a very good job? A good job? A bad job? A very bad job?*

more likely to form partisan attachments and/or explicit opinions about the performance of their government.

## 2.4   Analysis[9]

In section 2.3.1, I argued in favor of measuring the spatiality of party preferences using the correlation between actually measured favorability of parties and their utility implied by spatial theory. To give a first impression of the insights this operationalization has to offer, figure 2.1 depicts its distribution in relation to the more traditional operationalization by dummy variable among those respondents for whom either measure is available, across the election studies used in this article. As can be seen in the comparison of the variable's distribution among spatial voting 'violators' and 'conformers' respectively, the distinction between the two groups may be more clear-cut than the underlying party preference profiles warrant: in virtually all countries, there is considerable overlap between the two. This underscores empirically a theoretical possibility pointed out in table 2.1: individuals can be classified as conformers or violators although the underlying preference profiles are not that different. Moreover, a lot of respondents display at least moderate values of *proximity consistency*, which means even respondents whose vote choice itself does not conform to spatial voting mostly seem to entertain party preferences that *by and large* do so.

Still, these preference patterns are 'menu dependent' (Sniderman and Bullock 2004) in that they are affected by characteristics of the party system, as can be seen in figure 2.2: The three panes show how the mean of citizens' *proximity consistency* in a specific election relates to each of the three context level variables discussed above. Apart from that variance in country means, they also show these relationships to be in line with the expectations derived from the literature. The degree to which party preferences are structured by the left-right dimension appears to be correlated positively with party system polarization, but negatively with the effective number of parties and the dimensionality of party competition.

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[9]The following R packages were used to compile the material presented here: Leifeld (2013), Bates *et al.* (2015), Wickham (2016), Solt and Hu (2018).
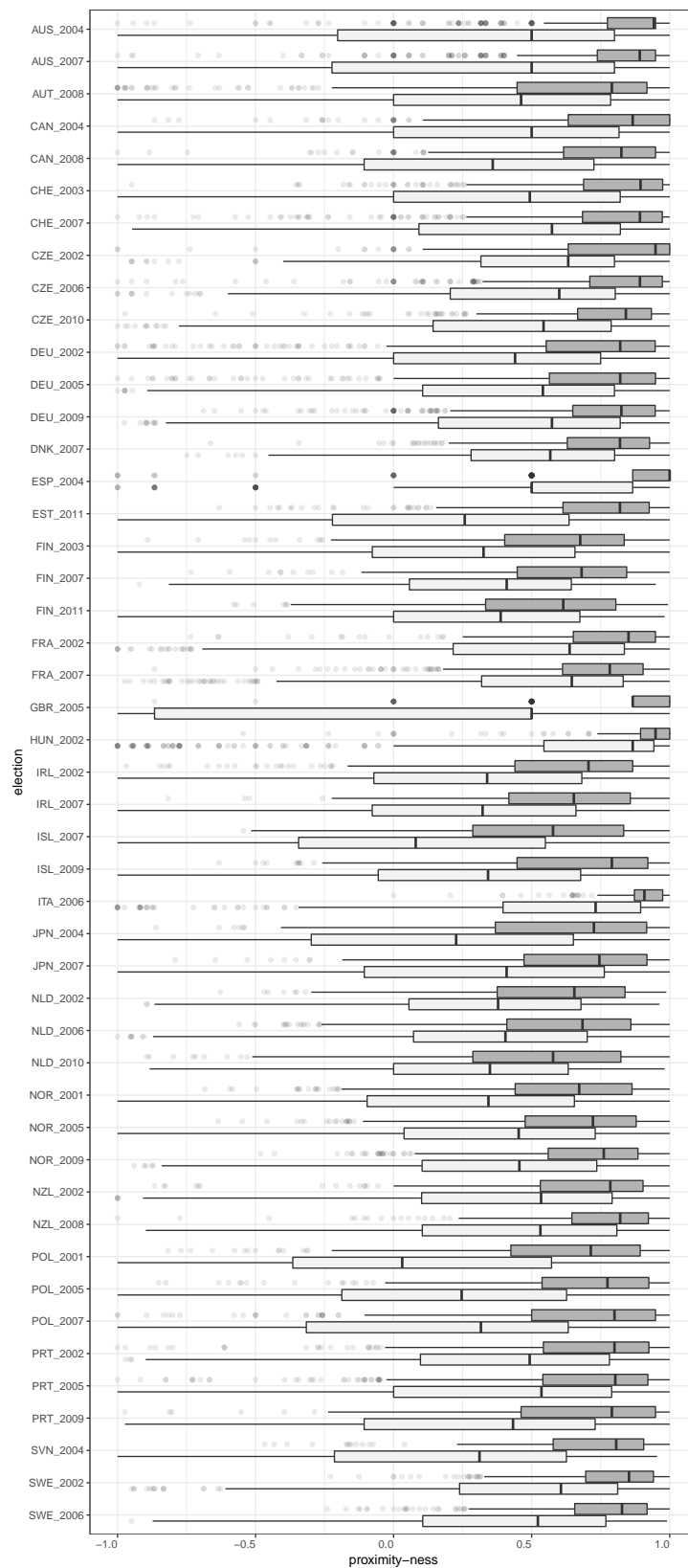
Figure 2.1: Distribution of *proximity consistency* for proximity voting violators (light) and conformers (dark), by election. Whiskers = median $\pm$ 1.5 interquartile ranges.
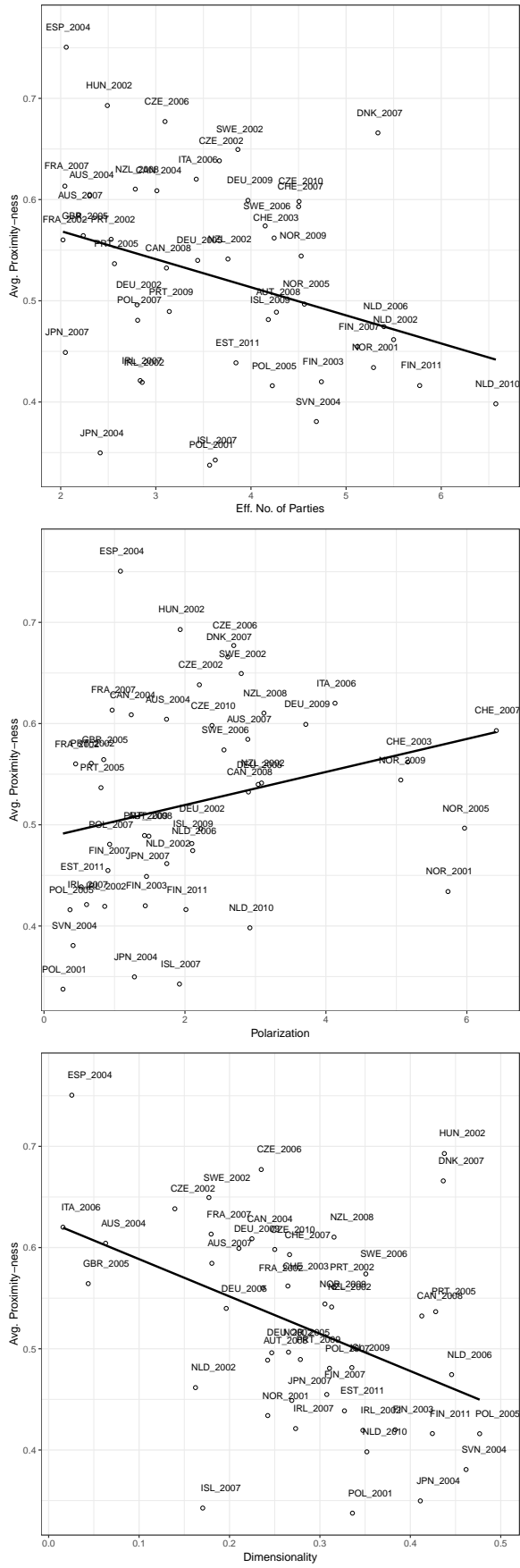
Figure 2.2: Party competition structure as measured by *ENP*, *Polarization* and *Dimensionality*, against average levels of *proximity consistency*, per election.

To back this up with a more rigorous analysis that takes into account micro-level characteristics, I estimate varying-intercept multilevel regressions. All models are specified with three levels (respondents nested in elections nested in countries). Table 2.2 shows the results of these analyses. Models 1-5 use the continuous, correlation-based measure of *proximity consistency* and therefore are estimated by linear regression; models 6-10 employ the more traditional dummy and thus are logistic regression models.[10] Either of these groups proceeds in the same fashion, starting with an empty model to give an impression of how the variance in the dependent variables manifests itself within and across the different levels, and then including the micro level variables and each of the party system variables on its own in an individual estimation, before concluding with a full model that comprises all the party system variables. They are interacted with *political information* consistently in all models.

As discussed above, contrary to the dummy measure, the continuous operationalization of preference structuration allows the inclusion of non-voters, which (albeit by coincidence of survey item response rates), increases sample size. At the same time, it retains the relative simplicity with regard to model specification of using the dummy measure as dependent variable, as opposed to e.g. voting propensities, as becomes especially apparent in the interaction effects. To estimate these with voting propensity as the dependent variable, three-way interactions would be needed where now two-way interactions suffice.

Turning to the estimated effects, results on the micro level are plausible and mostly reproduce those arrived at in the literature. Respondents with higher levels of education and/or political information have party preferences that are more closely aligned with ideological placements, while gender and age have no or only scant effect. The structuring effect of ideology is stronger for partisan identifiers, while the findings with regard to respondents' evaluation of *government performance* are inconsistent. In models 2-5, it has a significant, negative effect, as implied by the *alternative linkage* perspective discussed in section 2.2. In models 7-10, the coefficient is essentially zero. This is likely because the dummy measure,

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[10]I estimate models 1-5 using restricted maximum likelihood estimation (REML) instead of ordinary maximum likelihood (ML). This provides more realistic variance estimates (Elff *et al.* 2016) but precludes the comparison of the different models (Field *et al.* 2012). Since model comparison is less of an objective here than obtaining accurate estimates of statistical significance of the effect of context variables, I opt for REML. Goodnees-of-fit measures, such as information criteria or the log-likelihood, are consequentially not reported.

Table 2.2: Varying-intercept multilevel models for *proximity consistency* of party preferences (1-5) and *proximity dummy* (6-10), with interaction effects for context variables and *political information*. [C] = grand mean centered. *Political information* operationalized according to Singh (2015).

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 | Model 9 | Model 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Intercept | $0.518^{***}$ | $0.367^{***}$ | $0.370^{***}$ | $0.368^{***}$ | $0.368^{***}$ | $0.095$ | $-0.254^{**}$ | $-0.246^{**}$ | $-0.249^{**}$ | $-0.254^{**}$ |
| | (0.020) | (0.020) | (0.020) | (0.019) | (0.018) | (0.078) | (0.087) | (0.080) | (0.080) | (0.092) |
| age/100 [C] | | 0.019 | 0.018 | 0.018 | 0.019 | | 0.055 | 0.054 | 0.053 | 0.055 |
| | | (0.013) | (0.013) | (0.013) | (0.013) | | (0.061) | (0.061) | (0.061) | (0.061) |
| education [C] | | $0.017^{***}$ | $0.017^{***}$ | $0.017^{***}$ | $0.017^{***}$ | | $0.020^{**}$ | $0.020^{**}$ | $0.020^{**}$ | $0.020^{**}$ |
| | | (0.001) | (0.001) | (0.001) | (0.001) | | (0.006) | (0.006) | (0.006) | (0.006) |
| female | | $-0.000$ | $-0.000$ | $-0.000$ | $-0.001$ | | $-0.005$ | $-0.005$ | $-0.005$ | $-0.005$ |
| | | (0.004) | (0.004) | (0.004) | (0.004) | | (0.020) | (0.020) | (0.020) | (0.020) |
| partisan identifier | | $0.129^{***}$ | $0.129^{***}$ | $0.129^{***}$ | $0.129^{***}$ | | $0.614^{***}$ | $0.615^{***}$ | $0.614^{***}$ | $0.614^{***}$ |
| | | (0.004) | (0.004) | (0.004) | (0.004) | | (0.020) | (0.020) | (0.020) | (0.020) |
| perceived gov't perform. [C] | | $-0.023^{***}$ | $-0.023^{***}$ | $-0.023^{***}$ | $-0.023^{***}$ | | 0.002 | 0.002 | 0.002 | 0.002 |
| | | (0.003) | (0.003) | (0.003) | (0.003) | | (0.014) | (0.014) | (0.014) | (0.014) |
| voted | | $0.089^{***}$ | $0.090^{***}$ | $0.089^{***}$ | $0.089^{***}$ | | | | | |
| | | (0.007) | (0.007) | (0.007) | (0.007) | | | | | |
| political information | | $0.050^{***}$ | $0.047^{***}$ | $0.049^{***}$ | $0.046^{***}$ | | $0.099^{***}$ | $0.100^{***}$ | $0.098^{***}$ | $0.097^{***}$ |
| | | (0.004) | (0.004) | (0.004) | (0.004) | | (0.019) | (0.019) | (0.018) | (0.019) |
| ENP [C] | | $-0.030^{*}$ | | | $-0.034^{*}$ | | $-0.087$ | | | $-0.113$ |
| | | (0.013) | | | (0.014) | | (0.067) | | | (0.080) |
| political info. x ENP | | $-0.001$ | | | $-0.008^{*}$ | | 0.003 | | | $-0.011$ |
| | | (0.003) | | | (0.003) | | (0.013) | | | (0.016) |
| polarization [C] | | | 0.011 | | $0.021^{*}$ | | | 0.005 | | 0.054 |
| | | | (0.011) | | (0.010) | | | (0.046) | | (0.058) |
| political info. x polarization | | | $0.005^{*}$ | | $0.008^{***}$ | | | 0.001 | | 0.007 |
| | | | (0.002) | | (0.002) | | | (0.009) | | (0.011) |
| dimensionality [C] | | | | $-0.180^{+}$ | $-0.106$ | | | | $-0.592$ | $-0.442$ |
| | | | | (0.095) | (0.095) | | | | (0.415) | (0.392) |
| political info. x dimensionality | | | | 0.056 | $0.119^{**}$ | | | | $0.324^{+}$ | $0.395^{*}$ |
| | | | | (0.034) | (0.039) | | | | (0.174) | (0.196) |
| Dependent Variable | cont. | cont. | cont. | cont. | cont. | dummy | dummy | dummy | dummy | dummy |
| Num. obs. | 50562 | 50562 | 50562 | 50562 | 50562 | 45361 | 45361 | 45361 | 45361 | 45361 |
| Num. elections | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 |
| Num. countries | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| Variance: election | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.042 | 0.031 | 0.041 | 0.037 | 0.024 |
| Variance: country | 0.008 | 0.007 | 0.007 | 0.007 | 0.006 | 0.116 | 0.151 | 0.120 | 0.121 | 0.177 |
| Variance: Residual | 0.214 | 0.206 | 0.206 | 0.206 | 0.205 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{+}p < 0.1$

for a given respondent, either is based on a government or an opposition party, whereas the continuous measure maps out deviations from ideological structuration brought about by the appreciation of the government parties. The newly introduced *voted* dummy has a statistically significant coefficient in models 2-5.

Taking into regard how ideological structuration differs across context, the continuous operationalization of ideological party preference structuration gives much more conservative picture than the dummy variable operationalization, indicating that a share of 4.5 percent of its variance can be explained by the clusters as opposed to 13.6 percent. Strinkingly however, the effects of party system structure overall seem to turn up more clearly (in terms of statistical significance) in the linear models. The effects themselves mostly turn out as expected: on a purely descriptive level, a higher effective number of parties and increased dimensionality turn out to hinder ideological party preference structuration, while polarization aids it. Politically better informed respondents mostly appear to be better equipped to deal with these party system attributes. One curious exception to this pattern is the interaction effect between the *effective number of parties* and *political information*. While the evidence for the existence of any interaction effects is weak (see below), it might be worthwhile to explore this finding further, especially since this effect, to my knowledge, has not been examined in the literature. It may well be that this is a genuine effect and that politically more sophisticated citizens *do* make more exceptions from the proximity rule the more options they are presented with, controlling for other context factors.

Although the respective coefficients are, in part, statistically significant, graphical inspection of the interaction effects shows that this does not manifest itself within the empirical range of *political information* (figure 2.3). Since being a non-voter might also moderate the context effects taken into perspective here, for instance because non-voters engage with politics to a smaller extent or not at all, I re-estimate models 2-5 with the cross-level interactions between the party system context variables and whether or not a respondent *voted*. However, as models 11-14 in table 2.3, as well as figure 2.3 show, while the coefficients do indeed present a comparable pattern as those in models 2-5, they likewise do not provide evidence of interaction effects.

Table 2.3: Varying-intercept multilevel models for *proximity consistency* of party preferences, with interaction effects for context variables and electoral participation. [C] = grand mean centered. Political Information operationalized according to Singh (2015).

| | Model 11 | Model 12 | Model 13 | Model 14 |
|---|---|---|---|---|
| Intercept | 0.368*** | 0.371*** | 0.368*** | 0.369*** |
| | (0.020) | (0.020) | (0.019) | (0.018) |
| age/100 [C] | 0.019 | 0.018 | 0.018 | 0.018 |
| | (0.013) | (0.013) | (0.013) | (0.013) |
| education [C] | 0.017*** | 0.017*** | 0.017*** | 0.017*** |
| | (0.001) | (0.001) | (0.001) | (0.001) |
| female | −0.000 | −0.000 | −0.000 | −0.000 |
| | (0.004) | (0.004) | (0.004) | (0.004) |
| partisan identifier | 0.129*** | 0.129*** | 0.129*** | 0.129*** |
| | (0.004) | (0.004) | (0.004) | (0.004) |
| perceived gov't perform. [C] | −0.023*** | −0.023*** | −0.023*** | −0.023*** |
| | (0.003) | (0.003) | (0.003) | (0.003) |
| political information | 0.049*** | 0.049*** | 0.050*** | 0.049*** |
| | (0.004) | (0.004) | (0.004) | (0.004) |
| voted | 0.089*** | 0.089*** | 0.089*** | 0.087*** |
| | (0.007) | (0.007) | (0.007) | (0.007) |
| ENP [C] | −0.036** | | | −0.029+ |
| | (0.014) | | | (0.015) |
| voted x ENP | 0.007 | | | −0.004 |
| | (0.006) | | | (0.007) |
| polarization [C] | | 0.004 | | 0.011 |
| | | (0.011) | | (0.011) |
| voted x polarization | | 0.008* | | 0.011* |
| | | (0.003) | | (0.004) |
| dimensionality [C] | | | −0.195+ | −0.188 |
| | | | (0.110) | (0.117) |
| voted x dimensionality | | | 0.017 | 0.087 |
| | | | (0.063) | (0.074) |
| Dependent Variable | cont. | cont. | cont. | cont. |
| Num. obs. | 50562 | 50562 | 50562 | 50562 |
| Num. elections | 47 | 47 | 47 | 47 |
| Num. countries | 24 | 24 | 24 | 24 |
| Variance: election | 0.002 | 0.002 | 0.002 | 0.002 |
| Variance: country | 0.007 | 0.007 | 0.007 | 0.006 |
| Variance: Residual | 0.206 | 0.206 | 0.206 | 0.206 |

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{+}p < 0.1$

I therefore turn to models without interactions, which are presented in table 2.4, arranged in the same fashion as in table 2.2. While the effects, again, turn out mostly insignificant again, model 18 suggestively returns the same configuration of context effects as its respective counterpart, model 5, evidencing an effect of both *ENP* and *polarization.*

A very noteworthy point that remains to be raised regarding all the findings presented here is the substantive significance of the context effects. While the structure of party competition exerts systematic, and, I would venture, important 'menu dependence' effects, their scope appears somewhat limited; they are relatively small in size and/or only apply to specific groups. That large, sweeping effects are largely absent is also due to the fact that as pointed out above, the level of ideological structuration of party preferences is mostly high: the intercepts of models 1-5 can be interpreted as the conditional expected correlation between a respondent's party evaluations and ratings of perceived closeness (setting the independent variables to zero). For instance, model 5 implies a value of about 0.37 for a male non-voter who is not a partisan identifier, with all the other variables at their respective means. To brand this (hypothetical) respondent a 'spatial voting violator' would be quite a broad stroke; rather, he can be seen as 'moderately conforming'.

## 2.5   Conclusion

The debate what makes voters opt for or against this or the other party has been and is ongoing. It is not only an interesting debate for prediction of electoral behavior, but also speaks to aspects that are important for the functioning of democracy itself, such as whether citizens' preferences are adequately represented by the political system. From that vantage point, we might hope that they are presented with different 'verbal images of the good society' (Downs 1957) - i.e. ideologies - and weigh them against each other before they decide which of these images they buy into. But just as well, they might follow a much simpler conception of democracy, merely voting out of office politicians who in some way 'offended' them (Riker 1982). Lastly, it may be that vote choice is not much of a choosing after all, because it is
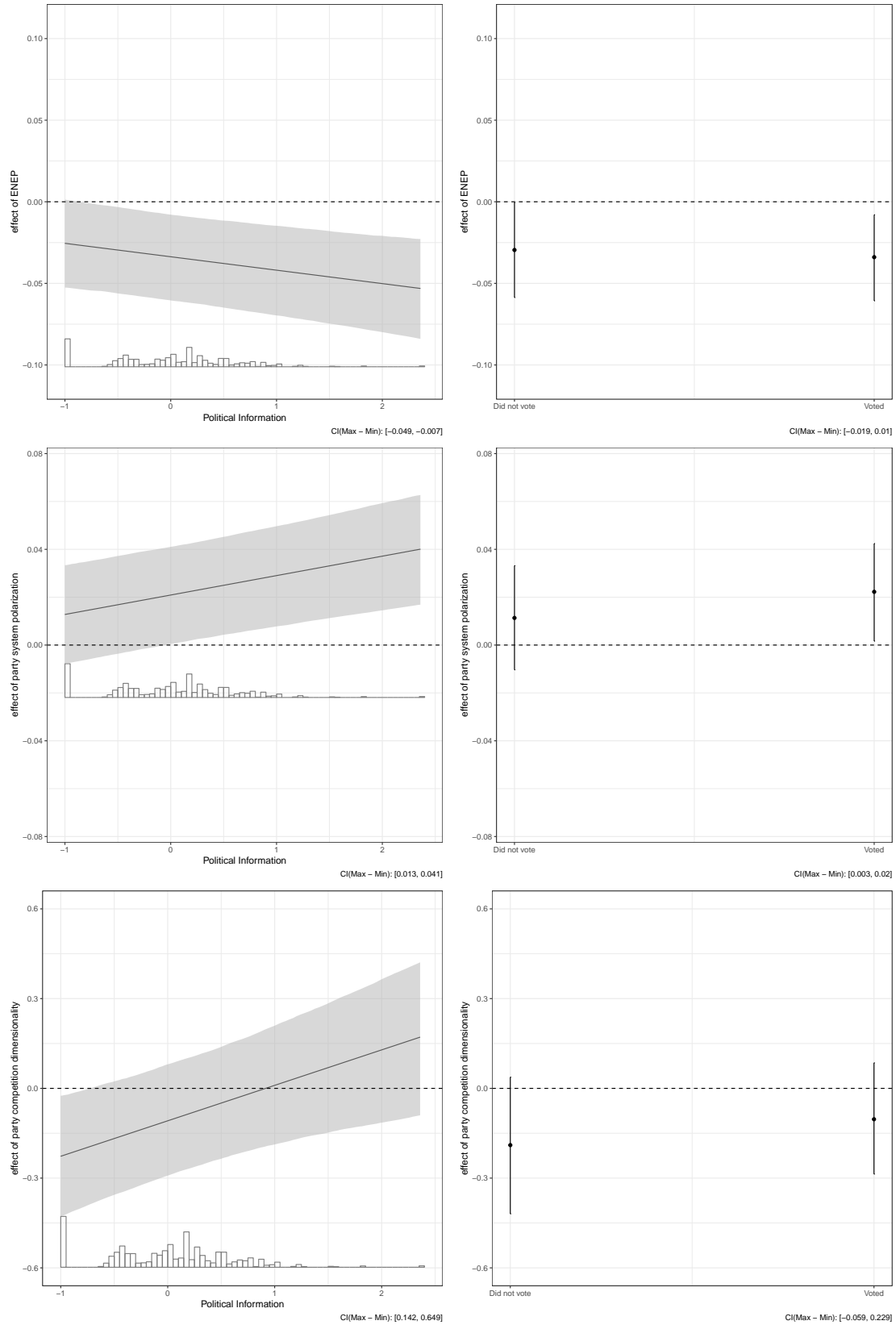
Figure 2.3: Effect of *ENEP*, *polarization*, and *dimensionality* on *proximity consistency*, contingent on level of *political information* (left, based on model 5) and on whether a respondent *voted* (right, based on model 14). Error bars indicate **95 %** confidence intervals.

Table 2.4: Varying-intercept multilevel models for *proximity consistency* of party preferences (15-18) and *proximity dummy* (19-22), without interaction effects. [C] = grand mean centered. *Political information* operationalized according to Singh (2015).

| | Model 15 | Model 16 | Model 17 | Model 18 | Model 19 | Model 20 | Model 21 | Model 22 |
|---|---|---|---|---|---|---|---|---|
| Intercept | 0.367*** | 0.370*** | 0.368*** | 0.368*** | −0.254** | −0.246** | −0.249** | −0.254** |
| | (0.020) | (0.020) | (0.019) | (0.018) | (0.087) | (0.080) | (0.080) | (0.092) |
| age/100 [C] | 0.019 | 0.018 | 0.018 | 0.018 | 0.055 | 0.054 | 0.054 | 0.054 |
| | (0.013) | (0.013) | (0.013) | (0.013) | (0.061) | (0.061) | (0.061) | (0.061) |
| education [C] | 0.017*** | 0.017*** | 0.017*** | 0.017*** | 0.020** | 0.020** | 0.020** | 0.020** |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.006) | (0.006) | (0.006) | (0.006) |
| female | −0.000 | −0.000 | −0.000 | −0.000 | −0.005 | −0.005 | −0.005 | −0.005 |
| | (0.004) | (0.004) | (0.004) | (0.004) | (0.020) | (0.020) | (0.020) | (0.020) |
| partisan identifier | 0.129*** | 0.129*** | 0.129*** | 0.129*** | 0.614*** | 0.615*** | 0.614*** | 0.614*** |
| | (0.004) | (0.004) | (0.004) | (0.004) | (0.020) | (0.020) | (0.020) | (0.020) |
| perceived gov't perform. [C] | −0.023*** | −0.023*** | −0.023*** | −0.023*** | 0.002 | 0.002 | 0.002 | 0.002 |
| | (0.003) | (0.003) | (0.003) | (0.003) | (0.014) | (0.014) | (0.014) | (0.014) |
| voted | 0.090*** | 0.090*** | 0.090*** | 0.089*** | | | | |
| | (0.007) | (0.007) | (0.007) | (0.007) | | | | |
| political information | 0.050*** | 0.050*** | 0.050*** | 0.050*** | 0.100*** | 0.100*** | 0.100*** | 0.100*** |
| | (0.004) | (0.004) | (0.004) | (0.004) | (0.018) | (0.018) | (0.018) | (0.018) |
| ENP [C] | −0.030* | | | −0.034* | −0.087 | | | −0.113 |
| | (0.013) | | | (0.014) | (0.067) | | | (0.080) |
| polarization [C] | | 0.011 | | 0.021* | | 0.005 | | 0.054 |
| | | (0.011) | | (0.010) | | (0.046) | | (0.058) |
| dimensionality [C] | | | −0.180+ | −0.106 | | | −0.593 | −0.443 |
| | | | (0.095) | (0.095) | | | (0.415) | (0.391) |
| Dependent Variable | cont. | cont. | cont. | cont. | dummy | dummy | dummy | dummy |
| Num. obs. | 50562 | 50562 | 50562 | 50562 | 45361 | 45361 | 45361 | 45361 |
| Num. elections | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 |
| Num. countries | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| Variance: election | 0.002 | 0.002 | 0.002 | 0.002 | 0.031 | 0.041 | 0.037 | 0.024 |
| Variance: country | 0.007 | 0.007 | 0.007 | 0.006 | 0.151 | 0.120 | 0.121 | 0.177 |
| Variance: Residual | 0.206 | 0.206 | 0.206 | 0.206 | 1.000 | 1.000 | 1.000 | 1.000 |

***$p < 0.001$, **$p < 0.01$, *$p < 0.05$, +$p < 0.1$

driven by largely time-invariant characteristics like belonging to certain demographics or early developed personality traits.

The notion that all of these mechanisms may be at work in the same electorate is a relatively new one, more so the interest in the question which of a citizen's attributes explain what mechanism her preferences conform with. Early advances on this topic like Rivers (1988) notwithstanding, empirical works on who does and does not vote ideologically mostly came up only very recent. This is all the more true for work that looks at the context a voter is situated in. In this paper I attempted to offer a comprehensive account of the effects of political supply. Recognizing the important role that political parties play in 'building' the political space, I tried to incorporate an encompassing description of the political space into my analysis, built on data measured at the party level. To do that I combined rather established concepts, i.e. the effective number of parties and their polarization, with the concept of dimensionality, which has only very recently been taken into perspective (Singh 2010, Fortunato *et al.* 2016). I then examined all these potential context effects in a comprehensive model.

This focus on party-based operationalizations of the context variables is one of two contributions of this article: discerning the political supply and demand side is important not only because the same variable can have different effects on either side (Pardos-Prado and Dinas 2010), but also because it takes the complexities of the interaction between the two sides serious. All too often, scholars from both the voting behavior and the party competition literature haphazardly use conceptually incongruent measures, thus possibly arriving at flawed inferences.

The second contribution regards the measurement of the dependent variable. Using the rank correlation coefficient between the policy distances a respondent sees between herself and the parties and her sympathy ratings for these parties as an operationalization of *proximity consistency*, I could show that beyond a crude division of respondents into 'violators' and 'conformers', there is a lot of nuance to be found in their party preference profiles. Specifically, it became apparent that even violators' preference profiles are often very much structured by the left-right dimension. This underscores Boatright's (2008) conclusion that proximity voting theory is neither totally wrong nor totally right (p. 124).

A very surprising finding regarding this specification is that while it varies much less across contexts than the more common dummy operationalization, the effects of variables situated on the context levels turn up much more systematically. At the same time, as regards the micro level, it reproduces common empirical findings from the existing literature to a large extent, for instance that respondents who know more about the political process have a more structured way of making up their minds about parties. Other mechanisms of party preference building appear to have heterogeneous effects: partisan identification seems to reinforce ideological thinking. Retrospective voting, on the other hand, turns out to be an alternative pathway.

Still, the results suggest that context effects are rather small. This again underscores the strong structuring capacity of the left-right dimension and how robust it is (see Knutsen 1995). From the perspective of the normative debate alluded to above however, this might actually be a positive finding: after all, if the ideological voting mechanism is robust to context, even in more complex decision environments, and the left-right dimension is indeed more or less available as a preference-structuring device in all systems, this warrants optimism that indeed "citizens can manage the complexities of politics and make reasonable decisions given their political interests and positions" (Dalton and Klingemann 2007, p. 6).

# Chapter 3

# Multidimensionality and the Ability to Place Parties on a Left-Right Dimension - An Experimental Study using Conjoint Analysis[1]

**Abstract:** When people talk about politics, they employ the notions 'Left' and 'Right' quite intuitively. They are thought of as an 'information shortcut' which allows quick and efficient judgments about political standpoints. Still, it is not settled how this mechanism works exactly, more so since positions of political parties often do not align unidimensionally. While existing research stresses the 'high absorptive capacity' of Left-Right regarding issue content, there seems to be little empirical knowledge on how voters handle it in the face of multidimensionality. This paper reports the results of a survey experiment designed to clarify how citizens understand and construct ideological positions. I present participants of a German online access panel with vignettes containing hypothetical party manifestos that vary in dimensionality. I use conjoint analysis to examine if and how they manage to place these manifestos in a transitive left-right order.

## 3.1    Introduction

When people talk about politics, they quite often employ the notions 'Left' and 'Right'. It is astonishing how the seating pattern of the French national assembly after the Revolution still structures today's perception of and conversation about politics, given that its relation to today's political issues is at best an indirect one: Strictly speaking, there is no logical connection between topics such as welfare, or immigration, on the one hand and the conflict between republicans and royalists in the 18th century on the other hand (Powell 2000). Nonetheless, the left-right dimension is used as an analogy to political discourse quite intuitively. Surveys show that the vast majority of respondents can place themselves on it without problems (Huber and Powell 1994, Dalton 2006). It tremendously simplifies political communication by providing a common frame of reference (Fuchs and Klingemann 1990, Benoit and Laver 2012). It thus acts as an 'information shortcut' (Downs 1957) which allows judgments about parties' platforms without having to learn about each and every issue.

However, this does not tell us what the left-right dimension *actually is* and how individual idea elements are condensed into a singular ideological dimension. Left-right often has been (and still is) equated with *economic* policy positions. Downs (1957) conceptualized it as the degree to which actors favor state intervention in the economy. However, the political space has changed a lot since these days. New conflicts, such as European integration (Kriesi *et al.* 2006) and immigration (de Vries *et al.* 2013) have been introduced into political debate and have brought about a 'pluralization' of the meaning of left-right (Knutsen 1995). Apparently, left-right has enough 'absorptive capacity' to deal with classical economic conflicts as well as e.g. the conflicts between religious and secular or materialist and postmaterialist values (Inglehart 1984, Knutsen 1995, Lachat 2018)).

This would not be puzzling by itself: A pluralization of topics that make up the left-right dimension does not create a problem as long as these topics correlate highly enough to form a single dimension. On the political supply side however, that seems not always to be the case. It is a recurrent theme of pundits and political commentary that the days of left and right party politics are over; but it has also been evidenced by academic research that competition

in contemporary party systems is not appropriately summarized by a single dimension, but is increasingly multidimensional (Warwick 2002, Albright 2010). Although this does affect citizens' propensity to apply the left-right dimension to the political landscape, it does so much less than one would expect from a strictly spatial understanding (Singh 2010, Fortunato *et al.* 2016). Therefore, this paper experimentally examines how multidimensionality is processed by voters and to what degree it impairs their ability to establish a consistent, transitive left-right ordering. It also asks which mechanisms, if any, preserve this ability, thus attempting to contribute to answering the question how the left-right dimension's persistent salience in existing political systems can be explained.

One explanation may indeed be that voters ignore some political issues and thus reduce multidimensionality to a certain extent. It is a piece of conventional wisdom that most voters do not live up to the consistency standards of what scholars call ideology (Converse 1964): Their different attitudes do not sufficiently correlate to be regarded as a consistent belief system. But, as others have pointed out, this need not mean that they do not have *beliefs* and that they have no idea of what left-right means that makes sense *individually* (Lane 1962, Fuchs and Klingemann 1990, Jost 2006). If the meaning of left-right becomes pluralized, different aspects of meaning may become emphasized or neglected. This becomes manifest in findings that the end points of the spectrum are often associated with quite different issues (Conover and Feldman 1982, Lachat 2018) and that they also differ with regard to ideological consistency (Cochrane 2011, Lelkes and Sniderman 2016). This might mean that while there are some broadly shared basic understandings of left-right, individuals do have somewhat idiosyncratic understandings of left-right, emphasizing issues that are salient to them and ignoring issues that run counter to that understanding (Gigerenzer 1982).

In contrast to the literature, which has mostly relied on observational data, I study the construction of ideologies in an survey-experimental setting to gain generalizable knowledge on how the party system's properties affect voters' judgments. Concretely, the survey experiment consists of a vignette survey administered on a German online access panel, analyzed through a *conjoint analysis design* (see Bakker *et al.* 2014 for an application of vignettes to anchor expert judgments of left-right positions). Respondents are presented with descriptions of

fictional party platforms and asked to compare them as regards their position on the left-right dimension. The primary variable to be explained is whether or not these comparisons result in a transitive ordering of parties. I review the literature relevant for this research objective in the following section. I then explain the experiment, the data gathered through it and the methods employed to analyze these data in section 3.3. Similar to existing observational research, I find only weak effects of multidimensionality on citizens' ability to order the parties from left to right. However, in contrast to previous studies, the data allow me to explore further which cognitive mechanisms enable citizens to come up with a clear-cut political ordering and, loosely speaking, construct a unidimensional political space where there is none. This exploration suggests that indeed, they accomplish that by disregarding some information and selectively focusing on some cues. These findings are presented in detail in section 3.4. The last section concludes and specifically discusses questions of internal, external and ecological validity.

## 3.2   The Left-Right Dimension, Voter Ideology and the Dimensionality of Party Competition

Ideology is, of course, a topic that has been researched extensively from all kinds of perspectives, with regard to different actors and on different levels of aggregation. The more specific question whether and how citizens structure their thinking about the positions of political actors in an ideologically consistent manner can be divided into a triad of ability, effort, and task difficulty. Political science has spoken volumes about the former two: the classical view (e.g., Converse 1964, Kinder 1983) asserts that only the most able (i.e., most educated or politically knowledgeable) and motivated (i.e., most politically interested) people possess belief systems that deserve the moniker of ideology. According to this view, for most citizens politics simply is too complex and/or uninteresting to develop such a system.

This perspective has subsequently been criticized from different angles (Carmines and D'Amico 2015). The upshot here has been that while well thought-through belief systems

may be rare among citzens, there is some central tendency of where their opinions generally fall (cf. Zaller 1992). Task difficulty has always at least implicitly been a part of the debate. A more recent literature, however, has explicitly looked at which institutions make it easier for citizens to grasp the gist of the political debate and make appropriate decisions (Lupia 1994, Lupia and McCubbins 1998, Lau and Redlawsk 2001, Boudreau 2009). Unsurprisingly, political parties belong to the institutions taken into view here: since they form the 'menu' from which citizens choose, they have an important role to play with regard to how this choice turns out (Sniderman and Bullock 2004). Thus, the format of the party system conditions how citizens handle ideology (Lachat 2008, Wessels and Schmitt 2008, Busch 2016, Ruth 2016). With regard to the left-right dimension, they also play an important role for what it means to voters: as de Vries *et al.* (2013) show, *issue bundling*, i.e. the way parties combine issue positions into party platforms affects the understanding that citizens have of it.

Dimensionality is a relatively recent addition to the variables taken into regard (Singh 2010, Fortunato *et al.* 2016), although in light of the discussion above, the argument for how it impacts ideological thinking is rather straightforward: if competing parties increasingly combine issue positions in such a way that they can only be mapped on multiple dimensions instead of a single one, it will be increasingly difficult for citizens to conceive of politics in a unidimensional pattern. This increase in dimensionality and the 'pluralization' of the meaning of left-right has been acknowledged by scholars for some time (Knutsen 1995, Warwick 2002, Albright 2010). If political experts encounter such difficulties of establishing a single dimension of political debate, it appears reasonable to suspect that so do citizens.

Accordingly, the literature cited above finds that the dimensionality of party competition correlates negatively with the degree to which the left-right dimension structures party preferences. But this effect is far from prohibitive. Even in quite complex party systems, there is still considerable left-right structuration (van der Eijk *et al.* 2005). This brings up the question by what mechanism voters achieve this level of 'resilience' to multidimensionality (cf. Reinermann and Barbet 2019). One answer might actually be the ignorance that the classical literature on voter ideology often decries: psychological research shows that when making decisions and judgments, individuals mostly do not systematically work through all

the available information, but ignore some parts of it and overemphasize others; they use heuristics, which are often simplistic, but quite efficient (Gigerenzer *et al.* 2001, Gigerenzer and Brighton 2009, Gigerenzer and Gaissmaier 2011).

In light of this research, it is conceivable that voters are able to make ideological judgments precisely *because* they ignore some of the elements of political debate, and thus resolve certain ambiguities in its structure. As Gigerenzer (1982) finds, individuals supress bidimensional patterns of conflict to preserve unidimensionality. They do so in a fashion that leads to quite heterogeneous orderings of parties on the left-right dimension. Gigerenzer thus speaks of *idiosyncratic* as opposed to *general* unidimensionality. Idiosyncratic unidimensionality entails that individuals vary in their understanding of the left-right dimension to a great degree. This is at odds with conventional wisdom that this understanding is largely dominated by socio-economic issues, but is consistent with a longstanding counterposition to that of e.g. Converse (1964), namely that citizens do indeed have belief systems, but not necessarily consistent with what Converse expected and with rather broad, multifaceted attachments to traditional ideological camps (Lane 1962, Conover and Feldman 1981, Bauer *et al.* 2017). This perspective agrees with a growing literature that finds a pluralization of left-right (Knutsen 1995) and variation in the understanding that citizens have over time (de Vries *et al.* 2013, Rekker 2016, Rekker *et al.* 2017) and context (Miwa and Taniguchi 2017). The most direct support for the idea of idiosyncratic unidimensionality is presented by Weber and Saris (2015), who find that the strength of association between attitudes on a given issue and left-right positions is moderated by the salience that respondents assign to that issue.

In sum, these studies raise warrant a closer look at the likelihood of individuals to bring the parties of a given system in a consistent, transitive left-right order, and on how they weigh different issues in doing so. Transitivity demands that if party $x$ is placed to the right of party $y$, and $y$ to the right of party $z$, party $x$ must also be placed to the right of party $z$ (in the following analysis, I distinguish a weak and a strong form of transitivity; see below). As argued above, it is likely to decrease the more multidimensional the pattern of party competition is, because citizens will be confused by contradictive political messages. I therefore test the claim

that the less aligned issue positions of parties are on a single dimension, the less likely are individuals to place them in a transitive left-right order.

The psychological research referred to above suggests that at least some individuals are able to figure out a left-right ordering of parties even when confronted with complex party systems by relying heavily on some information elements and discounting others. Hence, I look at how individuals (implicitly) weigh different issues in their judgment, and specifically at the distribution of weights they assign. As discussed above, individuals who weigh different issues less evenly should manage to order the parties transitively even under high dimensionality. Relatedly, I explore the degree to which issue weighting is *general* or *idiosyncratic*. Under a broadly shared understanding, most individuals would be guided by the same issues in coming up with left-right positions. The weights would thus be mostly explained by the characteristics of the issue or the party system in question. The more idiosyncratic left-right understanding is, the more would weights be explained by traits of the individuals themselves or by the way information is presented to them (because under an idiosyncratic understanding, they would be guided by different issues).

## 3.3 Experiment Design, Data Collection and Methods

### Study Design

As discussed in section 3.2, there is an extensive literature giving evidence of the important conditioning role of party systems for how citizens form an ideology. Nearly all of this work relies on survey data, or combines them with party data, and proceeds in a cross-nationally comparative fashion. Using observational data, however, involves many assumptions with regard to hypothesis testing. Concerning causal inference, the gold standard remains the experiment. On the other hand, ideology and electoral decision-making do not lend themselves as well to pure laboratory experiments as for example economic decisions because they are not easily translated into a framework of allocation and distribution (see Boudreau 2009, however). Luckily, survey experiments allow overcoming this problems without foregoing the

strength of causal identification of experiments. I therefore employ a conjoint design here, in which participants are asked to compare the platforms of fictitious political parties with regard to their relative position on the left-right dimension. Conjoint analysis is a rather recent addition to the political science tool box, but has experienced a tremendous upsurge in usage recently because is ideally suited for teasing apart the preference structure of individuals faced with stimuli on multiple dimensions (Hainmueller *et al.* 2014, Franchino and Zucchini 2015). While it is mostly employed to study which attributes of a given object are most important in an individual's assessment of the object's desirability (see Horiuchi *et al.* 2018 for an application to party platforms), in this paper I hope to show that it can just as fruitfully be used to study how citizens form ideological judgments.

The platforms that the participants in this study are presented with consist of five issue dimensions, on each of which a given party can take one of three positions. This yields $3^5 = 243$ theoretically possible platforms. From this 'universe', four are drawn at random for each participant. She is then presented with each of the six pairs that can be formed from the four parties and asked which of the two parties she considers a) more leftist and b) preferable, allowing for indifference on each of these questions. In addition, the respondent is asked how certain she is about her choices (an examplary image of how participants are presented with this task can be found in appendix B). While it is more common to have respondents rate each of the objects on a given scale, I chose the "pairwise comparison" format here because it appears to be less demanding where the task to be carried out is already quite complex. It also permits a direct and clear-cut measure of how well participants are able to make ideological judgments, based on the transitivity of the order they create through their choices (Herrmann *et al.* 2006). Since each respondent is assigned a randomly chosen set of four parties, the characteristics of this "party system" can be seen as an experimental treatment that can be related to this measure.

The study was conducted on a German online access panel (see the following subsection for details). An English translation of the statements used to assemble the vignettes can be found in table 3.1 (the original German formulation can be found in appendix B). The choice of the issue dimensions used is driven by the findings of Neundorf (2011). Using data from

Table 3.1: Positional frames for conjoint analysis regarding party positions

| Issue | Position | | |
|:---:|:---|:---|:---|
| | 1 | 0 | -1 |
| 1 | Taxes and dues should be as low as possible. Therefor, welfare provision should be kept at a minimum. | Welfare provision should enable people to take part in society, but the burden on tax payers should not be too high. | Welfare provision should allow a good standard of life. Therefor, taxes and duties should be high. |
| 2 | Same-sex relationships should not be specifically recognized by the state. | Same-sex relationships should be recognized by the state, but marriage should be reserved for men and women. | Same-sex couples should be allowed to marry just like men and women. |
| 3 | Immigrants should adapt to German customs and traditions. | Immigrants should be enabled to keep their customs and traditions, but also observe the German ones. | Immigrants should be enabled to stick to their own customs and traditions. |
| 4 | To fight crime, the state should primarily use strict punishment. | Punishment is necessary to fight crime, but the state also should help convicts to manage in society. | To fight crime, the state should primarily try to reintegrate convicts into society. |
| 5 | National politics should always take precedence over European politics. | Coordination on the European level is important, but certain competences should be reserved for the national states. | Europe should have a common government. |

the General Population Survey (ALLBUS) 2008, she analyzes respondents' attitudes regarding twelve different issues and how well these attitudes discern their left-right self-placements. These issues are grouped into four different policy fields: socio-economic issues, 'new politics', the libertarian-authoritarian dimension and immigration. I construct the stimuli for the conjoint element by choosing one item from each policy field that seems to distinguish professed left- and right-wingers best according to Neundorf's analysis (Ibid., figure 2). I formulate three positions which can arguably be seen as a left, middle and right position. The concrete issue dimensions arrived at through this procedure are welfare spending vs. taxation, same-sex marriage, measures against crime, and requirements for immigrants to adjust to German customs and traditions. Although not a part of Neundorf's analysis, European integration has been found to be salient issue for the Left-Right divide (Shikano and Pappi 2004), so I add an issue dimension that ranges from integration-friendly positions to those that emphasize national sovereignty.[2] In formulating the positions, I take care to not include references to the status quo (e.g., I avoid including a call for welfare provision to be *increased*), to reduce the effects that differential interpretations of the statements might have. Varying the combination of positions in the virtual party platforms induces dimensionality through cross-cutting issues. If for example immigration-sceptics consistently demand more welfare spending and those who favor it always want lower taxes, dimensionality is not increased. To create a fully bidimensional space, party platforms would need to include all four stances made possible by these exemplary positions (see Robertson 2006 for this understanding of dimensionality). The issues were presented to the participants in of five randomly chosen orders to control for the effects of the sequence in which they learn about the issue postions of the parties.[3] The vignettes are embedded in a survey that taps into different characteristics of the participants, including basic demographics (age, gender, education and the Bundesland/state of residence), political attitudes and engagement, and selected personality items.

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[2]In order to keep the number of issue dimensions manageable, a selection had to made, leaving out others such as environmental protection. While the combination of issues used here can of course be debated, I would argue that it is plausible insofar as all of them do have a clear connection to left-right and are empirically relevant.

[3]The first order was: *(spending vs. taxation) - (same-sex marriage) - (immigration) - (crime prevention) - (European integration).* The other four were arrived at by letting this sequence start with either of the other issues.

## Data and Operationalization

The sample for this study was recruited in Germany by Respondi, an international survey company. Respondi maintains a pool of individuals generally willing to participate in marketing and other surveys and invites them to these surveys based on the researcher's needs (Examples for political science work that relies on Respondi's services are the German Longitudinal Eletion Survey (GLES), as well as Bechtel *et al.* 2014). For the purpose of this study, participants were admitted to the survey to reflect the distribution of genders and age groups, as well as the *Bundesländer* in which respondents reside, according to quotas provided by Respondi. Respondi incentivizes participation with points that can at a certain point be turned into a cash transfer, vouchers, or a donation to charity. For this survey (which took respondents analyzed here 21.8 minutes on average), incentives amounted to 1.25 euros if respondents completed the survey and 0.05 euros if they were screened out because the applicable quota had been reached. While this is rather low incentive in absolute terms, it was chosen to lie at the higher end of what Respondi pool members usually receive for this amount of time. In total, 512 participants completed the survey between December 13 and 22 2016, 505 of which are analyzed here.

For each of these respondents, I code whether they commit *weak* or *strong order violations* when placing the parties, that is whether in any of the four triples that can be formed from the fictitious parties, they gave answers that violated the conditions

$$x < y \ \wedge \ y < z \ \Rightarrow \ x < z \text{ (weak ordering) or} \tag{3.1}$$

$$x \leq y \ \wedge \ y \leq z \ \Rightarrow \ x \leq z \text{ (strong ordering)} \tag{3.2}$$

where $x$, $y$, and $z$ are the left-right positions given for the parties of a given triple. These are the primary dependent variables used in the following, measured at the respondent level. As an additional check, I analyze the difficulties that respondents face in ordering the parties on the vignette level by coding whether or not they see a difference between the two parties

presented to them. The respective variable, referred to as *indifference*, equals 1 if a respondent judges both parties to have the same position and 0 if they see them as different. To measure the independent variable, i.e. the *degree of unidimensionality* of the party positions in a vignette set, I code the three positions on either dimension as -1, 0 and 1 and compute the average inter-dimension Spearman correlation. Additionally, I measure how much the parties in a vignette set differ on each dimension by computing the standard deviation of their respective positions.

As discussed above, the experimental setup of the survey and the randomization of the vignettes ensures that dimensionality is statisticially independent from any of the respondents' characteristics, so that those generally do not need to be controlled for. One exception is how much respondents engage with the vignettes. While the treatment respondents receive is randomized, the degree to which they expose themselves to it is selective to a degree, since it is impossible to sanction respondents who answer the vignettes carelessly or inattentively. While the cognitive effort respondents make to figure out the vignettes cannot be measured directly, it can arguably be proxied using the time for which each of the vignettes is displayed. Thus, I use the minimum amount of time a given respondent displayed either of the vignettes (in minutes) to measure how much she engaged with the task. The respective variable is referred to as *effort*.

To arrive at estimates for how strongly each dimension influences the ordering respondents produce, I make use of a unique feature of conjoint analysis, i.e. the possibility to calculate 'part-worths' (Vriens 1995). Specifically, I create a data set with the individual vignettes as units of observation, including an ordinal variable that indicates whether a respondent placed the second party of each vignette to the left, equally or to the right of the first one and relate this measure to the differentials of the party positions on each dimension through a hierarchical ordered logit regression. By letting the slopes of these differentials vary on the respondent level and computing the individual effects, I obtain measures of the weights that the issue dimensions yield in a given respondent's left-right judgment. The standard deviation of these weights serves as the operationalization of the degree to which respondents regard only some issues as opposed to all of them (referred to as *focus*).

# 3.4 Analysis[4]

Arguing from the existing observational literature on voting behavior and party preferences, the preceding sections argued that multidimensionality in party positions should make violations of the transitivity requirement of left-right orderings more likely. In this section, I test this argument, and explore what determines the weight different subdimensions have in individuals' judgment on whether a party is left- or right-wing. The analysis is carried out at different levels of measurement. Descriptive statistics for either of the data sets created therefor can be found in appendix B. As an illustrative example of how the effect of dimensionality on transitivity might come about, figure 3.1 summarizes the party positions that two arbitrarily chosen respondents were presented with in a scatterplot matrix across policy dimensions: one respondent was asked to evaluate a party system (triangles/dashed lines) where positions are rather closely aligned and thus exhibit a rather high degree of unidimensionality of 0.64, one a party system where party positions on different subdimensions do hardly correspond and unidimensionality is -0.17. The latter respondent, unlike the former, thus was not able to assemble a transitive left-right ordering of the parties.

However, as figure 3.2 suggests, this effect plays out in the sample as a whole only to a limited degree: it shows the density of the *unidimensionality* variable, contingent on whether a respondent violated the requirement of a strong/weak ordering. While there is a slight effect to be made out in the case of strong order violations, the curves hardly differ for the weak ordering scenario. This is primarily because respondents are, quite simply, rather good at ordering the parties: 87.7 % manage to construct at least a weakly transitive left-right ordering, while 44.7 % even come up with a strongly transitive ordering. When respondents are asked to indicate their *preference* instead of *left-right positions*, the numbers are roughly the same.

Tables 3.2 and 3.3 more formally test the effect of *unidimensionality* on the occurrence of strong and weak order violations, respectively. The procedure is the same in either of them: I compute logistic regressions with *strong/weak order violation* as the dependent variable. Both

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[4]The following R packages were used to compile the material presented here: Leifeld (2013), Bates *et al.* (2015), Wickham (2016), Schloerke *et al.* (2018), Christensen (2019).
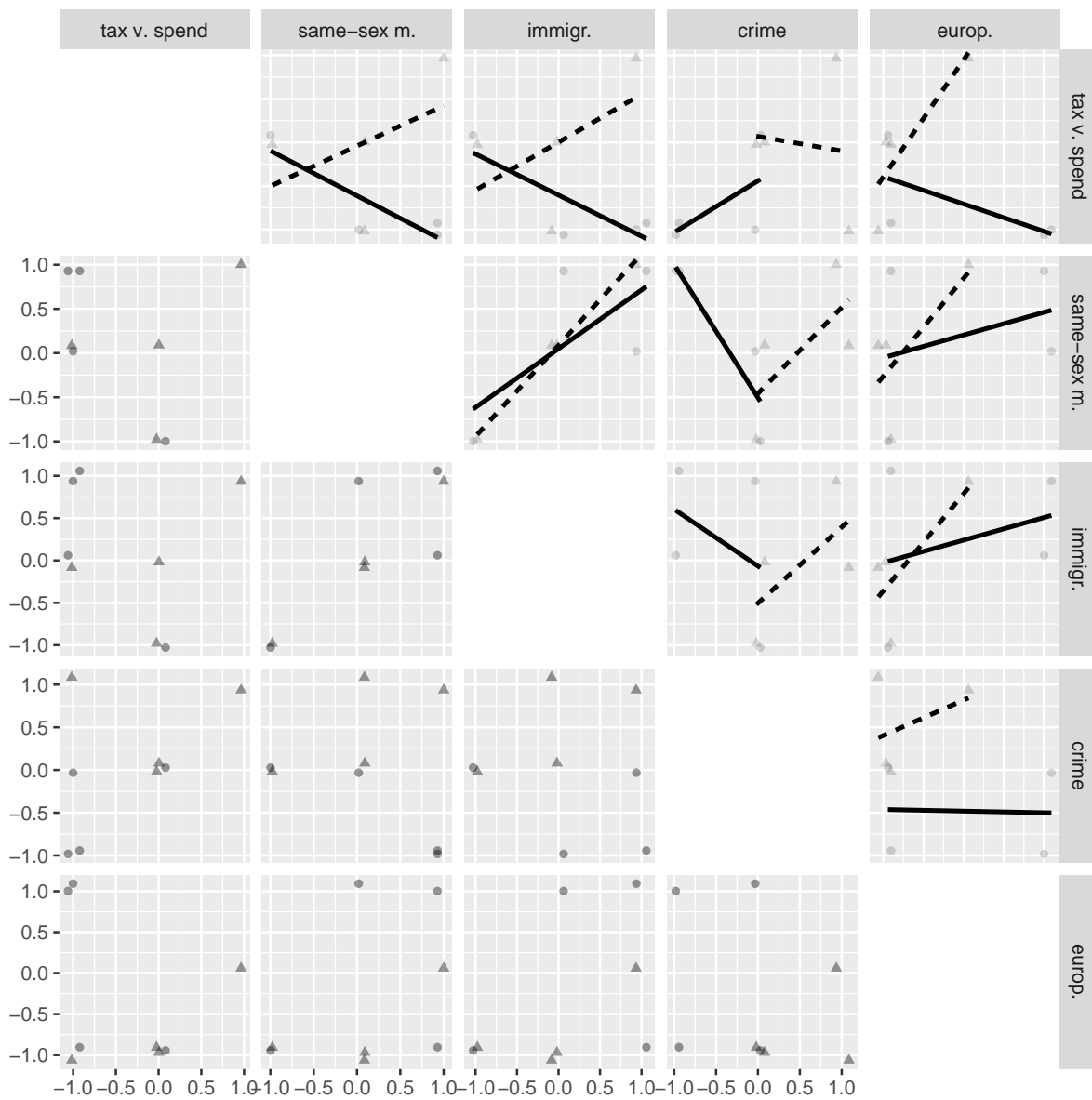
Figure 3.1: Examplary party position profiles presented to two respondents, with *unidimensionality* = 0.64 (dashed lines/triangles) and *unidimensionality* = −0.17 (solid lines/dots).

Table 3.2: Logistic regressions, dependent variable: *strong transitivity violations*; models 4-7 exclude respondents who chose the same option in all six vignettes.

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|---|---|---|---|---|---|---|---|
| Intercept | 0.175$^+$ | 0.195 | −0.015 | 0.435$^{***}$ | 0.769$^{***}$ | 0.644 | 1.357$^+$ |
| | (0.090) | (0.176) | (0.611) | (0.097) | (0.199) | (0.663) | (0.804) |
| unidimensionality | −0.796 | −0.800 | −0.839 | −1.038$^+$ | −1.130$^+$ | −1.168$^*$ | −1.281$^*$ |
| | (0.547) | (0.548) | (0.553) | (0.577) | (0.582) | (0.590) | (0.605) |
| effort | | −0.042 | −0.044 | | −0.665$^+$ | −0.663$^+$ | −0.892$^*$ |
| | | (0.317) | (0.321) | | (0.342) | (0.347) | (0.367) |
| polarization | | | −0.088 | | | −0.155 | −0.321 |
| (spend. vs. tax) | | | (0.346) | | | (0.380) | (0.389) |
| polarization | | | −0.361 | | | −0.393 | −0.383 |
| (same-sex marr.) | | | (0.349) | | | (0.374) | (0.386) |
| polarization | | | 0.821$^*$ | | | 0.851$^*$ | 0.892$^*$ |
| (immigrants) | | | (0.334) | | | (0.355) | (0.364) |
| polarization | | | 0.292 | | | 0.214 | 0.292 |
| (crime) | | | (0.345) | | | (0.371) | (0.380) |
| polarization | | | −0.374 | | | −0.341 | −0.264 |
| (Eur. integ.) | | | (0.362) | | | (0.390) | (0.404) |
| aged 30-39 | | | | | | | 0.250 |
| *(ref.: 18-29)* | | | | | | | (0.321) |
| aged 40-49 | | | | | | | 0.033 |
| *(ref.: 18-29)* | | | | | | | (0.312) |
| aged 50-59 | | | | | | | 0.640$^*$ |
| *(ref.: 18-29)* | | | | | | | (0.319) |
| aged 60 or older | | | | | | | 0.551 |
| *(ref.: 18-29)* | | | | | | | (0.343) |
| intermediate second. educ. | | | | | | | −1.034$^{**}$ |
| *(ref.: no/basic second. educ.)* | | | | | | | (0.380) |
| upper lvl. second. educ. | | | | | | | −1.013$^{**}$ |
| *(ref.: no/basic second. educ.)* | | | | | | | (0.377) |
| AIC | 698.281 | 700.264 | 701.684 | 608.676 | 606.885 | 609.180 | 603.710 |
| BIC | 706.730 | 712.937 | 735.481 | 616.908 | 619.233 | 642.107 | 661.332 |
| Log Likelihood | -347.141 | -347.132 | -342.842 | -302.338 | -300.443 | -296.590 | -287.855 |
| Deviance | 694.281 | 694.264 | 685.684 | 604.676 | 600.885 | 593.180 | 575.710 |
| Num. obs. | 505 | 505 | 505 | 453 | 453 | 453 | 453 |

$^{***}p < 0.001$, $^{**}p < 0.01$, $^*p < 0.05$, $^+p < 0.1$
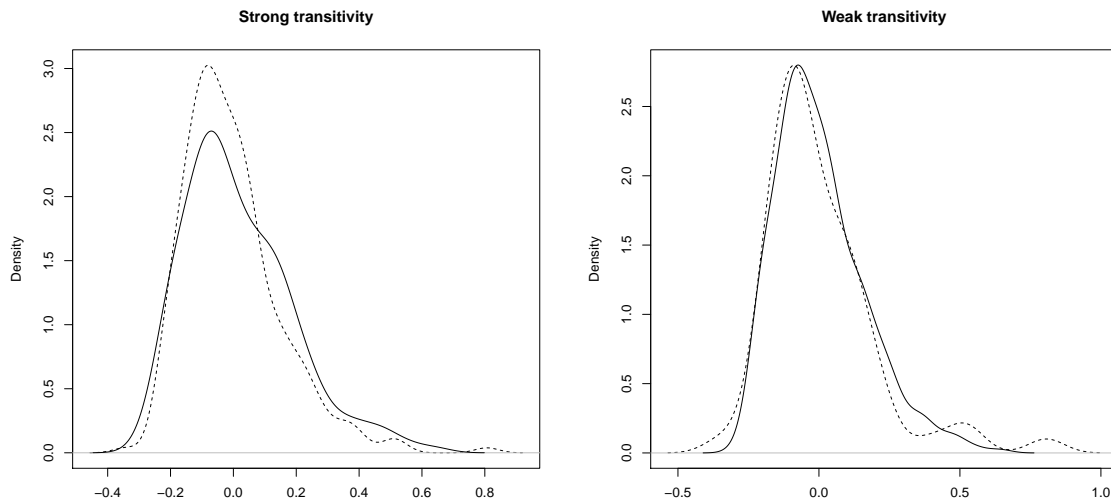
Figure 3.2:  *Unidimensionality* among respondents who committed a transitivity violation (dashed lines) or not (solid lines).

tables show two sets of regressions with the same model progression: first, a minimal model with only the *degree of unidimensionality* as the independent variable, a second one that adds *effort*, and a third that includes the polarization (measured as the standard deviation of party positions) on each subdimension as control variables. While the first three models in each table use the entire sample, models 4-7 and 11-14 exclude certain respondents who answer in a fashion that, on the one hand, does not lead to a violation but, on the other hand, betrays an inattentive answering behavior, since the respondents gave the same answer to all six vignettes. These respondents arrived at a transitive ordering 'by construction', but quite plausibly did not make a sincere attempt to figure out the positions of the parties. A last, seventh model (in addition to this transformation) controls for variables associated with cognitive performance, i.e. education levels (following Germany's three-tier school system) and age (measured in five age classes spanning a decade each). This, as argued above, is not necessary to identify an effect, but should somewhat reduce statistical noise.

The coefficient of the *unidimensionality* variable, i.e. the average correlation between subdimensions, consistently shows the expected sign; greater alignment of party positions on different dimensions does reduce the likelihood of ordering violations. However, this effect is only (slightly) statistically significant under very specific circumstances, namely when the

Table 3.3: Logistic regressions, dependent variable: *weak transitivity violations*; models 11-14 exclude respondents who chose the same option in all six vignettes.

| | Model 8 | Model 9 | Model 10 | Model 11 | Model 12 | Model 13 | Model 14 |
|---|---|---|---|---|---|---|---|
| Intercept | $-1.966^{***}$ | $-1.874^{***}$ | $-4.195^{***}$ | $-1.841^{***}$ | $-1.601^{***}$ | $-3.884^{***}$ | $-3.544^{**}$ |
| | (0.136) | (0.266) | (1.000) | (0.137) | (0.276) | (1.012) | (1.132) |
| unidimensionality | $-0.084$ | $-0.105$ | $-0.177$ | $-0.152$ | $-0.212$ | $-0.300$ | $-0.467$ |
| | (0.831) | (0.834) | (0.843) | (0.832) | (0.838) | (0.854) | (0.863) |
| effort | | $-0.194$ | $-0.108$ | | $-0.497$ | $-0.378$ | $-0.603$ |
| | | (0.489) | (0.496) | | (0.509) | (0.513) | (0.548) |
| polarization | | | 0.554 | | | 0.562 | 0.489 |
| (spend. vs. tax) | | | (0.560) | | | (0.574) | (0.587) |
| polarization | | | 0.814 | | | 0.793 | 0.749 |
| (same-sex marr.) | | | (0.561) | | | (0.558) | (0.568) |
| polarization | | | $1.300^{*}$ | | | $1.239^{*}$ | $1.340^{*}$ |
| (immigrants) | | | (0.570) | | | (0.572) | (0.579) |
| polarization | | | $-0.389$ | | | $-0.458$ | $-0.394$ |
| (crime) | | | (0.512) | | | (0.516) | (0.526) |
| polarization | | | 0.582 | | | 0.656 | 0.665 |
| (Eur. integ.) | | | (0.554) | | | (0.558) | (0.558) |
| aged 30-39 | | | | | | | $-0.430$ |
| (ref.: 18-29) | | | | | | | (0.468) |
| aged 40-49 | | | | | | | $-0.559$ |
| (ref.: 18-29) | | | | | | | (0.473) |
| aged 50-59 | | | | | | | 0.125 |
| (ref.: 18-29) | | | | | | | (0.422) |
| aged 60 or older | | | | | | | 0.342 |
| (ref.: 18-29) | | | | | | | (0.441) |
| intermediate second. educ. | | | | | | | $-0.335$ |
| (ref.: no/basic second. educ.) | | | | | | | (0.441) |
| upper lvl. second. educ. | | | | | | | $-0.139$ |
| (ref.: no/basic second. educ.) | | | | | | | (0.432) |
| AIC | 380.126 | 381.966 | 381.209 | 365.671 | 366.685 | 366.122 | 372.039 |
| BIC | 388.575 | 394.640 | 415.005 | 373.902 | 379.033 | 399.049 | 429.661 |
| Log Likelihood | -188.063 | -187.983 | -182.605 | -180.835 | -180.342 | -175.061 | -172.019 |
| Deviance | 376.126 | 375.966 | 365.209 | 361.671 | 360.685 | 350.122 | 344.039 |
| Num. obs. | 505 | 505 | 505 | 453 | 453 | 453 | 453 |

$^{***}p < 0.001, ^{**}p < 0.01, ^{*}p < 0.05, ^{+}p < 0.1$

time that respondents looked at the vignettes is controlled for, and when respondents whose orderings are transitive 'by default' are excluded. Also, the effect only materializes for the incidence of *strong order violations*. Including the spread of the parties on the different subdimensions reveals a curious effect that seem not to be in line with observational research: while the literature mostly finds that polarization aids the handling of the left-right dimension (Lachat 2008), several of the polarization scores show a positive effect on the likelihood of transitivity violations (especially on the immigration dimension). This is probably both because of the concepts measured and the mechanics of statistical control: on the one hand, what is measured here is the polarization on specific subdimensions instead of a broad left-right dimension; on the other hand, given that all vignette sets display less than perfect unidimensionality an increase in polarization could, conditional on dimensionality, in fact make it harder to arrive at a transitive ordering.[5]

Apart from inducing wrong orderings, another way in which dimensionality may affect citizens' ability to make sense of the left-right dimension could be by making party positions on it less discernible to them. To explore this possibility, I compute cross-classified hierarchical logistic regression models using *indifference* (i.e., whether a respondent actually felt able to place one party to the left of the other) as the dependent variable, with observations nested in both respondents and vignette rounds (table 3.4). However, while the coefficient does again show the expected sign, it is not statistically significant, not even if variation is further reduced by additional covariates.

The analyses shown above indicate only a modest, if any, effect of *unidimensionality* on the ability to position parties on the left-right dimension. Contrary to previous, observational work, however, they allow the inclusion of an (albeit imperfect) measure of the *effort* individuals have to put in prising apart the party positions, and thus to make explicit that greater complexity of political discourse makes this process more straining. Figure 3.3 shows that the mechanism that lets them perform this task is indeed the selective weighting of specific issues: it shows the distribution of the *focus* variable, i.e. the standard deviation of the 'part-worths'

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[5]If the unit of observation is shifted from one respondent or the full set of parties respectively to party triads, i.e. the smallest set in which intransitivities can occur, the effects of subdimension polarization scores are not statistically significant (not shown here).

Table 3.4: Hierarchical logistic regressions, dependent variable: *Indifference.*

| | Model 15 | Model 16 | Model 17 | Model 18 |
|---|---|---|---|---|
| Intercept | $-1.020^{***}$ | $-1.016^{***}$ | $-1.016^{***}$ | $-0.748^{*}$ |
| | (0.100) | (0.100) | (0.098) | (0.308) |
| unidimensionality | $-0.493$ | $-0.499$ | $-0.496$ | $-0.476$ |
| | (0.527) | (0.529) | (0.528) | (0.525) |
| time | | $-0.004$ | $-0.004$ | $-0.004$ |
| | | (0.008) | (0.008) | (0.008) |
| party differential | | | 0.035 | 0.039 |
| (spend. vs. tax) | | | (0.045) | (0.045) |
| party differential | | | $-0.032$ | $-0.032$ |
| (same-sex marr.) | | | (0.044) | (0.044) |
| party differential | | | $-0.028$ | $-0.032$ |
| (immigrants) | | | (0.044) | (0.044) |
| party differential | | | 0.045 | 0.049 |
| (crime) | | | (0.044) | (0.044) |
| party differential | | | $-0.012$ | $-0.014$ |
| (Eur. integ.) | | | (0.044) | (0.044) |
| aged 30-39 | | | | 0.247 |
| *(ref.: 18-29)* | | | | (0.274) |
| aged 40-49 | | | | 0.245 |
| *(ref.: 18-29)* | | | | (0.270) |
| aged 50-59 | | | | 0.287 |
| *(ref.: 18-29)* | | | | (0.264) |
| aged 60 or older | | | | $-0.026$ |
| *(ref.: 18-29)* | | | | (0.287) |
| intermediate second. educ. | | | | $-0.507^{+}$ |
| *(ref.: no/basic second. educ.)* | | | | (0.267) |
| upper lvl. second. educ. | | | | $-0.485^{+}$ |
| *(ref.: no/basic second. educ.)* | | | | (0.263) |
| AIC | 3333.294 | 3333.964 | 3341.076 | 3344.558 |
| BIC | 3357.360 | 3364.046 | 3401.239 | 3440.819 |
| Log Likelihood | -1662.647 | -1661.982 | -1660.538 | -1656.279 |
| Num. obs. | 3030 | 3030 | 3030 | 3030 |
| Num. groups: respondent | 505 | 505 | 505 | 505 |
| Num. groups: conjoint question | 6 | 6 | 6 | 6 |
| Var: respondent (Intercept) | 2.464 | 2.487 | 2.474 | 2.408 |
| Var: conjoint q. (Intercept) | 0.017 | 0.016 | 0.014 | 0.014 |

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{+}p < 0.1$

of the different subdimensions in a respondent's overall left-right judgment. It shows that this selective emphasis apparently indeed substitutes for a lack in unidimensionality, and that respondents who manage to come up with a transitive ordering (shown in black) generally show greater degrees of *focus*, than those who violate the strong or weak order violations.

Turning to the analysis of the part-worths themselves, i.e. how prominently each subdimension figures in individuals' left-right judgments, a first finding is that these do, in fact, vary considerably, as can be seen in figure 3.4. According to a large portion of the established literature, one might expect that the selective weighting referred to above results in left-right positioning being solely driven by positions on the spending vs. taxation subdimension. Interestingly, the figure shows that the spending vs. taxation subdimension is of somewhat *lesser* importance than the others. This is mirrored in the hierarchical linear regression models reported in table 3.5. They are computed on the respondent-subdimension level, with observations clustered at the respondent level.

The number of possible models and explanatory variables here is vast. To reconnoiter the ground between general and idiosyncratic unidimensionality, I examine variables pertaining to either of the two visions. Among the variables that capture idiosyncrasies in understanding, the first is a 'primacy/recency' based explanation. It entails that the order in which issues are presented to individuals determines which ones are most available to them and form their judgment most. The second is the salience that respondents assign to either of the subdimensions on a scale from zero to ten. As discussed above, it is likely that individuals' understanding of left-right is guided by the issues which are personally most salient to them. Generality in understanding is captured, first, by the issue character. This inter alia tests whether left-right is indeed dominated by socio-economic issues. Lastly, an important driver of how prominent certain issues figure in the minds of citizens has been found to be the degree to which parties politicize it (Lachat 2008). Therefore, I also include the polarization on each issue as an explanatory variable.

The regression coefficients quite clearly show differences in weights dependent on the kind of issue. Curiously, the spending vs. taxation subdimension is indeed of lesser importance than each of the others. Immigration and same-sex marriage seem to structure the left-right
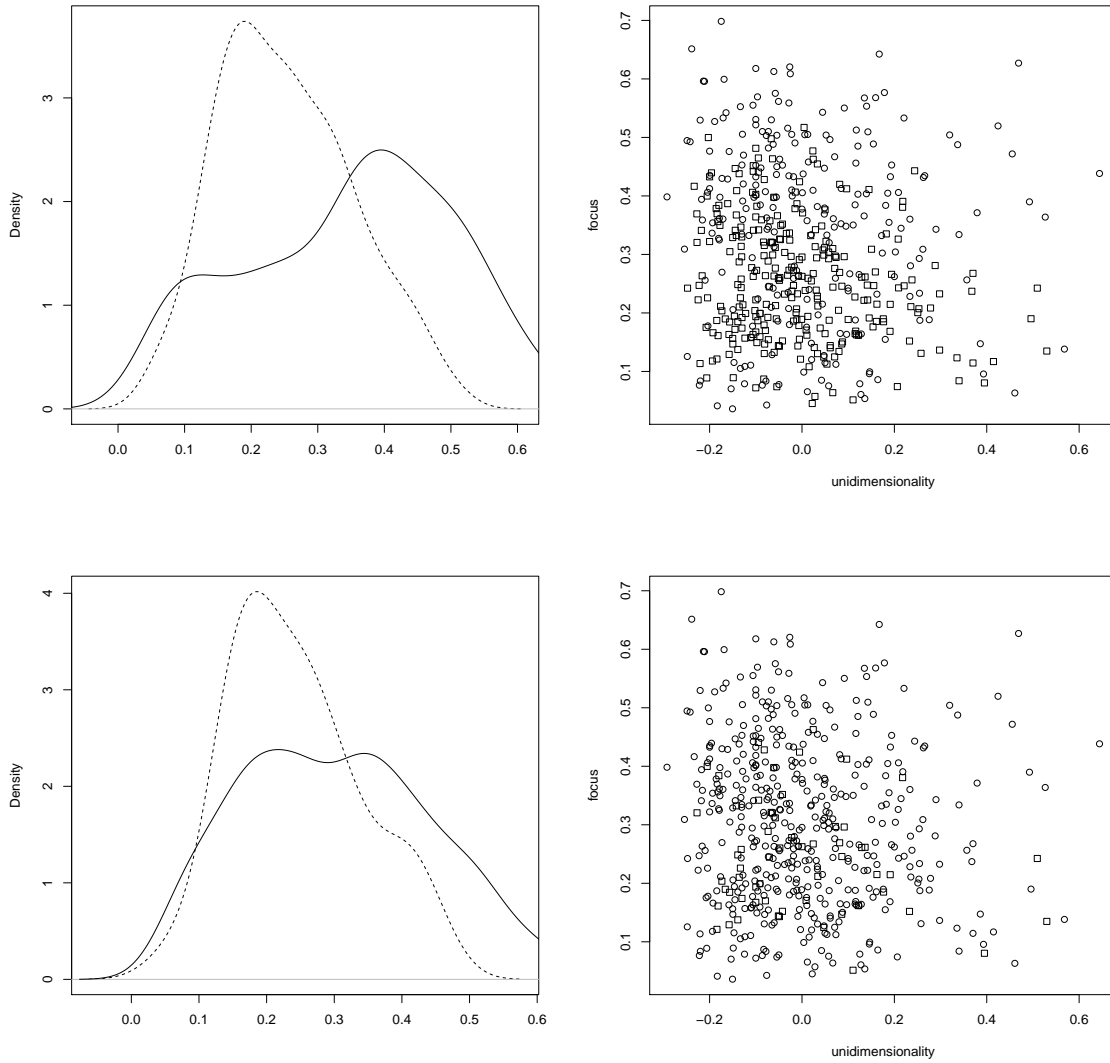
Figure 3.3: Distribution of *focus* variable as kernel density (left) and contingent on *unidimensionality* (right), for respondents who violate strong (top) and weak (bottom) transitivity. Respondents with transitive orderings in grey circles/solid line, violators in black squares/dashed line.
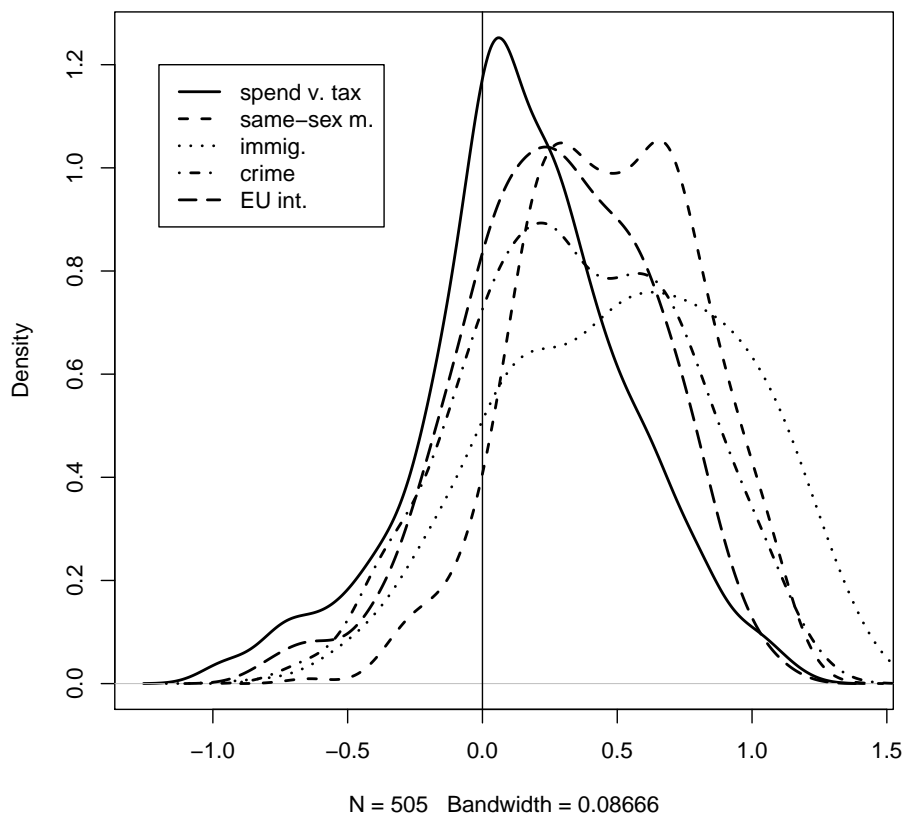
Figure 3.4: Distributions of subdimension part-worths in individual left-right judgments.

Table 3.5: Hierarchical regression models, dependent variable: *weight in LR judgment.*

|  | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 |
|---|---|---|---|---|---|
| Intercept | 0.162*** | 0.378*** | 0.357*** | 0.342*** | 0.117** |
|  | (0.018) | (0.025) | (0.019) | (0.024) | (0.036) |
| issue: Eur. integ. | 0.116*** |  |  |  | 0.118*** |
| Ref.: Spend. vs. tax. | (0.019) |  |  |  | (0.019) |
| issue: Crime prevent. | 0.191*** |  |  |  | 0.181*** |
| Ref.: Spend. vs. tax. | (0.019) |  |  |  | (0.020) |
| issue: Same-sex mar. | 0.322*** |  |  |  | 0.333*** |
| Ref.: Spend. vs. tax. | (0.019) |  |  |  | (0.020) |
| issue: Immigrants | 0.368*** |  |  |  | 0.363*** |
| Ref.: Spend. vs. tax. | (0.019) |  |  |  | (0.019) |
| subdim. polarization |  | −0.019 |  |  | −0.013 |
|  |  | (0.028) |  |  | (0.025) |
| 2nd issue |  |  | 0.000 |  | −0.002 |
| Ref.: 1st |  |  | (0.022) |  | (0.019) |
| 3rd issue |  |  | 0.013 |  | 0.005 |
| Ref.: 1st |  |  | (0.021) |  | (0.019) |
| 4th issue |  |  | 0.016 |  | 0.005 |
| Ref.: 1st |  |  | (0.021) |  | (0.019) |
| 5th issue |  |  | 0.000 |  | −0.003 |
| Ref.: 1st |  |  | (0.022) |  | (0.019) |
| salience |  |  |  | 0.003 | 0.008** |
|  |  |  |  | (0.003) | (0.003) |
| AIC | 1734.706 | 2140.599 | 2165.151 | 2144.520 | 1779.877 |
| BIC | 1775.145 | 2163.706 | 2205.590 | 2167.628 | 1854.977 |
| Log Likelihood | -860.353 | -1066.299 | -1075.576 | -1068.260 | -876.938 |
| Num. obs. | 2385 | 2385 | 2385 | 2385 | 2385 |
| Num. groups: respondent | 495 | 495 | 495 | 495 | 495 |
| Var: respondent (Intercept) | 0.063 | 0.058 | 0.058 | 0.058 | 0.063 |
| Var: Residual | 0.087 | 0.110 | 0.110 | 0.110 | 0.087 |

***$p < 0.001$, **$p < 0.01$, *$p < 0.05$, +$p < 0.1$

divide much more strongly. Nevertheless, a look at which issue has the highest weight in each respondent's left-right judgments reveals considerable heterogeneity: for each issue, there is a significant share of respondents who primarily relied on it to position the parties (see table B.5). Again, the polarization of party positions on the subdimension does not have much of an effect, same as the order in which issue positions are presented to the respondents. Controlling for these factors, the salience that respondents assign to the individual subdimensions does have a statistically significant effect, but it appears to be of much less importance.

## 3.5   Conclusion

Politics is often considered to be, and in fact often is, complicated. The question of how a society should be organized touches on an innumerable wealth of different issues, issues that people have very different ideas about. However, some of the conflicts this difference in ideas leads to prove more salient than others, so much so that they subsume other conflict lines and turn into organizing principles for the entirety of political discourse. This happens not least because they become attached to different societal groups, as becomes apparent in the genesis of the left-right divide.

Over time, these organizing principles are bound to erode, change, or even be replaced. Issues wax and wane in their importance and idea elements come to be combined in different ways than it was done before. Contemporary party systems are often said to be in that process. Conversely, as far as political science research has been able to show, this has affected voters not very much: their familiarity with the left-right dimension, and the extent to which it structures their party preferences, seems to be affected by the complexity of party systems only marginally.

This is a puzzle. To study the question further and shed some light on the cognitive mechanisms that lie behind this robustness, I conducted what is to my knowledge the first experimental study that systematically varies the degree to which party positions align uni-dimensionally. To ascertain how the findings of this study relate to the broader research question means to discuss them in terms of internal validity (the extent to which participants

actually exposed themselves to the treatment), external validity (the degree to which the experiment generalizes to other populations) and, most importantly, ecological validity (how well it generalizes to the real world).

Neither of these areas is unproblematic, albeit I would argue not unsolvably so. One threat to internal validity that is to be expected, especially given the relatively low incentives and the complexity of the task, is that respondents do not actually engage with the vignettes and respond by some sort of automatism. This has in part been incorporated in the analysis, but of course cannot be ruled out completely or only under heroic assumptions about respondent behavior. The effect of dimensionality is thus likely to be biased towards zero. On the other hand, this only occurs to the degree that this phenomenon is unrelated to dimensionality. In conjunction with the clear picture that emerged in the analyses, it appears save to conclude that dimensionality does have an effect on left-right structuration, but not a damning one: 87.7 percent of respondents manage to at least form a weakly transitive ordering. The mechanism that allows them to achieve this becomes quite clear, thanks to the methodological possibilities of the conjoint design: respondents concentrate on certain issues to form their judgment and ignore others.

With regard to external validity, I am confident that the experiment would lead to similar results in other populations in *principle*: There appears to be no reason to suspect that decision making processes in other groups would work fundamentally different. That being said, I do not claim that the experiment would deliver the same result in this very configuration. In fact, the choice of issue subdimensions was made precisely to approximate the most salient lines of contemporary political dissent in Germany. Conducting the experiment in different cultural and political circumstances would require to use a different set of issues. The same is true for the particular time point: the refugee crisis following the Syrian civil war was arguably still the most salient political topic in the end of 2016. This caveat especially needs to be raised with regard to the importance which issues wield with regard to left-right positions. On an abstract level, however, it is plausible that citizens in all kinds of contexts react similarly to multidimensional configurations of political discourse.

Lastly, ecological validity demands that the behavior found in the experiment generalizes

to behavior found in the real world. One limitation with regard to that is that the sample is not a probability sample and, despite being stratified by different respondent characteristics, differs considerably from the general German population, especially with regard to education. While this may have had an influence on the findings presented here, how they correspond to evidence from the existing literature, and theoretical conjectures that have been made there, it appears plausible that the mechanism of 'selective ignorance' applies to the real world. Of course, most citizens are unlikely to study party programmes, and perceive party positions on all kinds of different issues, as they are forced to do here. One could argue that the conjoint design, in exposing respondents to information they might usually not seek out, does not do their real decision-making situation justice. Whether the 'information-discounting' in the experiment and the 'information-evasion' in the real world are comparable is an intricate question. What is gained by using this format, and applying conjoint analysis to the study of ideology, however, is the ability to explicitly model processes that up to now could only be assumed to be at work in the formation of political judgment.

Showing how the trade-offs between different issue positions actually unfold in the processing of political discourse arguably is the most important contribution this study makes. Another one is that it directly studies the heterogeneity across individuals of this processing, revisiting a claim from social and cognitive psychology, that, to the best of my knowledge, has not been systematically tested up to now. It turns out that there are indeed idiosyncratic conceptions at play of what the left-right divide actually means, even though the explanatory power of the issue character seems to suggest that understanding of left-right is fairly general. It is all the more curious, however, that the pattern found here does not conform to the established understanding within the discipline, as becomes apparent in the rather minor role that the spending vs. taxation subdimension plays. Whether this is an artefact of the method, an anomaly of the sample or a genuine attribute of modern electoral politics is a question that can hopefully be answered through these and other data in future research.

# Chapter 4

# Party System Dimensionality and Perceived Quality of Representation[1]

**Abstract:** Spatial analogies are ubiquitous as a concept structuring political conversation. Assuming that political parties play an important role in shaping the make-up of the political space and that depending on their combination of issue emphases they give rise to more or fewer dimensions of political competition, this article tests whether party system dimensionality leads to a trade-off implied in the relevant literature: when parties constrict the political space too much, certain preferences may not be represented anymore, leaving citizens dissatisfied with the system. At the same time, multidimensional political spaces may become too difficult to navigate and leave citizens confused. Results from hierarchical regression models (based on European Social Survey and manifesto data), however, show that such a trade-off does not exist. Higher dimensionality does not confuse voters. At the same time, there is evidence that it increases satisfaction with the political system, albeit only for the most sophisticated citizens.

## 4.1   Introduction

The political space is both a handy and a very elusive concept. On the one hand, spatial analogies make conversations about political positions a lot easier – as is already clear when one employs the notion of taking a political position (cf. Benoit and Laver 2006). On the

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other hand, it is far from uncontested what the political space actually is. A lot has been written on what it looks like and how it should be measured, but not much agreement has been reached. One key aspect in all these debates has been how many dimensions the political space has and how they are defined.

One traditional argument of how dimensions of political conflict come into being relies on the existence of fundamental societal cleavages (e.g. Lipset and Rokkan 1967). The coalitions that form around these cleavages in a given society determine which of them become prominent and whether they align with or cross-cut each other (Rovny 2015). Through mechanisms of vote-seeking and 'responsible government' (Sartori 2005 [1976]), these patterns also determine the dimensions on which parties compete. Thus, according to this theory, the shape of political space is determined by the demand-side and all actors of a political system 'live' in the same space (cf. Singh 2012).

However, this perspective is negligent of strategic capacities on the political supply-side. Parties play an active role in shaping the salience of issues in the political sphere (Carmines and Stimson 1986). They have considerable discretion over whether they address a given issue (Budge and Farlie 1983, Hobolt and de Vries 2015, Riker 1982, Rovny and Edwards 2012, van de Wardt *et al.* 2014). They might also choose to remain ambiguous regarding some issues to avoid being judged on them (Elias *et al.* 2015, Rovny 2012). Most importantly, although new issue combinations and, thus dimensions, can be introduced by existing parties or political entrepreneurs (Rovny 2015), they will not always have the resources to accomplish that (Schattschneider 1975). In short, parties strategically decide whether to narrow competition or introduce new dimensions. In the process, they likely will leave some citizens' concerns unrepresented.

If dimensionality is determined by party strategies, their actions would have implications not only for the understanding of electoral dynamics but also for the potential consequences these decisions can have for the functioning and legitimacy of the system. In that regard, the existing literature seems to imply that by increasing dimensionality, parties do voters a service and a disservice at the same time. On the one hand, the more dimensions there are, the more closely voters' preferences can be accommodated, especially among voters with

heterogeneous preferences (Carmines *et al.* 2012, Ganghof *et al.* 2015, Lefkofridi *et al.* 2014). If, as found repeatedly by studies on the issue, citizens' preference profiles are heterogeneous even in unidimensional party systems (Feldman 1988, Freire 2015, Heath *et al.* 1994, van der Brug and van Spanje 2009), and are constrained only by the alternatives presented by the parties (Sniderman and Bullock 2004, van der Brug 2001, p. 117), we can assume that the less the space formed by parties is constrained, the less voters will have to compromise their preferences when choosing a party and the less likely political debate is to ignore issues that are relevant to them (Schattschneider 1975, p. 108). A similar argument has been made in the literature on party formation, which has found that new parties are more likely to appear when issue diversity is low (Zons 2013).

On the other hand, more dimensions may deprive the political space of the function hinted above: if, as is traditionally claimed, the political space serves to summarize a multitude of political issues and to simplify the complexity of the political debate (Benoit and Laver 2012, Downs 1957, McGann 2008), this function should hinge on the space's number of dimensions. If it turns out to be insufficiently fulfilled, voters may be overwhelmed by the diversity of political stances and become confused about the choices presented to them. This would have implications for the functioning of the system, as those that feel less politically efficacious are less likely to participate (Campbell *et al.* 1960, Valentino *et al.* 2009). More simply put, the literature implies a trade-off in which citizens will be disgruntled if dimensionality is too low and confused, and consequently disengaged, if it is too high.

This article tests whether this dilemma does indeed exist, using data from the MARPOR Project and the European Social Survey (ESS). The results provide no evidence of that. Higher dimensionality is associated with greater satisfaction with democracy for the most politically sophisticated citizens and with greater trust in political parties. However, there is no association between dimensionality and citizens feeling overburdened by political discourse, regardless of sophistication. In short, we find no evidence of a dilemma of preference representation.

The rest of this article is structured as follows: First, the relevant literature is presented in detail and hypotheses are derived from it. The third section presents which data are used and

offers some conceptual thoughts about what defines dimensions of political space and how dimensionality can be measured. The fourth section shows the empirical results, centrally the results of hierarchical regression models devised to test the hypotheses. The implications of the results and conclusions are given in the final section.

## 4.2    A Dilemma of Preference Representation?

Party competition as a logic of situation ensures that the strategic behaviour of political parties is ultimately bound to the preferences and expectations of voters (Franzmann 2011). To appeal to these preferences, parties necessarily have to select which of the voters' demands to respond to and translate these demands into policy agendas. However, parties might decide to not consider some of the issues citizens find important or combine issues in a way that does not appeal to them, making it impossible for voters to find appropriate political offers. This phenomenon is well theorized in the literature on party formation. As Lago and Martinez say, the electoral market sometimes fails, so that voters' demands are not anticipated and fulfilled by the parties' offer (2011, p. 7), leaving a proportion of the electorate without a satisfactory choice. According to the literature, these circumstances should facilitate the entrance of new parties, which would rectify this market failure (Hug 2001, Lago and Martínez 2011, Zons 2013). But oftentimes, institutional costs, lack of information, limited resources or existing electoral alliances limit political entrepreneurs' ability to introduce new dimensions of conflict, leaving some issues unrepresented (Hug 2001, Schattschneider 1975, pp. 35, 69).

This raises the question to what extent a constrained space affects voters' perceptions of how well represented they are by the system and how free to make their choice they are. Arguably, the more dimensions the space has, the more facets of political discussion it can represent, the more detailed are the preference profiles it can accommodate, and the less voters need to constrict their preferences by prioritizing which issue should guide their vote, which should make them more satisfied with the system.

The literature has so far focused specifically on understanding how congruence, that is, the distance between voters and parties on the left–right dimension (Brandenburg and Johns

2014, Ezrow 2007, Kim 2009), influences satisfaction with democracy. Building on that, recent contributions have looked at the effect of congruence on policy dimensions beyond left–right (Stecker and Tausendpfund 2016) and the degree to which party discourse reflects the political conflicts citizens deem important (Reher 2015). However, if voters not only care about congruence, but also about the trade-off between different policy considerations they have to engage in (Popkin 1991, p. 92, Tetlock 2000), the existence of differentiated alternatives that occupy a multidimensional space should also increase the extent to which voters feel represented in that space without having to trade off their preferences on specific issues too much.

In this perspective, it would not only be congruence that matters, but the extent to which there is 'unconstrained multidimensionality of partisan preferences' (Ganghof *et al.* 2015). In systems where the parties constrain political space more strongly, voters will be more likely to feel that their preference profile is not represented in its entirety, and consequently, to be dissatisfied with the political system. Therefore, this article hypothesizes that:

> *H1:* Voters are more satisfied with the political process in systems where party competition dimensionality is less constrained.

On the other hand, too high dimensionality has implicitly been associated with a deteriorating ability of the political space to guide voter decision-making. Arguments of this kind have been made from a normative as well as an empirical perspective. While the former has made a case for unidimensionality, portraying the introduction of additional dimensions as basically a trick to manipulate political decisions (Riker 1982), the latter has focused on the cognitive expense voters have to make to arrive at a choice between parties. How little most voters know about politics and how little structured their thinking about it is counts among the standard findings of voter behaviour research (Converse 1964, Dejaeghere and van Erkel 2017, Delli Carpini and Keeter 1996). This is why parties fulfil an important function for voters, precisely by organizing and constricting the political space (McGann 2008): They serve as agents of 'rank reduction' by transforming a multitude of issues into a choice set that is manageable for voters. This has been inherent in the conceptualization of the political space

as an 'information shortcut' early on (Downs 1957). However, under certain circumstances, parties might not be constraining the space enough and voters might not be able to process the space in all its complexity.

Even though the political space is not a directly observable phenomenon, it plays an important role in the interaction between parties and voters. It serves as an abstraction from political dialogue which structures discourse and provides a minimum of mutually accepted understanding between political actors (Benoit and Laver 2012). Hence, although there is evidence that voter decision-making can be quite robust to complex environments (Lupia 1994), a complication of the political space might create confusion among some voters. This would undermine the beneficial effect of higher dimensionality. The concept of an information shortcut demands that employing it is rather easy. Here, the literature seems to at least implicitly assume a trade-off between preference representation and tractability. Therefore, the second hypothesis tested here is:

> *H2:* Voters feel less capable to make up their minds about the political process in
> systems where party competition dimensionality is less constrained.

Finally, it could be that the effect of dimensionality is not equal for all citizens. Seminal studies on mass political thinking (e.g. Converse 1964) point to political sophistication as a source of heterogeneous effects. Unsophisticated voters can be assumed to engage with party platforms less deeply and are likely to base their evaluation of political objects on considerations beyond ideology and issues, such as the nature of the times or cues by group leaders, which weakens the link between political supply and their satisfaction with it. A differentiated political offer is less likely to affect their perceptions of the system. At the same time, politically unsophisticated citizens, who already have a harder time making sense of politics, might find a multidimensional space more confusing because it would complicate their understanding of, for example, what parties belong to an ideological 'camp' or are likely to form a coalition with each other (Fisher and Hobolt 2010).

> *H3:* The effect of party system dimensionality on satisfaction with the political
> process is stronger the more politically sophisticated citizens are. On the contrary,

their ability to make up one's mind about it will be less affected by party system dimensionality the more sophisticated they are.

## 4.3 Data and Operationalization

### 4.3.1 Dependent Variables

To assess the claims about party system dimensionality deduced from the literature above, we combine survey data from the ESS (2002, 2004, 2006, 2008, 2010, 2012) and manifesto data (Volkens *et al.* 2016).[2] All countries that can be classified as 'fully democratic' according to the five-level ordinal measure from the 'Varieties of Democracy' (V-Dem) project are included (Lindberg 2016).

To measure satisfaction with the political process, the widely used *satisfaction with democracy* item is used. Although it asks respondents about their satisfaction 'with the way democracy works' in their country, it is commonly used to measure their assessment of the system's performance (Linde and Ekman 2003, p. 391). In the ESS, respondents are asked to indicate their support on a scale from 0 to 10. As an additional check, we use the trust that respondents have in political parties measured on the same scale (see Appendix C.1).

To operationalize whether voters feel overwhelmed by politics, an item is used that asks respondents how often they consider politics so complicated that they cannot understand what is going on a five-level scale (Never, Seldom, Occasionally, Regularly and Frequently). This item is foremost discussed in the political efficacy literature, for example, by Morrell (2003) who judges it to measure something in between internal and external efficacy. This need not be a problem for this study, since what it aims at is precisely the product of the interplay between the political preferences and information of the voter and the party system. The variable is referred to as *political disorientation* hereafter.

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[2]Concretely, European Social Survey (ESS) data for individual respondents are matched to the last data point in the MARPOR data before the interview. Since ESS surveys are not carried out on occasion of elections, this in some instances produces large gaps between data points.

## 4.3.2  Measuring Party Competition Dimensionality

Before moving to the specific measurements and operationalizations used here, it is worth reviewing the concept of the political space and the decisions to be taken when measuring it. One of the reasons why the study of the political space is so challenging is that it is not *observed directly* (Benoit and Laver 2006, p. 89). Information on it must, therefore, be gathered from *second-hand* sources or from observed behaviour of agents. The plurality of sources implies that certain choices need to be made regarding its measurement, which should be driven by the nature of the research question. Three conceptual and one methodological requirement can be deduced from the existing literature regarding the measure of party system dimensionality to be used here.

First, dimensionality should be measured based on party discourse and not on voter perceptions. As Stoll (2011) writes, a representation of the political space could be generated from data either from the voter or the party side. Similarly, de Vries and Marks differentiate between *sociological* or *bottom-up* approaches, which relate to conflicts present in society, or among voters, and *strategic* or *top-down* approaches, which explain the political space in terms of the issues over which parties compete (2012, p. 187). As discussed above, the focus here lies on the strategic capacity of parties to narrow or broaden political debate and its implications for voters' perceptions of the system. Hence, the latter approach seems to be more in line with the theoretical argument.

A related, but distinct objective is that the measure of dimensionality should reflect effective as opposed to raw dimensionality (Stoll 2011): raw dimensionality refers to a simple count of distinguishable topics raised in political discourse, regardless of how the actors' positions on these topics are configured. Effective dimensionality, on the other hand, also considers to which degree the dimensions present in a system are independent from each other. This is consistent with Robertson's (2006) understanding of dimensionality, namely that for two dimensions to be distinct, actors' positions on one of them must not be predictable from their positions on the other. Since the arguments presented above rest on the idea of constraint

and complexity of the positions combined, they refer to the concept of effective rather than raw dimensionality.

A last objective is that the data on which measures are based should be constrained by a priori knowledge as little as possible. Theoretically, an inductive approach to measure the dimensionality of political space, where the data are simply examined for latent constructs, can be distinguished from a deductive approach, where important issue dimensions are defined beforehand and then identified as being present or not in the party system (Benoit and Laver 2012). For the case at hand, the former approach seems more appropriate, since it does not presuppose anything about the political space, and thus the system it belongs to. This goal is not completely attainable because simply by gathering data at least some a priori classification of political statements into different topics is made (Benoit and Laver 2012, de Vries and Marks 2012). However, not letting this classification become too demanding remains an important benchmark. This can be approximated using very high-dimensional data that discern a high number of issues.

On the basis of these considerations, we measure dimensionality using data from the MARPOR project (Volkens *et al.* 2016). MARPOR identifies singular statements in parties' election manifestos and classifies them into 56 issue categories. This means they provide a very finegrained image of parties' strategic adoption of issues. Although manifestos are not necessarily the place where voters would perceive political debate and its structure, they do have an effect on it: they have been shown to be a valid measure of parties' stances, as they correlate quite strongly with voters' perceptions of them and seem to relate to the same construct as other measures (Netjes and Binnema 2007, 42-47). As Budge says, "Their importance is that they are read by the political and media elite and reported intensively in newspapers, TV and radio. Thus, their textual emphases set the tone and themes of campaign discussion" (1993, p. 2).

This data choice also implies a methodological choice: as van der Brug (1999, 2001) argues, issue emphases can be related to each other in many different forms, many of them not linear. This makes factor analyses and related methods that rely on linear relationships between variables unsuitable for manifesto data. Hence, to measure effective dimensionality, this

article uses a multidimensional scaling (MDS) procedure. MDS reduces the dimensionality of the data not based on the correlation between variables but by computing the dissimilarity between data points from these variables and searching for the solution that best reproduces these dissimilarities in a space with a given number of dimensions (Borg and Groenen 2005).

Instead of the number of dimensions, dimensionality is operationalized here as the *Stress* value for a one-dimensional MDS of the data for all parties which obtained at least two seats in parliament in a given election. Stress is a normed cumulative 'badness-of-fit' measure (Borg and Groenen 2005, p. 37) of the deviation between the reproduced and the actual dissimilarities. Thus, it summarizes how closely the data conform to a one-dimensional space (see Singh 2010 for an analogous approach based on voter data), where zero indicates a perfect mapping. This means, rather than how many dimensions exist, this measure captures a lack of unidimensionality. But, since a one-dimensional space offers the most simplified scenario where issue complexity is so constrained that distances are easy to calculate, it is a good benchmark to anchor our measure. A more detailed discussion of this operationalization, and how it affects our findings, can be found in Appendix C.2.

### 4.3.3   Control Variables

Several variables possibly confound the relationships examined in this study. Most importantly, the number of parties in the system decisively shapes the choice set that voters face but also correlates with the system's dimensionality (Stoll 2011, Taagepera and Grofman 1985). All analyses, therefore, include the *effective number of parties* (ENP; Laakso and Taagepera 1979, computed on basis of those parties used in the measurement of dimensionality (i.e. with two or more seats in parliament). Moreover, party competition might follow quite different logics in young democracies than in older, settled ones, and also be perceived quite differently by their citizens (Aarts and Thomassen 2008, Singh 2010). This is accounted for using two different variables, the first being *age of democracy* as measured by the number of years a country has been democratic, according to our benchmark (see Lindberg 2016), and the second a dummy variable indicating central and eastern European (CEE) countries. CEE

countries' party systems differ considerably from Western European ones, especially concerning their fragmentation and volatility (Dalton 2017). Lastly, programmatic party competition may not be a salient aspect of how citizens evaluate the political process in systems with less than ideal political processes. To control for this, the *political corruption* indicator from the V-Dem project is included in the analyses (McMann *et al.* 2015).

Of course, subsample composition and individual-level confounders also play an important role. The analyses, therefore, control for standard socio-demographic variables (*age*, *gender* and years of full-time *education*) and some variables aimed to capture specific aspects of political engagement. Among these is *partisan identification*, captured by the question whether respondents identify themselves as close to any particular party. Feeling 'at home' with a certain party should, on the one hand, induce greater satisfaction with the political process; on the other hand, partisan identifiers are unlikely to have unmet representational needs. As regards political disorientation, partisanship structures political judgement quite strongly, since it defines clear in- and out-groups (Bowler and Donovan 2002, Lupia 1994); at the same time, it is likely to be more prevalent in systems with low dimensionality, since the absence of 'cross-cutting cleavages' is likely to deepen and emphasize differences between groups (Baldassarri and Gelman 2008).

Similarly, citizens who do not feel much of a connection with politics in general typically make a worse assessment of the system's quality of representation (Brandenburg and Johns 2014, Huang *et al.* 2008) and feel less politically efficacious (Bowler and Donovan 2002; but see Dyck and Lascher Jr. 2009) but at the same time may not pay much attention to the actual political supply. This is incorporated by including *political interest* (measured on a four-level ordinal scale) and a dummy for respondents who report to not have cast a ballot in the last election.

The variables discussed up to this point are all included in the analysis of both *satisfaction with democracy* and *political disorientation*. The former necessitates two additional variables: first, one of the most extensively discussed variables with regard to satisfaction with democracy is whether an individual is currently on the winning or the losing side of politics (Curini *et al.* 2012, Kim 2009, Linde and Ekman 2003, Wells and Krieckhaus 2006). Supporters of

the winning parties have been shown to be more satisfied. At the same time, they can aspire to see 'their' party accomplish policy goals that are important to them. *Winner support* is operationalized by coding whether or not the party a respondent voted for in the last election was assigned cabinet posts in the aftermath of the respective election. This information is derived from the *ParlGov* data set (Döring and Manow 2015).[3]

Lastly, the actual performance of the system, or citizens' perception of it respectively, arguably has a bearing on both satisfaction with democracy and whether they see important unaddressed issues (Huang *et al.* 2008, Wells and Krieckhaus 2006). As a proxy for a respondent's evaluation of regime performance, whether or not she is currently unemployed is included in the analyses.

Since satisfaction with democracy is probed more often in the ESS, the respective sample comprises data from the modules one through six and covers 79 elections in 26 countries from 1999 to 2015. The item used to measure political disorientation was discontinued after ESS module 4, thus the respective sample only covers 53 elections in 25 countries from 1999 to 2009. Summary statistics for each sample can be found in appendix C.1.

## 4.4   Analysis[4]

Figure 4.1 gives an overview of how party system dimensionality (divided by the count of parties) relates to the average level of satisfaction with democracy (left panel) and political disorientation (right panel) in each election. Hypotheses 1 and 2 imply a positive correlation to appear in either panel. That is indeed the case with regard to satisfaction with democracy, although the data pattern is not very pronounced. With regard to political disorientation,

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[3]In countries with a mixed electoral system (Germany, Lithuania), this variable was based on the party-list vote. Since the Czech Republic was governed by a 'technocrat' cabinet under Jan Fischer in 2009/2010, all respondents in that time were coded with a zero. Sometimes, the cabinet composition changes during an ESS wave such that some respondents are surveyed before the start of a new cabinet and some afterwards. In this case, the first group was coded according to the old cabinet and the latter according to the new one. This is not without problems, especially with regard to those respondents surveyed between an election (if there was one) and the inauguration of the new cabinet, but appears to be the most transparent and least arbitrary procedure.

[4]The following R packages were used to compile the material presented here: Leifeld (2013), Bates *et al.* (2015), Wickham (2016), Solt and Hu (2018).
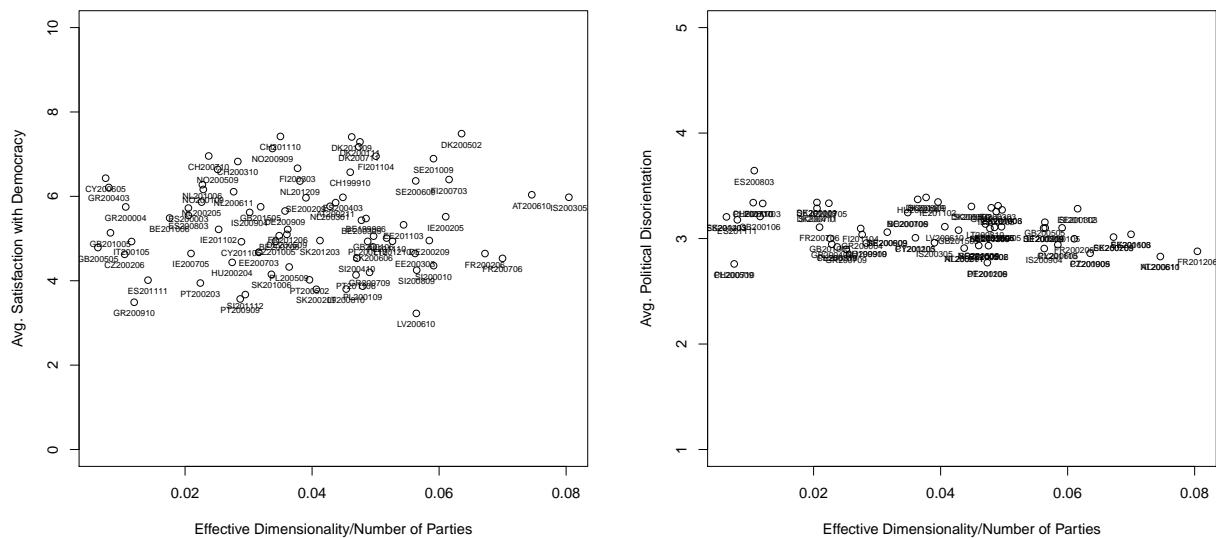
Figure 4.1: *Party system dimensionality* (divided by number of parties) and *average satisfaction with democracy* (left) and *political disorientation* (right).

however, it seems difficult to discern any pattern. If at all, political disorientation seems to correlate negatively with dimensionality, in contradiction to hypothesis 2.

Tables 4.1 and 4.2 present the results of hierarchical regression models that introduce the control variables discussed above in different specifications. While satisfaction with democracy is analysed using conventional linear models, ordered logit models are estimated for political disorientation. All models are specified with respondents nested in elections, which in turn are nested in countries (Schmidt-Catran and Fairbrother 2016). Since the number of observations on the upper levels, as in most studies of this kind, is limited, we include only *dimensionality*, *ENP*, and one of the other macro-level controls in any given model.

This more rigorous test reiterates the patterns described above in part but adds some interesting nuance: on a descriptive level, satisfaction with democracy does relate to party system dimensionality in the expected manner, but in the case of political disorientation, dimensionality actually has the opposite sign, a puzzle we return to below. Moreover, at least on average, the effect of neither variable is statistically significant on conventional levels. This clearly speaks against a dilemma of preference representation. While the positive correlation between dimensionality and satisfaction with democracy does hint at the beneficial role of

Table 4.1: Multilevel regressions, Dependent Variable (DV): *satisfaction with democracy*. All non-dummy variables are mean-centred. Standard errors are in parenthesis. CEE: Central and Eastern Europe; AIC: Akaike Information Criterion; BIC: Bayesian Information Criterion.

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|---|---|---|---|---|---|---|---|
| (Intercept) | -0.095 | -0.443* | -0.356* | -0.083 | -0.348* | -0.444* | -0.444* |
| | (0.195) | (0.177) | (0.142) | (0.163) | (0.151) | (0.177) | (0.177) |
| Age | | -0.002*** | -0.002*** | -0.002*** | -0.002*** | -0.002*** | -0.002*** |
| | | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Yrs of Education | | 0.029*** | 0.029*** | 0.029*** | 0.029*** | 0.029*** | 0.029*** |
| | | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| Female | | -0.121*** | -0.121*** | -0.121*** | -0.121*** | -0.121*** | -0.122*** |
| | | (0.011) | (0.011) | (0.011) | (0.011) | (0.011) | (0.011) |
| Partisan | | 0.321*** | 0.321*** | 0.321*** | 0.321*** | 0.321*** | 0.320*** |
| | | (0.011) | (0.011) | (0.011) | (0.011) | (0.011) | (0.011) |
| Political Interest | | 0.171*** | 0.171*** | 0.171*** | 0.171*** | 0.172*** | 0.172*** |
| | | (0.007) | (0.007) | (0.007) | (0.007) | (0.007) | (0.007) |
| Non-Voter | | -0.015 | -0.015 | -0.015 | -0.015 | -0.015 | -0.016 |
| | | (0.017) | (0.017) | (0.017) | (0.017) | (0.017) | (0.017) |
| Winner Support | | 0.653*** | 0.653*** | 0.653*** | 0.653*** | 0.653*** | 0.651*** |
| | | (0.012) | (0.012) | (0.012) | (0.012) | (0.012) | (0.012) |
| Unemployed | | -0.497*** | -0.497*** | -0.497*** | -0.497*** | -0.497*** | -0.498*** |
| | | (0.028) | (0.028) | (0.028) | (0.028) | (0.028) | (0.028) |
| Eff. no. Of Parties | -0.015 | -0.028 | -0.026 | 0.028 | -0.017 | -0.027 | -0.027 |
| | (0.098) | (0.092) | (0.083) | (0.080) | (0.083) | (0.092) | (0.092) |
| Age of Democracy | | | 0.024*** | | | | |
| | | | (0.007) | | | | |
| CEE | | | | -1.222*** | | | |
| | | | | (0.300) | | | |
| Political Corruption | | | | | -4.264*** | | |
| | | | | | (1.206) | | |
| Interest * Dimens. | | | | | | 0.122* | |
| | | | | | | (0.050) | |
| Education * Dimens. | | | | | | | 0.078*** |
| | | | | | | | (0.011) |
| Dimensionality | 0.815 | 0.899 | 0.758 | 0.943 | 0.529 | 0.899 | 0.890 |
| | (0.733) | (0.698) | (0.693) | (0.676) | (0.685) | (0.698) | (0.694) |
| AIC | 753845.436 | 746173.706 | 746174.143 | 746163.236 | 746162.664 | 746174.003 | 746131.361 |
| BIC | 753905.713 | 746314.351 | 746324.834 | 746313.927 | 746313.355 | 746324.694 | 746282.052 |
| LogLikelihood | -376916.718 | -373072.853 | -373072.071 | -373066.618 | -373066.332 | -373072.002 | -373050.680 |
| Num.obs. | 170428 | 170428 | 170428 | 170428 | 170428 | 170428 | 170428 |
| Elections | 79 | 79 | 79 | 79 | 79 | 79 | 79 |
| Countries | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| Variance Comp. Elect. | 0.286 | 0.263 | 0.276 | 0.264 | 0.256 | 0.262 | 0.259 |
| Variance Comp. Count. | 0.863 | 0.700 | 0.396 | 0.381 | 0.463 | 0.698 | 0.701 |
| Residual Variance | 4.868 | 4.652 | 4.652 | 4.652 | 4.652 | 4.652 | 4.651 |

***$p < 0.001$, **$p < 0.01$, *$p < 0.05$, +$p < 0.1$

Table 4.2: Multilevel ordered logit regressions, Dependent Variable (DV): *political disorientation*. All non-dummy variables are mean-centred. Standard errors are in parenthesis. CEE: central and eastern European; AIC: Akaike Information Criterion; BIC: Bayesian Information Criterion.

| | Model 8 | Model 9 | Model 10 | Model 11 | Model 12 | Model 13 | Model 14 |
|---|---|---|---|---|---|---|---|
| 1—2 | -2.404*** | -2.472*** | -2.485*** | -2.471*** | -2.478*** | -2.472*** | -2.472*** |
| | (0.057) | (0.046) | (0.044) | (0.053) | (0.046) | (0.046) | (0.046) |
| 2—3 | -0.902*** | -0.805*** | -0.819*** | -0.805*** | -0.812*** | -0.806*** | -0.805*** |
| | (0.056) | (0.045) | (0.043) | (0.052) | (0.045) | (0.045) | (0.046) |
| 3—4 | 0.658*** | 1.010*** | 0.997*** | 1.010*** | 1.003*** | 1.010*** | 1.010*** |
| | (0.056) | (0.046) | (0.043) | (0.052) | (0.045) | (0.046) | (0.046) |
| 4—5 | 1.876*** | 2.413*** | 2.400*** | 2.413*** | 2.406*** | 2.413*** | 2.413*** |
| | (0.056) | (0.046) | (0.044) | (0.053) | (0.046) | (0.046) | (0.046) |
| Age | | 0.001* | 0.001* | 0.001* | 0.001* | 0.001* | 0.001* |
| | | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Yrs of Education | | -0.087*** | -0.088*** | -0.087*** | -0.088*** | -0.087*** | -0.087*** |
| | | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) |
| Female | | 0.529*** | 0.529*** | 0.529*** | 0.529*** | 0.529*** | 0.529*** |
| | | (0.010) | (0.010) | (0.010) | (0.010) | (0.010) | (0.010) |
| Partisan | | -0.100*** | -0.100*** | -0.100*** | -0.100*** | -0.100*** | -0.100*** |
| | | (0.011) | (0.011) | (0.011) | (0.011) | (0.011) | (0.011) |
| Political Interest | | -0.775*** | -0.775*** | -0.775*** | -0.775*** | -0.775*** | -0.775*** |
| | | (0.007) | (0.007) | (0.007) | (0.007) | (0.007) | (0.007) |
| Non-Voter | | 0.146*** | 0.147*** | 0.146*** | 0.146*** | 0.146*** | 0.146*** |
| | | (0.014) | (0.014) | (0.014) | (0.014) | (0.014) | (0.014) |
| Eff. no. Of Parties | -0.010 | 0.022 | 0.020 | 0.022 | 0.023 | 0.022 | 0.022 |
| | (0.032) | (0.029) | (0.027) | (0.029) | (0.028) | (0.029) | (0.029) |
| Age of Democracy | | | 0.004+ | | | | |
| | | | (0.002) | | | | |
| CEE | | | | 0.002 | | | |
| | | | | (0.099) | | | |
| Political Corruption | | | | | -0.360 | | |
| | | | | | (0.353) | | |
| Interest * Dimens. | | | | | | -0.009 | |
| | | | | | | (0.050) | |
| Education * Dimens. | | | | | | | 0.003 |
| | | | | | | | (0.011) |
| Dimensionality | -0.259 | -0.097 | -0.168 | -0.097 | -0.156 | -0.097 | -0.097 |
| | (0.239) | (0.266) | (0.258) | (0.266) | (0.267) | (0.266) | (0.266) |
| LogLikelihood | -190526.795 | -176593.843 | -176592.050 | -176593.843 | -176593.325 | -176593.828 | -176593.802 |
| AIC | 381069.589 | 353215.686 | 353214.100 | 353217.685 | 353216.651 | 353217.656 | 353217.604 |
| BIC | 381147.660 | 353352.308 | 353360.482 | 353364.067 | 353363.032 | 353364.037 | 353363.985 |
| Num.obs. | 127870 | 127870 | 127870 | 127870 | 127870 | 127870 | 127870 |
| Elections | 53 | 53 | 53 | 53 | 53 | 53 | 53 |
| Countries | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Variance Comp. Elect. | 0.017 | 0.024 | 0.023 | 0.024 | 0.023 | 0.024 | 0.024 |
| Variance Comp. Count. | 0.066 | 0.034 | 0.029 | 0.034 | 0.033 | 0.034 | 0.034 |

***$p < 0.001$, **$p < 0.01$, *$p < 0.05$, +$p < 0.1$

multidimensional party competition (also see below), it is decidedly not the case that it hinders citizens in making up their minds about politics.

Results for the control variables largely are plausible and echo those from previous studies: respondents who are more educated and politically interested are both more satisfied with the political system and find it easier to navigate. Partisanship seems to have the same effect, as it apparently structures the political system cognitively and at the same time goes along with greater content with the performance of the political system. As regards satisfaction with democracy specifically, the analysis reproduces established findings that citizens' impression of how well the system works is to a large degree shaped by how well it works *for them*: adherents of parties which are currently in government are significantly more satisfied than those of the opposition. Also, being unemployed coincides with lower satisfaction.

Political system characteristics other than dimensionality also show plausible effects, albeit with varying levels of statistical significance. A higher number of parties relate to lower levels of satisfaction; this is consistent with the findings of Ezrow and Xezonakis (2011). Quite plausibly, the more parties there are, the more citizens feel politically disoriented; however, this relationship is not significant. The findings for length of democratic experience, as well as the CEE democracies, suggest that democratic systems do need some time to 'settle in' before they meet their citizens' expectations. Political corruption decreases satisfaction with democracy but also political disorientation; this might be due to the detrimental effects of material exchanges on the political market on programmatic exchanges (cf. Ruth 2016).

Hypothesis 3 states that political sophistication moderates the effect of dimensionality. This possibility is tested in models 6, 7, 13 and 14, which include the interaction of *dimensionality* with *political interest* on the one hand and *years of education* on the other. While with regard to *political disorientation*, no such interaction effects are present, they seem to exist in the case of *satisfaction with democracy*: for politically more interested and more educated respondents, the effect of dimensionality appears to be stronger. As the graphical inspection shows (see Figure 4.2; for the plots concerning *political disorientation*, linear instead of ordered logit models were estimated), the effect of *dimensionality* on *satisfaction with democracy* increases (and, for considerably above average respondents, becomes signif-
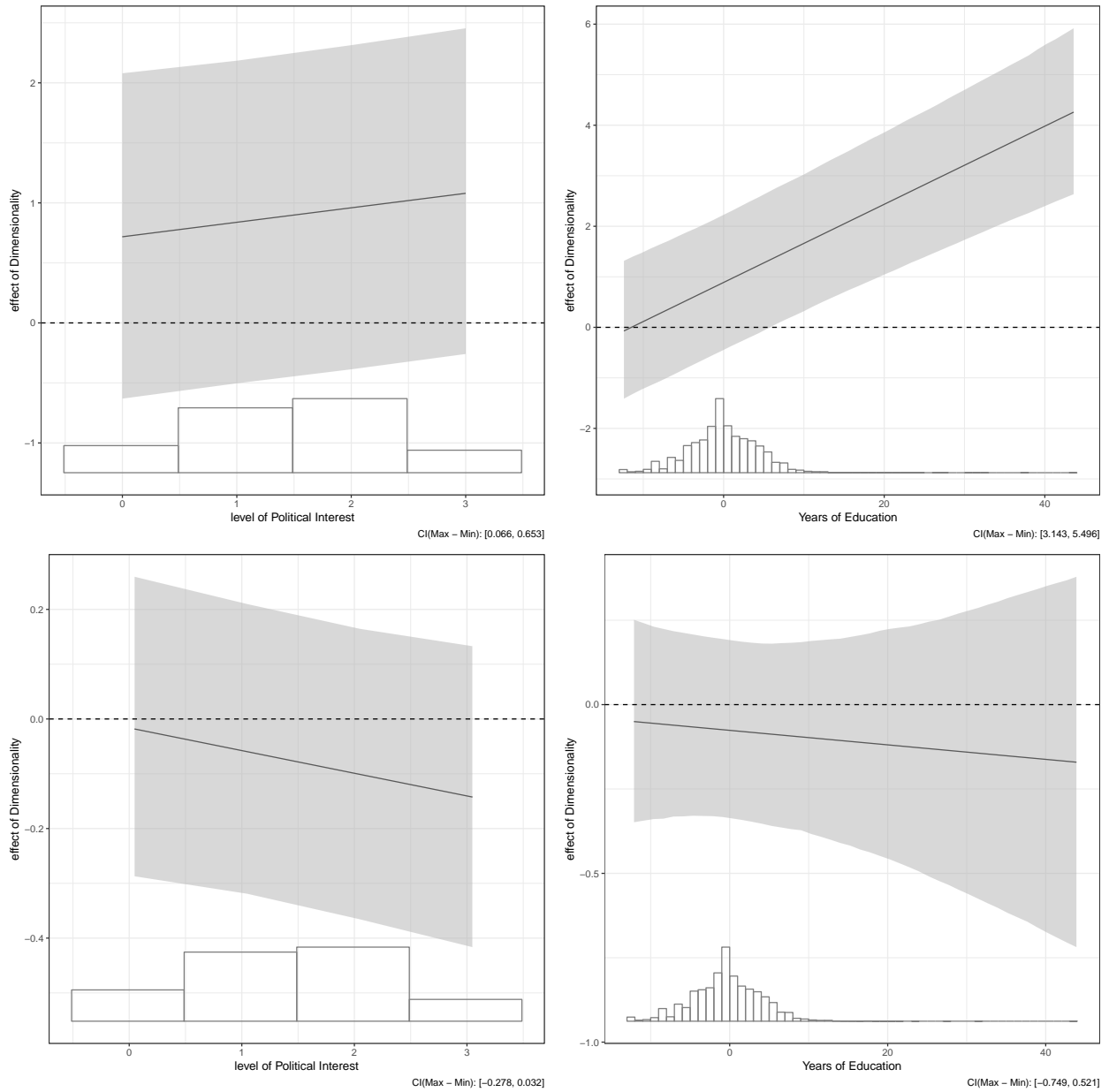
Figure 4.2: Marginal effect of *dimensionality* on *satisfaction with democracy* (top) and *political disorientation* (bottom), conditional on level of *political interest* (left) and years of *education* (mean-centered, right).

icant), the more educated respondents are. In additional analyses using *trust in political parties* as the dependent variable (see Appendix C.1), we find that *dimensionality* also has a significantly positive effect across the board, which also interacts with *education*. In sum, while *dimensionality* does not increase *political disorientation*, it has a positive effect on variables associated with evaluations of the representative system's performance, at least for well-educated citizens.

This pattern of results turns out similarly if *dimensionality* and *ENP* are taken from the election to the country level by computing their averages over a country's democratic period (see Appendix C). However, in these models, *political disorientation* does relate positively to party system dimensionality, as opposed to those presented in Table 2.[5] Intra-class correlation indices, computed from null models (not shown here), reveal that a much larger share of the variance of *satisfaction with democracy* (0.190) can be explained by the three-level structure of countries, elections and respondents than of the variance of *political disorientation* (0.079), implying that the determinants of this variable lie much more on the individual than the context level. This also puts the unexpected results of Table 4.2 in perspective.

## 4.5  Conclusion

In democratic systems, policy must in some way correspond to the preferences of citizens. In representative democracies, parties are the most important vehicles to achieve this. In combining issues and positions in their platforms differently, they define a political space which defines the options that voters have. Ceteris paribus, the more dimensions this space has, the greater correspondence between political supply and demand should be, since more voters see their preference profile matched. By this logic, greater dimensionality of political competition is normatively desirable (Ganghof *et al.* 2015).

Taking dimensionality into an empirical perspective ought to qualify this picture. Citizens' attention is finite, so multidimensionality might have adverse effects: while it enhances the

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[5]Despite the interaction effects turning out statistically significant, they do not lead to the effect of *dimensionality* being significantly different from zero for plausible values of *political interest* or *education*.

party system's capacity to accommodate different preference sets, having to handle multiple issue dimensions may overburden citizens. It is a common theme of public opinion research that voters find the political space cumbersome to navigate, so the literature seems to imply a trade-off between the representativeness and the tractability of party systems.

As the preceding sections have shown, this study finds no evidence of a trade-off between benefits and costs of dimensionality. In most models, dimensionality falls short of any common level of statistical significance. Specifically, while there is conditional evidence of the beneficial effects of dimensionality on perceived quality of representation, we find no systematic relationship with *political disorientation* at all. This suggests that better accommodation of preferences can occur without the risk of 'leaving behind' those who struggle to understand the intricacies of politics. At the same time, nonetheless, the results also show that the benefits seem to be rather concentrated on a subset of the electorate. One important limitation is that with our operationalization of dimensionality, it is difficult to test the precise functional form of the relationships of interest, that is, whether increasing dimensionality does always have the same effect or if, on the contrary, after a certain number of dimensions, the effects on *political disorientation* and/or *satisfaction with democracy* change. Having documented the absence of a dilemma of preference representation implied by the literature, we leave it to future studies to ascertain if our results are sustained with different operationalizations or specifications (we make a start in that direction in Appendix C.2, using indices from Lijphart 1999, Nyblade 2004, Bakker *et al.* 2012 and Ganghof *et al.* 2015).

In any case, it should be noted that the results shown above need not necessarily be interpreted as evidence against the mechanism of new party formation cited above. However, they do suggest that this mechanism is based on specific groups or politicians much more than on the general electorate. They thus underline the importance of the concept of 'political entrepreneurs' (Hug 2001, Zons 2013) who might actually create demand for their political offer precisely by transporting new issues into the political debate (Carmines and Stimson 1986, Hobolt and de Vries 2015).

# Chapter 5

# The Dimensionality of Political Space

# - An Agent-Based Model[1]

**Abstract:** This paper uses an agent-based model to study party system dimensionality. Empirically, patterns of party competition vary widely across political systems, but it seems unclear how exactly they come about. One specific strand of research has grappled with explaining the tendency of some party systems towards a single dominant dimension of competition - commonly referred to as the left-right dimension. I build on this research in assuming that voters, depending on the party system they are situated in, come to regard dimensions of political conflict as differing in salience, and crucially, as non-separable. This leads to their utility function not being directly proportional to Euclidean distance anymore, but to stretch out in some directions and compress in others, thus discriminating party positions more strongly among a subset of political space. I explore the possibility of *idiosyncratic unidimensionality*, i.e. that salience and non-separability parameters differ across voters (implying they have different understandings of what left-right means), to further elucidate how the interplay of parties and voters leads to the emergence of party system structures.

## 5.1   Introduction

In its basic form, the spatial model of political competition is marvellously simple: there is a clearly defined continuum of political positions; each voter has an ideal point on this

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[1]An earlier version of this paper has been presented at the annual meeting of the standing group on decision theory of the German Political Science Association 2019. It is partly based on an earlier one that was presented at the ECPR General Conference 2015 and the MPSA Annual Conference 2016. I thank the respective participants and Johannes Schmitt for valuable feedback.

continuum and the distribution of these ideal points is known; parties are free to take positions on the continuum, and voters choose that party which ends up closest to them.

The devil, as always, is in the details. Nearly every aspect mentioned above, and many more, can and have been scrutinized, and works that relax or test the assumptions of the spatial model are so numerous that they escape the scope of this paper. This begins with the very first aspect named here: the shape of the political space that underlies the model. Since the political ideas that underlie it can pertain to any topic of importance and be combined in all kinds of different ways, there can be any number of dimensions, with any kind of content, which means the form of the political space is highly context-specific.

As is detailed below, a lot of knowledge has been produced about the strategic incentives parties face to introduce new issues into political debate, but encompassing theoretical models of how party system dimensionality comes about are few and leave room for refinement. I build upon a study by Shikano (2008), who uses an agent-based model of party competition in which voters, depending on the party system they are situated in, regard dimensions of political conflict as differing in salience, and crucially, as non-separable. This changes how they evaluate different party positions, so that their judgment of a given party is not merely dependent on distance anymore, but also on the specific combination of issue positions a party has on offer. This in turn creates an incentive for parties to align in a specific way.

In the next section, I derive three 'stylized facts' from the empirical literature on dimensionality that a model should be able to reproduce. On the one hand, party system dimensionality varies across contexts; the issue preferences of voters on the other hand have been found to be highly multidimensional. Their party preferences, however, seem to be structured quite strongly by the left-right dimension. To reconcile these puzzling findings with each other, I develop a conjecture about the possibility of *idiosyncratic unidimensionality*, i.e. that voters evaluate parties on a single dimension, but have different ideas about what that dimension is. An example of that might be the different meanings citizens ascribe to the left-right dimension: while some primarily conceive of it as the traditional divide between interventionist and laissez-faire stances regarding the economy, others might link the two terms more strongly to libertarian and authoritarian ideas, respectively, e.g. regarding

minority rights. Most of the time, their understandings will be a mixture of these aspects, i.e. citizens do not entertain completely contrarian understandings, but set different emphases. Evidence of this has been found in numerous empirical studies; here, I attempt to explore its impact on party system structure.

I run simulations of an adapted version of Shikano's model, presented in section 5.3, with different voter decision-making modes and explore whether they are indeed able to reproduce empirical regularities (section 5.4). It turns out that a model that includes idiosyncratic unidimensionality does so to a greater extent than the others. I reflect on this result, limitations of the study and how it might guide further research into party system dimensionality in section 5.5.

## 5.2 Party System Dimensionality: Stylized Facts

Party system dimensionality can be seen as a product of the combination of "Riker and Rokkan" (Rovny 2015): discerning a ('Rikerian') research tradition focussed on how political parties strategically introduce new dimensions into political debate and a sociological, 'Rokkanian' one concerned with fundamental societal cleavages, Rovny points out that both mechanisms are at work and that "While parties have a reasonable space to act strategically, their strategies are enveloped in structural context. Riker and Rokkan coexist" (917). Parties transport new issues into the political arena because they see a potential demand on the electorate's side and try to convert it into an advantage (Carmines and Stimson 1986, Hobolt and de Vries 2015). This means that when deciding whether to do that, they have to take into account the distribution of political preferences and conflict lines in society as a whole. At the same time, it may be beneficial for voters if parties do not use every opportunity to extend the political space, because it (if sufficiently low-dimensional) serves as an 'information shortcut' through which voters can save on the cognitive effort of informing themselves on political issues (Downs 1957, McGann 2008, Benoit and Laver 2012, but see Reinermann and Barbet 2019).

While the literatures on party competition (Elias *et al.* 2015), issue entrepreneurship

(van de Wardt *et al.* 2014, Hobolt and de Vries 2015) and new party formation (Zons 2013) have produced important insights on the incentives for parties to broaden political space, and there are some findings on the institutional constraints on them to do so (Singh 2012, Rovny 2015, Rovny and Polk 2019), there are few comprehensive models of the political process that study the dimensionality of party systems as a product of the interplay between the political supply and demand side. This is where agent-based models (McGann 2008, Shikano 2008) have made very important innovations, since they impose rigor and explicitness on the voter and party submodels. To progress in that direction, I deduce three 'stylized facts' from the empirical literature on dimensionality below to guide the construction and evaluation of the model used here, and introduce *idiosyncratic unidimensionality* as a mechanism which might reconcile apparent contradictions in these facts.

**Party competition dimensionality varies strongly across political systems.** While many early accounts conceptualize party competition on a single left-right dimension, political science has today accumulated a lot of evidence that not only more than one dimension is needed to describe most party systems (Warwick 2002), there are also important differences across different systems and over time (Albright 2010), independent from different data sources and measurement approaches (see, for example Lijphart 1999, Stoll 2011, Singh 2012, Bakker *et al.* 2012, Ganghof *et al.* 2015). While the merits of each approach, and what it measures specifically, can be discussed (Stoll 2011, Reinermann and Barbet 2019), they all show a variance across contexts that is worthwhile to explore and explain.

**Voter preference dimensionality is generally high.** It is one of the classical findings in electoral research that voters are largely 'unconstrained' in their issue preferences, leading to the famous dictum that they are ideologically 'innocent' (Converse 1964, Kinder 1983). While this characterization may hinge on a specific concept of what constitutes an ideology (Carmines and D'Amico 2015), more recent work has indeed found that voter preferences on specific issues and subdimensions do not correlate unidimensionallly, but are in fact multidimensional (Baldassarri and Gelman 2008, Carmines *et al.* 2012, Klar 2014, Hillen and Steiner 2020). Given this finding, it is puzzling that parties in some systems constrain

dimensionality at all; this has led previous studies of dimensionality to state the question 'why unidimensionality?' (McGann 2008).

**Voter decision making is largely structured unidimensionally.** While voters do have quite heterogeneous preferences on different issue dimensions, they still seem to be very much used to thinking in unidimensional terms. Not only are they, at least in established democracies, able to locate their position on a left-right scale by a large majority (Dalton 2006, Mair 2007), they can also order the political parties in their country on it (Fortunato *et al.* 2016). Moreover, they seem to be guided by it quite strongly when choosing a party to support (van der Eijk *et al.* 2005). Specifically, although far from perfect, vote choice conforms to the basic proximity voting model to a large degree (Blais *et al.* 2001, Singh 2010). Also, increased dimensionality on the party side seems to have no or only a small effect on the extent to which party preferences are structured by the left-right dimension (Singh 2010, Fortunato *et al.* 2016).

These findings seem to stand in contradiction to each other. While it may well be that voters do not bother to incorporate the parties' positions on all of the different issues they have preferences on in their vote choice (e.g. because they do not want to spend the effort to obtain the necessary information or because processing said information would be too complex) and instead opt for a simpler way to arrive at a decision, there appears to be no reason why parties would compete on any dimension other than the one they are being judged on by voters. While parties need not be exclusively be vote-seeking (Strøm 1990), it seems highly unplausible that they address issues that do not figure in their supporters' decision calculus at all (Franzmann 2011). However, this argument would only be viable if all voters decide by the *same* single dimension; that is, e.g., if each and every voter would associate the terms left and right with the very same issue or mix of issues.

There is a lot of evidence, however that this is not the case. Early on, Gigerenzer (1982) has postulated the concept of 'idiosyncratic unidimensionality', i.e. that voters condense differences in their preference for political parties into one dimension, but that this dimension is not the same for all of them. In accordance with this, left-right has been found to have undergone a pluralization, i.e. the addition of new issues to its meaning (Knutsen 1995,

de Vries *et al.* 2013). Moreover, the understanding citizens have of its meaning seems rather heterogeneous (Bauer *et al.* 2017, Lachat 2018), which also affects how parties are perceived (Miwa and Taniguchi 2017). Under these circumstances, it could be that parties compete on several dimensions in order to appeal to different voter subpopulations which evaluate them on different issue mixes.

That voters' understandings of the left-right dimension might *differ* should not be taken to mean that they are *uncorrelated*, however. If the meaning of left and right was completely arbitrary, the spatial model would lose its very basis, and thus its meaning. On the other hand, however, assuming that it is exactly the same for all individuals not only seems unrealistic, but also unnecessary. As Fuchs and Klingemann (1990) discuss, left-right can still perform its function of guiding political judgment even if individual understandings differ: "*In order to achieve individual orientation and successful participation in social communication, it is not necessary that an individual acquires all of the potential meanings of ideology; it is sufficient that the individual selects some element from this culturally pre-determined set of meanings, and that the selected meanings are correctly applied to the poles of the left-right dimension. Thus, individual left-right schemata can be seen as incomplete reflections of the collective schema of left and right* " (207; also see Inglehart 1984). The models implemented in this paper therefore mostly, if at all, include a very contained version of idiosyncratic unidimensionality.

This means individual understandings of left and right need to display a minimum of correlation, but need not be identical. Formal specifications of the spatial model typically have difficulties incorporating this ambivalence because they are *strongly spatial models* (Humphreys and Laver 2010), i.e. they assume distances on the political space as an explicit part of the cognitive process underlying political judgment. This usually requires a common political space and a commonly specified utility function. As the next section argues in greater detail, the model by Shikano (2008) offers an opportunity to get around this limitation.

## 5.3 The Model

To elucidate on how the dimensionality of party systems emerges through the interplay of voter decision making and the strategic behavior of political parties, I develop a model of multi-party competition on a bi-dimensional political space and analyze the degree to which parties 'constrain' this space, i.e. whether they fully use it or their positions drift towards unidimensionality. Since dynamic models of multi-party competition on more than one dimension have been shown to be analytically intractable under most circumstances (Teramoto *et al.* 2011, Laver and Sergenti 2012), this requires the use of an agent-based model. Using simulation to analyze the behavior of social actors, agent-based models often lack the elegance of classic, analytical models, but in a unique way combine the rigor of formal models as regards parameterization and mechanisms with utmost flexibility with regard to the behaviors that can be modeled (Schmitt 2015). This especially applies to the decision-making behavior and the level of information of agents (Gilbert and Troitzsch 2005, Gilbert 2008).

Through this make-up, the model parallels previous studies which have focussed the question of dimensionality on how unidimensionality comes about. Two different fundamental mechanisms have been explored to theoretically study the emergence of unidimensionality. One is the distribution of voter ideal points on different policy dimensions, as has been studied by McGann (2008). Using a Tiebout (1956) sorting model, he shows that voter preferences that are even mildly correlated across dimensions induce a strong tendency towards party positions that align on a single dimension.

Another mechanism, introduced by Shikano (2008), works through the utility function ascribed to voters. It assumes that unidimensionality comes about because agents see the dimensions of political space as differing in *salience* and, crucially, as *non-separable*: the utility they derive from a given party position is not computed for each dimension independently anymore, but the utility of the position on one dimension depends on the position on the other (see Stoetzer and Zittlau 2015 for an empirical treatment of non-separability). I mainly build on this model, with two conceptual alterations: while Shikano assumes that parties can directly influence non-separability, I posit that it emerges from the structure of party

Table 5.1: Voter decision making modes and corresponding parameter values.

| Decision Mode | $a_i$ | $b_i$ | $c_i$ | P(update) | Runs | # collapsed |
|---|---|---|---|---|---|---|
| bidimensional | 1 | 0 | 1 | 0 | 983 | 0 |
| conforming unid., fix | 1 | 0.9 | 1 | 0 | 1029 | 48 |
| idiosyncratic unid., fix | $|x_i|$ | 0.9 | $|y_i|$ | 0 | 982 | 185 |
| conf. w/ updating | $\alpha_t$ | $\beta_t$ | $\gamma_t$ | $]0; 0.05]$ | 1029 | 0 |
| idios. w/ updating | $\alpha_{i,t}$ | $\beta_{i,t}$ | $\gamma_{i,t}$ | $]0; 0.05]$ | 977 | 0 |

competition. Also, I allow for utility functions to vary across voters, meaning that they do not only have different ideal points on the political space, but also different understandings of it.

## 5.3.1   Model Architecture

To study how party system dimensionality emerges under different modes of voter decision making, I implement a simple model of party competition on a discrete space with two dimensions (151 x 151, centered at {0;0}; see Davis *et al.* (1970) on how this model can be extended to $n$ dimensions). Individual simulations of this model (runs) consist of an iterative taking-turns of parties updating their platform, and voters re-evaluating their party support.[2] All voters in a given run use one of five decision making modes (see section 5.3.2), two of which include that voters stochastically update their utility function. The outcome of interest is the *dimensionality* that party positions exhibit at the end of a given run, operationalized as the ratio of the second Eigenvalue of the covariance matrix of party positions to the first. This builds on Shikano (2008). As he points out, this is equivalent to carrying out a principal component analysis and comparing the variance explained by either of the extracted dimensions, which is represented in the eigenvalues. Dividing the second by the first gives us a measure that runs from zero (all variance in party positions explained by a single dimension) to one (two dimensions can be extracted which explain an equal amount of variance).

Each run is initiated and parameterized by setting a unique random seed (obtained by

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[2]These iterations do not have a strict definition, e.g. as an election, but serve to discretize the constant back-and-forth between parties and voters and can be seen as moments in which *"politicians make decisions about party policy in response to published information, such as opinion poll feedback, about levels of party support"* (Laver and Sergenti 2012, 109)

use of Eddelbuettel's 2017 *random* package) and drawing the decision mode and the other starting parameters detailed below (voter spread, number of parties, updating probability) at random (see table 5.1 for an overview). All in all, 5,000 runs were carried out for this paper. The outcome variables were measured at the end of each run; because runs do not have a 'natural end point', the following stopping rule was used: each run lasted at least 300 iterations ("burn-in"). After that, it went on until a somewhat steady state was reached in which there was sufficiently little party movement. To judge that, I compute overall position change as

$$PC = \frac{\sum_{p=1}^{P} \frac{\sigma_{xp,T=20}+\sigma_{yp,T=20}}{2}}{P}, \tag{5.1}$$

where $\sigma_{dp,T=20}$ is the standard deviation of the coordinates party $p$ has occupied on dimension $d$ in the last 20 iterations. I consider a run to have reached a steady state if $PC \leq 1.5$.

## 5.3.2 Voters

For each run, 1000 voter ideal points are drawn at random, with equal variances on both dimensions ($\sigma_x = \sigma_y = [10; 30]$) and zero correlation between $x$- and $y$-coordinates (see upper pane of figure 5.1 for an examplary space).[3] Voters are characteristized by their position on the political space vis-a-vis the parties and how they translate the distances to the parties into electoral utilities. Voting is deterministic, i.e. voters support the party the position of which maximizes their utility, with the general utility function

$$U_i(p_j) = -(\rho_j - \omega_i)' A_i (\rho_j - \omega_i), \tag{5.2}$$

where $\rho_j$ and $\omega_i$ are vectors of the voters' and parties' coordinates on the two dimensions ($x$ and $y$) respectively and $A_i$ is a positive semidefinite matrix that induces different degrees of salience and/or non-separability between dimensions:

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[3]The procedure to create these distributions is as follows: setting up each simulation run, each patch is assigned a probability from a bivariate normal distribution centered at the center of the space. The patches are then called upon at random to 'sprout' a voter with the respective probability until there are 1,000 voters.

$$[a_i = 1, \, b_i = 0, \, c_i = 1] \qquad [a_i = 2, \, b_i = 0, \, c_i = 1] \qquad [a_i = 1, \, b_i = 0.5, \, c_i = 1]$$
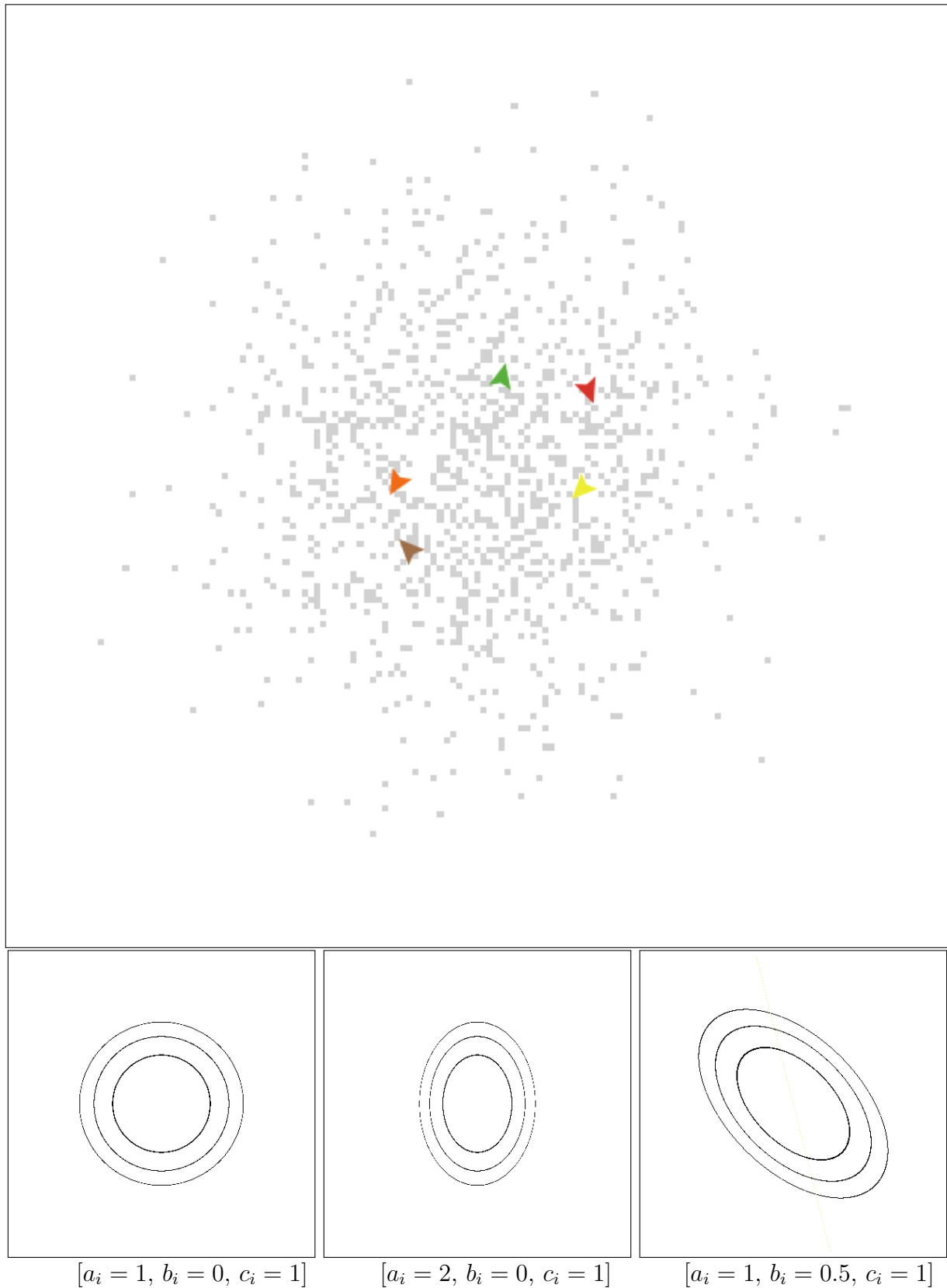
Figure 5.1: Examplary depictions of the model space with five parties and voter spread = 20 (top) and examplary indifference curves for different utility function parameterizations (bottom).

$$A_i = \begin{bmatrix} a_i & b_i * \sqrt{a_i * c_i} \\ b_i * \sqrt{a_i * c_i} & c_i \end{bmatrix}. \tag{5.3}$$

The utility function of voter $i$ with regard to party $j$ thus can be transformed to

$$U_i(p_j) = -a_i * (x_i - x_j)^2 - 2b_i * \sqrt{a_i * c_i} * (x_i - x_j)(y_i - y_j) - c_i * (y_i - y_j)^2. \tag{5.4}$$

How different values of $a_i$, $b_i$ and $c_i$ impact on how voters think about the parties is illustrated in the lower pane of figure 5.1: with equal saliences ($a_i = c_i$) and perfectly separable dimensions ($b_i = 0$), voters use both dimensions equally, leading to utility being proportional to Euclidean distance. If $a_i > c_i$, the indifference curves are 'stretched' along the $y$-dimension, so that a party's coordinate on the (more salient) $x$-dimension becomes more important for how it is evaluated by a voter. Positive (negative) values of $b_i$ 'bend' voters' utility function such that positions on the two dimensions are substitutes (complements) in the eyes of the voters (Stoetzer and Zittlau 2015): they differentiate more strongly between party positions along the bisector (the orthogonal to the bisector) of the political space.

The first three decision-making modes implemented here are idealizations of the models that can be derived from Gigerenzer (1982) and serve as benchmarks to explore what kind of model might be suitable to reproduce the stylized facts posited above. The first is a fully *bidimensional* model with equal salience and complete separability of the dimensions. This should generally produce high levels of dimensionality. In the second mode, which I refer to as *conformingly unidimensional*, voters see the dimensions as highly non-separable ($b_i = 0.9$) and equally salient ($a_i = c_i = 1$). This means that although their *preferences* are strongly bidimensional, they *decide* unidimensionally, which should facilitate the emergence of a dominant axis of party competition. Lastly, in the *idiosyncratically unidimensional* mode, voters still uniformly regard the dimensions as strongly non-separable, but differ in the salience they ascribe to them. Specifically, I assume that the salience of a dimension for a given voter depends on the excentricity of the voter's ideal point. Topics that a voter has stronger opinions

on should feature more strongly in their decision calculus. I operationalize this by setting a voter's values of $a_i$ and $c_i$ to the absolute amount of their $x$- and $y$-coordinates respectively. This creates an 'electorate' which decides strongly unidimensional, but in slightly heterogeneous fashion. As was discussed above, these voters exhibit largely similar understandings of political space, but with some individual deviations.

Voters have the same utility function over an entire run in these three decision modes; however, it might well be that the parameters change over time (as they do in Shikano's 2008 model). I therefore include two more decision modes (one with conforming and one with idiosyncratic preferences) which include that voters adapt to the changing party system around them to increase their utility function's capacity for discrimination: people in decision situations are known to employ cognitive shortcuts, or *heuristics*, that ignore some of the information available, but lead to efficient, effort-saving decisions (Gigerenzer and Gaissmaier 2011). Likewise, voters have been found to 'economize' on information (Lupia and McCubbins 1998). Applied to party platforms, voters are likely to focus on what makes these platforms different, and neglect details that do not add much to discerning them. Hence, if party positions manifest in a certain structure, this structure will be read by voters such that the positions become more salient with regard to where they are most conflictive (see Rovny and Polk 2019 for an analogous reasoning with regard to parties).

In the context of this model, the effort needed to decide between parties can be approximated by the utility differential between them. Therefore, the utility function is assumed to adapt such that it discriminates better between party positions. Concretely, in the conforming variant voters set the $a_i$- and $c_i$-parameters to the $x$- and $y$-range of the party positions they observe in a given run with a certain probability which is determined in the setup of the model (see table 5.1), and $b_i$ to the correlation (Pearson's $r$) of parties' $x$- and $y$-coordinates.[4] This is a major contrast to Shikano (2008), where parties can directly change $b_i$. In the idiosyncratic mode, voters include their own position in the calculation of ranges and correlation. More-

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[4]The respective starting values are $\{a_i = 1,\ b_i = 0$ and $c_i = 1\}$ in the conforming and $\{a_i \sim \mathcal{U}(0,1),\ b_i \sim \mathcal{U}(-1,1)$ and $c_i \sim \mathcal{U}(0,1)\}$ in the idiosyncratic condition.

over, whether they update the parameters is determined for each voter individually, whereas in the conforming mode all voters adapt at the same time.

### 5.3.3   Parties

The number of parties varies from three to eight. They start each run from the origin of the space and simply move their position in the political space to gain the support of voters. However, they do not possess complete, but only local information to do so. Specifically, they probe the eight patches in their direct vicinity, plus the one they currently occupy, for the number of votes they would yield. They then move to (or stay at) the patch which promises the most votes.

## 5.4   Results[5]

Section 5.2 posited three stylized facts about empirical party systems a theoretical model should be able to reproduce. Two of these, namely those which pertain to voter preferences and decision behavior, have been built into the model in different configurations. Thus, the analyses in this section focus on the party systems these configurations produce and how they perform with regard to the remaining stylized fact, i.e. the degree of *party system dimensionality* and how it manifests itself in different party systems. One unexpected finding that turned up by visual inspection of the simulation runs was that in some runs, the parties converge to one of the corners of political space, a rather implausible result. To rule this possibility out in the analyses, I operationalized *party system collapse* as the mid point of the party system being away from the origin of the space more than one standard deviation of the voter distribution. This occurs mostly in three party systems, and exclusively in the runs with unidimensional decision making without updating (see table 5.1 and appendix D). These runs are left out of the following analyses.

Turning to the dimensionality that different model specifications produce, figure 5.2 shows how it is distributed contingent on the decision mode voters employ and the number of parties.

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[5]The following R packages were used to compile the material presented here: Wickham (2016)
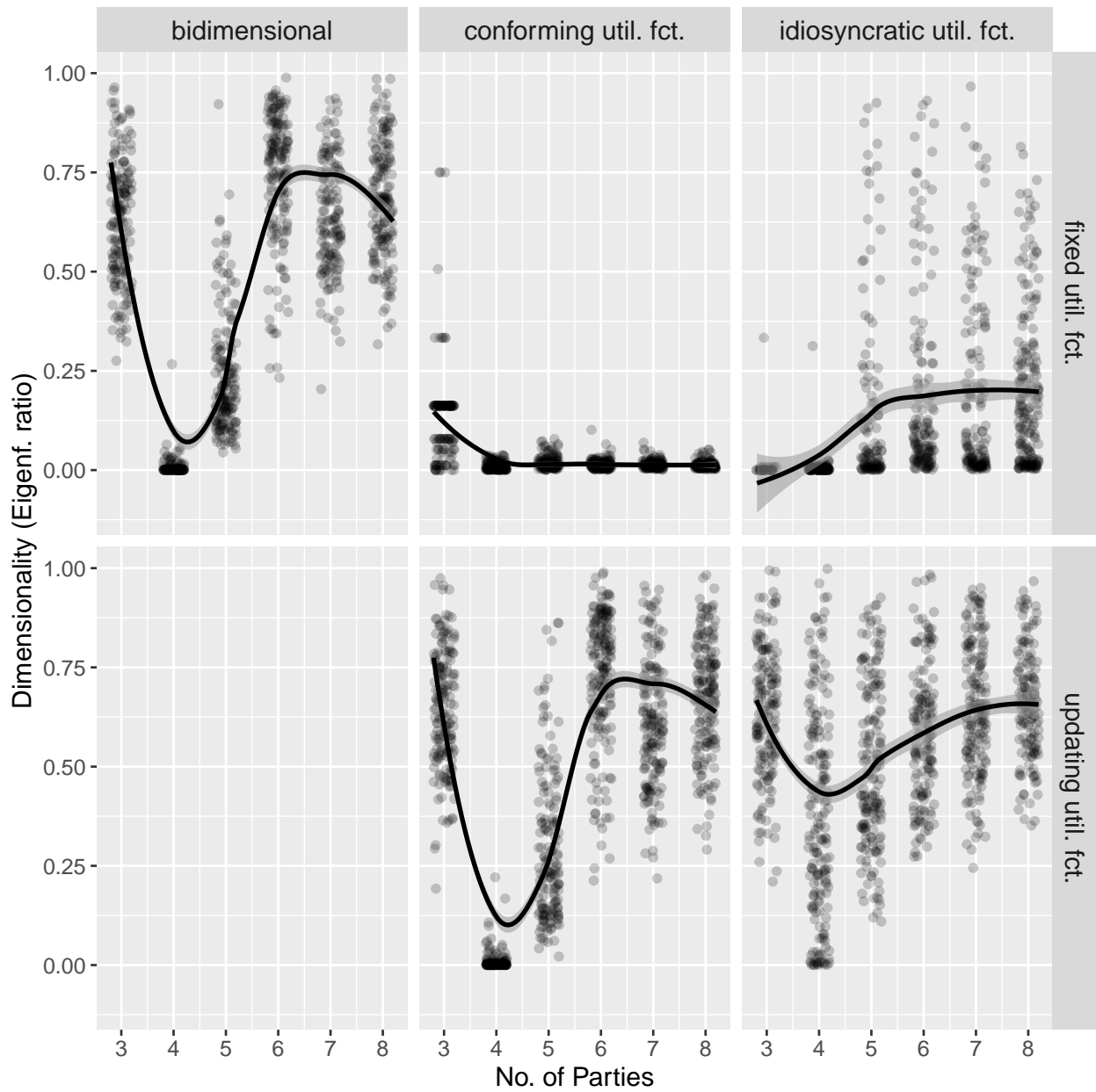
Figure 5.2: Degree of *party system dimensionality*, contingent on number of parties, by voter decision making mechanism.

One important first insight from it is that the decision mode does play a crucial role both for the overall distribution of dimensionality and its relationship with the number of parties. The patterns produced clearly differ between decision modes.[6] Another insight is that generally, nearly all decision modes are capable of generating considerable variation in dimensionality. Only the decision mode with fixed, conformingly unidimensional preferences consistently produces strongly unidimensional party systems, which given the parameter specification is somewhat expectable.

On the other hand of the spectrum, the fully bidimensional and the updating decision modes all produce rather high dimensionality, and also very similar relationships between it and the number of parties. Inspection of the utility function paramters emerging in the respective runs shows that in the conforming unidimensional variant, utility functions basically converge towards the bidimensional scenario (figure 5.3, upper pane), while in the idiosyncratic condition they vary widely (lower pane). In fact, there is so much heterogeneity in the utility function parameters within a given simulation run that this specification generates the chaotic situation discussed in section 5.2 where all the voters have a completely different understanding of political debate. This unsurprisingly also allows the parties to scatter all over the political space, but, as pointed out above, renders the spatial model moot as well.

Within a given specification of the voters' utility functions, the number of parties appears to be the most important, if not the sole driver of party system dimensionality. In neither of the five decision scenarios does dimensionality correlate with voter spread or, in the dynamic versions, the probability with which voters update their utility functions (not shown here). Since the relationship between dimensionality and number of parties also sets apart the different decision modes quite strongly, I take a cursory look at the empirical relationship between party system dimensionality and the number of parties to contrast it with the analysis above (figure 5.4). For that I use party positions on an economic and a non-economic dimension, compiled from Manifesto Project data (see, examplarily, Volkens *et al.* 2019) by use of the

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[6]Of course, certain commonalities do arise, such as the tendency in most decision modes for four party systems to produce very unidimensional party configurations. This clustering turns out in Shikano's (2008) results as well. Visual inspection of the individual model runs revealed that these systems often evolve into a situation where two pairs of parties basically converge on two positions and thus form a bipolar party system.
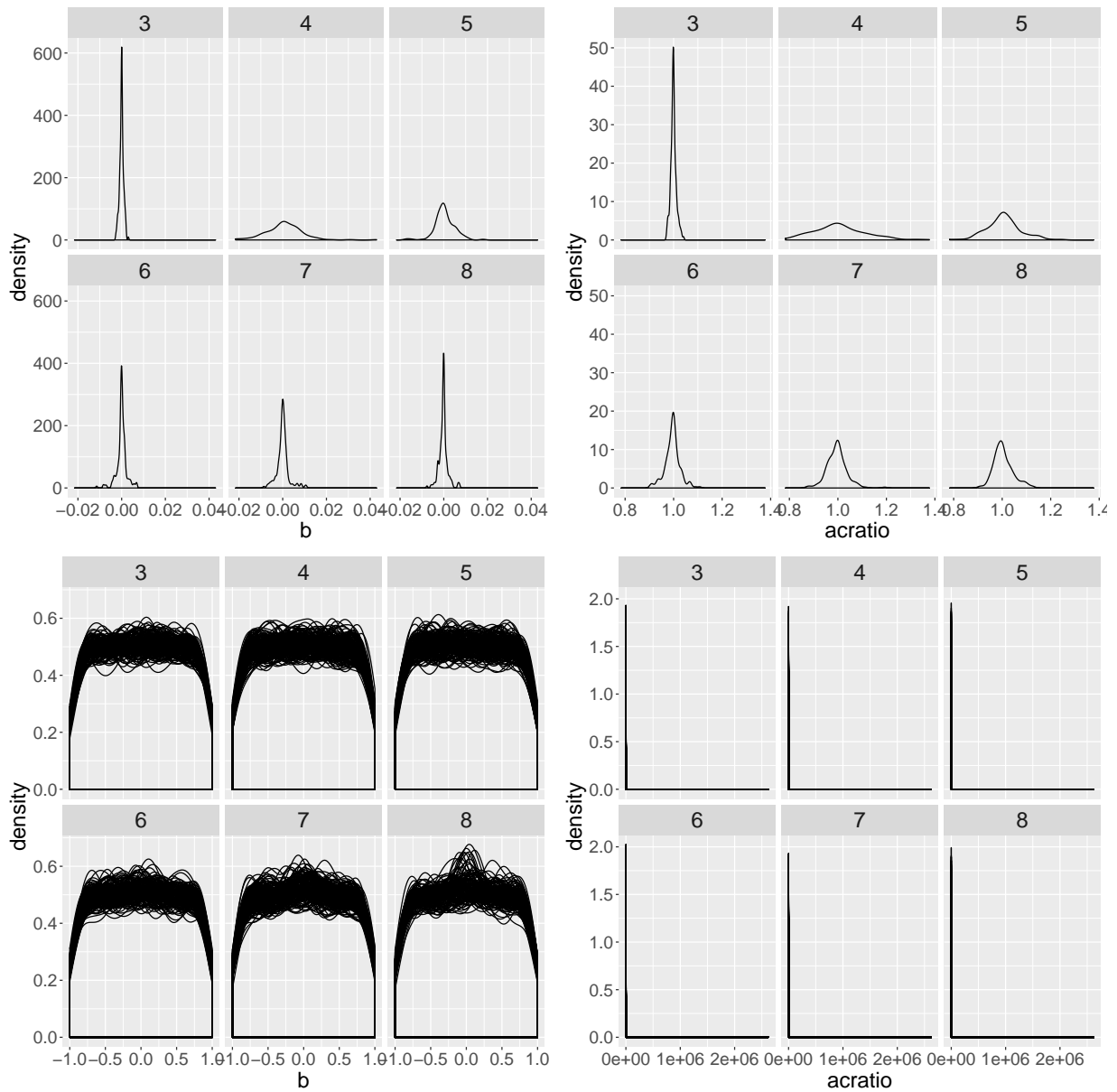
Figure 5.3: Distributions of the emergent $b_i$ (left) and the ratio of $a_i$ and $c_i$ (right) in the updating decision modes, contingent on number of parties. Top panel: conforming version (over simulation runs), bottom panel: idiosyncratic version (over voter populations).

method developed by Franzmann and Kaiser (2006). I then calculate the analogue to the model's dimensionality parameter by compiling the covariance matrices of party positions for individual elections in the data set from 1980 to 2013 and saving the respective Eigenvalue ratios.[7] While in no way a rigorous empirical evaluation, this comparison suggests that, if any of the models has some verisimilitude, it is strongest in the one with fixed, idiosyncratic unidimensional decision-making, which like the empirical data shows a weakly positive, somewhat curvilinear relationship between dimensionality and the number of parties.

## 5.5 Conclusion

Spatial models have long been workhorses of research on political competition and vote choice, but the exact structure of political space and why it manifests itself the way it does has proved difficult to ascertain. This paper has tried to contribute to this endeavor by developing an agent-based model of party system dimensionality. It started out by identifying certain regularities in empirical party systems and contrasting the outputs of different variants of the model with these 'stylized facts'. A central objective of the paper was to find out whether voters in a political system can have heterogeneous understandings of what the political space looks like and whether this could reconcile seemingly conflictive findings from the empirical literature.

Within the scope of this paper, the model with fixed, idiosyncratically unidimensional utility functions is indeed the one that comes closest to the empirical reality. However, before one places much confidence in this result, a lot more thinking about model formulation and parameterization is needed. This of course most importantly concerns the parameters of voter utility functions. While, as discussed above, one has to be careful to not make voter populations so heterogeneous that the spatial model itself is lead *ad absurdum*, the boundaries of the parameter space surely have not been reached here. However, voter behavior is not the only aspect of model design that should be out under further scrutiny. Another is party

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[7]I thank Simon Franzmann for providing me with an updated version of the Franzmann and Kaiser (2006) data set. I drop the data points for Turkey because it cannot be regarded as "fully democratic" (Lindberg 2016), and for Spain and Belgium because of their strongly regionalized party systems.
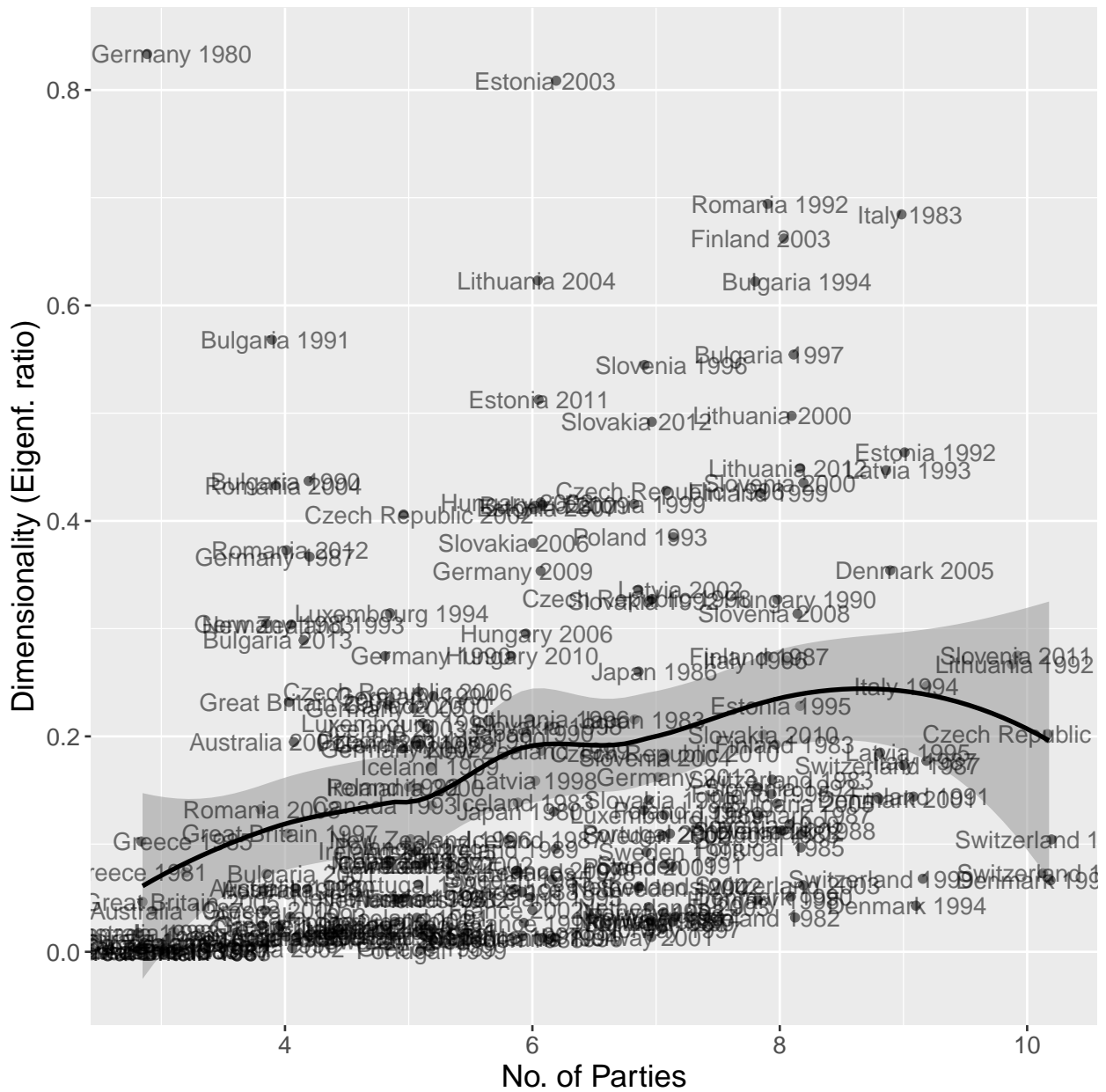
Figure 5.4: Empirical degree of *party system dimensionality*, contingent on number of parties, 1980-2013.

behavior, as the model as of yet only covers one specific type of party strategy. As so often, the flexibility of agent-based models is both a strength and a challenge here since basically any conceivable behavior can be modeled (see, e.g. Laver and Sergenti 2012). Also, the aforementioned problem of party system 'collapse', i.e. convergence of the party positions towards one corner of the political space, urgently needs to be explored more.

Nevertheless, even in this basic version it is worthwhile to think about how the model presented here could structure further research into party system dimensionality. In particular, it pushes the boundaries of how spatial models of party competition are conceptualized. Analytical politics scholars have long worked to relax the assumptions needed for these models (see Grofman 2004). Agent-based models are capable to give a tremendous boost to these endeavours because of the flexibility they offer, for instance because they allow broadening the range of decision making models and combining different mechanisms (Martin and Plümper 2004) or embedding a given model of party competition within an institutional environment (Shikano 2009). What this paper has shown, if anything, is that the way voters decide has a large impact on party dimensionality. It thus warrants further research into the cognitive models and heuristics that voters employ with regard to their issue preferences and vote choice. As far as these models can be related to other individual characteristics such as political information and engagement, insights from research on party behavior could be complemented with an equally elaborate theory of how the political demand side influences the shape that political discourse takes on.

# Appendix A

# Supplementary Material for Chapter 2

Table A.1: Summary statistics, respondent and election level

| Variable | Mean | Std. Dev. | Min. | Max. |
|---|---|---|---|---|
| *Proximity-ness sample, n = 50562* | | | | |
| proximity-ness | 0.5 | 0.47 | -1 | 1 |
| age/100 | 0.48 | 0.17 | 0.18 | 1 |
| education | 5.44 | 1.71 | 1 | 8 |
| female | 0.48 | 0.5 | 0 | 1 |
| voted | 0.88 | 0.33 | 0 | 1 |
| political info. (Singh 2015) | 0 | 0.58 | -1 | 2.36 |
| partisan identifier | 0.53 | 0.5 | 0 | 1 |
| evaluation of gov't performance | 2.48 | 0.75 | 1 | 4 |
| *Proximity dummy sample, n = 45361* | | | | |
| proximity dummy | 0.53 | 0.5 | 0 | 1 |
| age/100 | 0.49 | 0.16 | 0.18 | 1 |
| education | 5.50 | 1.72 | 1 | 8 |
| female | 0.48 | 0.5 | 0 | 1 |
| political info. (Singh 2015) | 0 | 0.56 | -1 | 2.20 |
| partisan identifier | 0.55 | 0.5 | 0 | 1 |
| evaluation of gov't performance | 2.49 | 0.75 | 1 | 4 |
| *Macro level sample, n = 47* | | | | |
| dimensionality | 0.28 | 0.11 | 0.02 | 0.48 |
| polarization | 2.2 | 1.54 | 0.27 | 6.42 |
| effective number of parties | 3.66 | 1.15 | 2.02 | 6.57 |
| raw count of parties | 5.89 | 1.46 | 3 | 9 |

Table A.2: Elections included in the analysis

| Country | Year | No. of respondents |
|---|---|---|
| Australia | 2004 | 903 |
| Australia | 2007 | 933 |
| Austria | 2008 | 878 |
| Canada | 2004 | 1138 |
| Canada | 2008 | 851 |
| Czech Republic | 2002 | 656 |
| Czech Republic | 2006 | 1364 |
| Czech Republic | 2010 | 1249 |
| Denmark | 2007 | 718 |
| Estonia | 2011 | 631 |
| Finland | 2003 | 972 |
| Finland | 2007 | 1085 |
| Finland | 2011 | 1105 |
| France | 2002 | 877 |
| France | 2007 | 1878 |
| Germany | 2002 | 1791 |
| Germany | 2005 | 1111 |
| Germany | 2009 | 1600 |
| Great Britain | 2005 | 440 |
| Hungary | 2002 | 927 |
| Ireland | 2002 | 1411 |
| Ireland | 2007 | 476 |
| Iceland | 2007 | 1118 |
| Iceland | 2009 | 988 |
| Italy | 2006 | 446 |
| Japan | 2004 | 629 |
| Japan | 2007 | 812 |
| Netherlands | 2002 | 844 |
| Netherlands | 2006 | 1945 |
| Netherlands | 2010 | 1767 |
| Norway | 2001 | 1828 |
| Norway | 2005 | 1849 |
| Norway | 2009 | 1375 |
| New Zealand | 2002 | 813 |
| New Zealand | 2008 | 523 |
| Poland | 2001 | 1064 |
| Poland | 2005 | 1540 |
| Poland | 2007 | 1261 |
| Portugal | 2002 | 896 |
| Portugal | 2005 | 1723 |
| Portugal | 2009 | 526 |
| Slovenia | 2004 | 401 |
| Spain | 2004 | 845 |
| Sweden | 2002 | 849 |
| Sweden | 2006 | 786 |
| Switzerland | 2003 | 1072 |
| Switzerland | 2007 | 1768 |

Table A.3: Matching of Parties between CSES and CMP

| Party Name CSES | CSES Code | Party Name CMP | CMP Code |
|---|---|---|---|
| Australia 2004 | | | |
| Australian Labor Party | B | ALP Labour Party | 63320 |
| National Party of Australia | D | NPA National Party | 63810 |
| Liberal Party of Australia | A | LPA Liberal Party | 63620 |
| Australian Greens | C | Australian Greens | 63110 |
| Australia 2007 | | | |
| Australian Labor Party | A | ALP Labour Party | 63320 |
| National Party | C | NPA National Party | 63810 |
| Liberal Party | B | LPA Liberal Party | 63620 |
| Greens | D | Australian Greens | 63110 |
| Austria 2008 | | | |
| Alliance for the Future of Austria | D | BZO Alliance for the Future of Austria | 42710 |
| Freedom Party of Austria | C | FPO: Freedom Party | 42420 |
| The Greens - The Green Alternative | E | Green Party | 42110 |
| Austrian People's Party | B | OVP: People's Party | 42520 |
| Social Democratic Party of Austria | A | SPOE Social Democratic Party | 42320 |
| Canada 2004 | | | |
| Bloc Quebecois | D | BQ Bloc Quebecois | 62901 |
| Conservative Party of Canada | B | CP Conservative Party | 62623 |
| Liberal Party of Canada | A | LP Liberal Party | 62420 |
| New Democratic Party (NDP) | C | NDP New Democratic Party | 62320 |
| Canada 2008 | | | |
| Bloc Quebecois (BQ) | C | BQ Bloc Quebecois | 62901 |
| Conservative Party | A | CP Conservative Party | 62623 |
| Liberal Party | B | LP Liberal Party | 62420 |
| New Democratic Party (NDP) | D | NDP New Democratic Party | 62320 |
| Green Party | E | Green Party | 62110 |
| Czech Republic 2002 | | | |
| Czech Social Democratic Party (CSSD) | A | CSSD Social Democratic Party | 82320 |
| Communist Party Of The Czech Lands And Moravia (KSCM) | C | KSBM Communist Party | 82220 |
| Civic Democratic Party (ODS) | B | ODS Civic Democratic Party | 82413 |
| Czech Republic 2006 | | | |
| Czech Social Democratic Party (CSSD) | B | CSSD Social Democratic Party | 82320 |
| Green Party (SZ) | E | Green Party | 82110 |
| Christian Democratic Union-Czechoslovak Peoples' party (KDU-CSL) | D | KDU-CSL Alliance | 82523 |
| Communist Party of Bohemia and Moravia | C | KSBM Communist Party | 82220 |
| Civic Democratic Party (ODS) | A | ODS Civic Democratic Party | 82413 |
| Czech Republic 2010 | | | |
| CSSD (Ceska strana socialne demokraticka) | A | CSSD Social Democratic Party | 82320 |
| SZ (Strana zelenych) | H | Green Party | 82110 |
| KDU-CSL (Krestanska a demokraticka unie Ceskoslovenska strana lidova) | G | KDU-CSL Alliance | 82523 |
| KSCM (Komunisticka strana Cech a Moravy) | D | KSBM Communist Party | 82220 |
| ODS (Obcanska demokraticka strana) | B | ODS Civic Democratic Party | 82413 |
| TOP 09 | C | TOP09 Tradition Responsibility Prosperity 09 | 82530 |
| VV (Veci verejne) | E | VV Public Affairs | 82952 |
| Denmark 2007 | | | |
| Danish People's Party | C | DF People's Party | 13720 |
| United List - The Red-Greens | H | EL Red-Green Unity List | 13229 |
| Conservative People's Party | E | KF Conservative People's Party | 13620 |

| New Alliance | G | Ny Alliance | 13001 |
| Radical Left, Social Liberal Party | F | RV Radical Party | 13410 |
| Social Democrats | B | SD Social Democratic Party | 13320 |
| Socialist People's Party | D | SF Socialist People's Party | 13230 |
| Left, Liberal Party | A | V Liberals | 13420 |

| Estonia 2011 | | | |
| --- | --- | --- | --- |
| Estonian Greens | F | EER Estonian Greens | 83110 |
| Estonian Reform Party | A | ER Reform Party | 83430 |
| Social Democratic Party | D | ESDP Social Democratic Party | 83320 |
| Estonian Centre Party | B | KESK Centre Party | 83411 |
| Estonian People's Union | E | Rahvaliit People's Un | 83612 |
| Pro Patria and Res Publica Union | C | ResP Union for the Republic - Res Publica | 83611 |

| Finland 2003 | | | |
| --- | --- | --- | --- |
| Christian Democrats | F | Christian Democrats | 14520 |
| Center Party | A | SK Finnish Centre | 14810 |
| Social Democratic Party of Finland | B | The Finnish Social Democratic Party | 14320 |
| Green League | E | VL Green Union | 14110 |
| National Coalition Party | C | KK National Coalition | 14620 |
| Left Alliance | D | VL Left Wing Alliance | 14223 |
| Swedish People's Party in Finland | G | RKP/SFP Swedish People's Party | 14901 |

| Finland 2007 | | | |
| --- | --- | --- | --- |
| Christian Democrats (KD) | G | Christian Democrats | 14520 |
| Centre Party of Finland (KESK) | A | SK Finnish Centre | 14810 |
| Social Democratic Party of Finland (SDP) | C | The Finnish Social Democratic Party | 14320 |
| Green League (Vihr) | E | VL Green Union | 14110 |
| National Coalition Party (KOK) | B | KK National Coalition | 14620 |
| Left Alliance (Vas) | D | VL Left Wing Alliance | 14223 |
| True Finns (PS) | H | PS True Finns | 14820 |
| Swedish People's Party in Finland (RKP) | F | RKP/SFP Swedish People's Party | 14901 |

| Finland 2011 | | | |
| --- | --- | --- | --- |
| Christian Democrats In Finland (KD) | H | Christian Democrats | 14520 |
| Centre Party of Finland (KESK) | D | SK Finnish Centre | 14810 |
| Social Democratic Party of Finland (SDP) | B | The Finnish Social Democratic Party | 14320 |
| Green League (VIHR) | F | VL Green Union | 14110 |
| National Coalition Party (KOK) | A | KK National Coalition | 14620 |
| Left Alliance (VAS) | E | VL Left Wing Alliance | 14223 |
| True Finns (PS) | C | PS True Finns | 14820 |
| Swedish People's Party In Finland (RKP) | G | RKP/SFP Swedish People's Party | 14901 |

France 2002

Note: Voter ratings for "Rally for the Republic" were matched with CMP-data for "UMP Union pour la Majorité Présidentielle" (Döring and Manow 2012).

| National Front | B | FN National Front | 31720 |
| Greens | G | Greens | 31110 |
| French Communist Party | I | PCF Communist Party | 31220 |
| Socialist Party | C | PS Socialist Party | 31320 |
| Union For French Democracy | D | UDF Union for French Democracy | 31624 |
| Rally For The Republic | A | UMP Union pour la Majorité Présidentielle | 31626 |

France 2007

Note: Voter ratings for "Mouvement Démocrate" were matched with CMP-data for "UDF Union for French Democracy" (Döring and Manow 2012).

| Front National | D | FN National Front | 31720 |
| Les Verts | F | Greens | 31110 |
| Parti Communiste | E | PCF Communist Party | 31220 |
| Parti Socialiste (PS) | B | PS Socialist Party | 31320 |
| Mouvement Démocrate (MoDem) | C | UDF Union for French Democracy | 31624 |
| Union pour un Mouvement Populaire (UMP) | A | UMP Union pour la Majorité Présidentielle | 31626 |

Germany 2002

Note: Voter ratings for CDU and CSU were averaged to match them to CMP data.

| Alliance 90/Greens (B90/GREUNE) | D | 90/Greens Alliance '90/Green | 41113 |
| Christian Democratic Union (CDU); Christian Social Union (CSU) | B, C | CDU/CSU Christian Democratic Union/Social Union | 41521 |
| Free Democratic Party (FDP) | E | FDP Free Democratic Party | 41420 |
| Party Of Democratic Socialism (PDS) | F | PDS Party of Democratic Socialism | 41221 |
| Social Democratic Party (SPD) | A | SPD Social Democratic Party | 41320 |

<div align="center">Germany 2005</div>

Note: Voter ratings for CDU and CSU were averaged to match them to CMP data.

| Alliance 90 / Greens | E | 90/Greens Alliance '90/Green | 41113 |
| Christian Democratic Union (CDU); Christian Social Union (CSU) | B, F | CDU/CSU Christian Democratic Union/Social Union | 41521 |
| Free Democratic Party (FDP) | C | FDP Free Democratic Party | 41420 |
| Social Democratic Party (SPD) | A | SPD Social Democratic Party | 41320 |
| Left / Party of Democratic Socialism (Left.PDS) | D | The Left Party | 41222 |

<div align="center">Germany 2009</div>

Note: Voter ratings for CDU and CSU were averaged to match them to CMP data.

| Alliance 90 / Greens | E | 90/Greens Alliance '90/Green | 41113 |
| Christian Democratic Union (CDU); Christian Social Union (CSU) | A, F | CDU/CSU Christian Democratic Union/Social Union | 41521 |
| Free Democratic Party (FDP) | C | FDP Free Democratic Party | 41420 |
| Social Democratic Party (SPD) | B | SPD Social Democratic Party | 41320 |
| Left Party | D | The Left Party | 41222 |

<div align="center">Great Britain 2005</div>

| Conservative (Con) | B | Conservative Party | 51620 |
| Liberal Democrats (LD) | C | LDP Liberal Democratic Party | 51421 |
| Labour (Lab) | A | Labour Party | 51320 |

<div align="center">Hungary 2002</div>

| FiDeSz Federation of Young Democrats | B | FiDeSz Federation of Young Democrats | 86421 |
| SzDSz Alliance of Free Democrats | C | SzDSz Alliance of Free Democrats | 86422 |
| MDF Democratic Forum | F | MDF Democratic Forum | 86521 |
| MSzP Socialist Party | A | MSzP Socialist Party | 86220 |

<div align="center">Iceland 2007</div>

| Progressive Party (PP) Framsoknarflokkur | D | F Progressive Party | 15810 |
| Frjalslyndi flokkurinn | E | FF Liberal Party | 15420 |
| Social Democratic Alliance (SDA) Samfylking | B | S Samfylkingin Alliance | 15328 |
| Independence Party (IP) Sjalfstaedisflokkur | A | Sj Independence Party | 15620 |
| Left Green Movement (LGM) Vinstri hreyfingin graent framboo | C | VGF Left Green Movement | 15111 |

<div align="center">Iceland 2009</div>

| Civic Movement Borgarahreyfingin | E | B Citizens' Movement | 15430 |
| Progressive Party (PP) Framsoknarflokkur | D | F Progressive Party | 15810 |
| Social Democratic Alliance (SDA) Samfylking | A | S Samfylkingin Alliance | 15328 |
| Independence Party (IP) Sjalfstaedisflokkur | B | Sj Independence Party | 15620 |
| Left Green Movement (LGM) Vinstri hreyfingin graent framboo | C | VGF Left Green Movement | 15111 |

<div align="center">Ireland 2002</div>

| Fine Gael ('Family Of The Irish') | B | Fine Gael- Familiy of the Irish | 53520 |
| Fianna Fail ('Soldiers Of Destiny') | A | Fianna Fail | 53620 |
| Green (Comhaontas Glas) | F | Greens Ecology Party/Green Party | 53110 |
| Labour (Pairti Lucht Oibre) | C | LP Labour Party | 53320 |
| Sinn Fein ('We Ourselves') | D | Sinn Fein Ourselves | 53951 |
| Progressive Democrats (Dan Pairti Daonlathach) | E | PD Progressive Democrats | 53420 |

Ireland 2007

| | | | |
|---|---|---|---|
| Fine Gael | B | Fine Gael- Familiy of the Irish | 53520 |
| Fianna Fail | A | Fianna Fail | 53620 |
| Green Party | D | Greens Ecology Party/Green Party | 53110 |
| Labour | C | LP Labour Party | 53320 |
| Sinn Fein | E | Sinn Fein Ourselves | 53951 |
| Progressive Democrats | F | PD Progressive Democrats | 53420 |

Italy 2006

Note: Voter ratings for DS and DL were averaged and matched with the Olive Tree coalition from the CMP data (Ignazi 2007).

| | | | |
|---|---|---|---|
| Communist Refoundation Party | F | PRC Communist Refoundation Party | 32212 |
| Democrats of the Left (DS); Daisy-Democracy is Freedom (DL) | B, D | Olive Tree | 32329 |
| Union of Christian and Centre | E | UDC Union for Christian and Center Democrats | 32530 |
| Forward Italy | A | FI Go Italy | 32610 |
| National Alliance | C | AN National Alliance | 32710 |

Japan 2004

Note: CMP data for 2003 (lower house elections) were matched with the CSES surveys taken 2004 for the upper house elections.

| | | | |
|---|---|---|---|
| New Komeito (Clean Government Party) | C | CGP Clean Government Party | 71530 |
| Democratic Party of Japan | A | DPJ Democratic Party | 71624 |
| Japanese Communist Party | D | JCP Communist Party | 71220 |
| Social Democratic Party | E | JSP Socialist Party | 71320 |
| Liberal Democratic Party | B | LDP Liberal Democratic Party | 71620 |

Japan 2007

Note: CMP data for 2005 (lower house elections) were matched with the CSES surveys taken 2007 for the upper house elections.

| | | | |
|---|---|---|---|
| New Komeito (CGP) (Clean Government Party) | C | CGP Clean Government Party | 71530 |
| Democratic Party of Japan (DPJ) | A | DPJ Democratic Party | 71624 |
| Japanese Communist Party (JCP) | D | JCP Communist Party | 71220 |
| Social Democratic Party (SDP) | E | JSP Socialist Party | 71320 |
| Liberal Democratic Party (LDP) | B | LDP Liberal Democratic Party | 71620 |

Netherlands 2002

| | | | |
|---|---|---|---|
| CDA Christian Democratic Appeal (Christen Democratisch Appel) | A | CDA Christian Democratic Appeal | 22521 |
| CU Christian Union (ChristenUnie) | H | CU Christian Union | 22526 |
| D66 Democrats 66 (Democraten 66) | G | D'66 Democrats 66 | 22330 |
| GL Green Left (GroenLinks) | E | GL Green Left | 22110 |
| LPF List Pim Fortuyn (Lijst Pim Fortuyn) | B | LPF List Pim Fortuyn | 22720 |
| PvdA Labour Party (Partij van de Arbeid) | D | PvdA Labour Party | 22320 |
| SP Socialist Party (Socialistische Partij) | F | SP Socialist Party | 22220 |
| VVD People's Party for Freedom and Democracry (Volkspartij voor Vrijheid en Democratie) | C | VVD People's Party for Freedom and Democracy | 22420 |

Netherlands 2006

| | | | |
|---|---|---|---|
| Christian Democratic Appeal (CDA) (Christen Democratisch Appel) | A | CDA Christian Democratic Appeal | 22521 |
| Christian Union (CU) (ChristenUnie - GPV, RPF) | G | CU Christian Union | 22526 |
| Democrats 66 (Democraten 66) (D66) | H | D'66 Democrats 66 | 22330 |
| Green Left (GroenLinks) (GL) | F | GL Green Left | 22110 |
| Party for Freedom (PVV) (Partij voor de Vrijheid) | E | PVV Party of Freedom | 22722 |
| Labour Party (PvdA) (Partij van de Arbeid) | B | PvdA Labour Party | 22320 |
| Political Reformed Party (SGP) (Staatkundig Gereformeerde Partij) | I | SGP Reformed Political Party | 22952 |

| | | | |
|---|---|---|---|
| Socialist Party (SP) (Socialistische Partij) | C | SP Socialist Party | 22220 |
| People's Party for Freedom and Democracry (VVD) (Volkspartij) | D | VVD People's Party for Freedom and Democracy | 22420 |

| Netherlands 2010 | | | |
|---|---|---|---|
| Christian Democratic Appeal (Christen Democratisch Appel - CDA) | D | CDA Christian Democratic Appeal | 22521 |
| Christian Union (ChristenUnie - CU) (GPV, RPF) | H | CU Christian Union | 22526 |
| Democrats 66 (Democraten 66 - D66) | F | D'66 Democrats 66 | 22330 |
| Green Left (GroenLinks - GL) | G | GL Green Left | 22110 |
| Party of Freedom (Partij van de Vrijheid - PVV) | C | PVV Party of Freedom | 22722 |
| Labour Party (Partij van de Arbeid - PvdA) | B | PvdA Labour Party | 22320 |
| Political Reformed Party (Staatkundig Gereformeerde Partij - SGP) | I | SGP Reformed Political Party | 22952 |
| Socialist Party (Socialistische Partij - SP) | E | SP Socialist Party | 22220 |
| People's Party for Freedom and Democracry (Volkspartij - VVD) | A | VVD People's Party for Freedom and Democracy | 22420 |

| New Zealand 2002 | | | |
|---|---|---|---|
| Green Party | E | Green Party of Aortearoa | 64110 |
| Labour | A | LP Labour Party | 64320 |
| Act New Zealand | D | ACT | 64420 |
| United Future | F | United Future | 64421 |
| Jim Anderton's Progressive Coalition | G | Progressive Coalition (Jim Anderton) | 64422 |
| National | B | NP National Party | 64620 |
| New Zealand First | C | NZFP New Zealand First Party | 64621 |

| New Zealand 2008 | | | |
|---|---|---|---|
| Green Party of Aotearoa New Zealand | C | Green Party of Aortearoa | 64110 |
| Labour Party (NZLP) | B | LP Labour Party | 64320 |
| Act New Zealand | E | ACT | 64420 |
| United Future | H | United Future | 64421 |
| Jim Anderton's Progressive Party | G | Progressive Coalition (Jim Anderton) | 64422 |
| National Party (NP) | A | NP National Party | 64620 |
| Maori Party | F | Maori Party | 64901 |

| Norway 2001 | | | |
|---|---|---|---|
| Labour Party | A | DNA Labour Party | 12320 |
| Progress Party | C | FrP Progress Party | 12951 |
| Conservative Party | B | H Conservative Party | 12620 |
| Christian Peoples Party | E | KrF Christian People' Party | 12520 |
| Center Party | F | SP Centre Party | 12810 |
| Socialist Left Party | D | SV Socialist Left Party | 12221 |
| Liberal Party | G | V Liberal Party | 12420 |

| Norway 2005 | | | |
|---|---|---|---|
| Socialist Left Party | D | SV Socialist Left Party | 12221 |
| Conservative Party | C | H Conservative Party | 12620 |
| Liberal Party (Venstre) | G | V Liberal Party | 12420 |
| Progress Party (Fremskrittspartiet) | B | FrP Progress Party | 12951 |
| Christian Peoples Party | E | KrF Christian People's Party | 12520 |
| Labour Party | A | DnA Norwegian Labour Party | 12320 |
| Center Party (Senterpartiet) | F | Sp Centre Party | 12810 |

| Norway 2009 | | | |
|---|---|---|---|
| Labour Party (Det Norske Arbeiderparti) | A | DNA Labour Party | 12320 |
| Progress Party (Fremskrittspartiet) | B | FrP Progress Party | 12951 |
| Conservative Party (Hoyre) | C | H Conservative Party | 12620 |
| Christian Peoples Party (Kristelig Folkeparti) | E | KrF Christian People' Party | 12520 |
| Center Party (Senterpartiet) | F | SP Centre Party | 12810 |

| | | | |
|---|---|---|---|
| Socialist Left Party (Sosialistisk Venstreparti) | D | SV Socialist Left Party | 12221 |
| Liberal Party (Venstre) | G | V Liberal Party | 12420 |
| Poland 2001 | | | |
| League Of Polish Families (LPR) | F | LPR League of Polish Families | 92713 |
| Citizen's Platform (PO) | B | PO Citizens' Platform | 92435 |
| Polish People's Party (PSL) | E | PSL Peasant Party | 92811 |
| Law And Justice (PIS) | D | PiS Law and Justice | 92436 |
| Coalition Of The Alliance Of The Democratic Left And The Union Of Labor (SLD-UP) | A | SLD-UP Coalition | 92212 |
| Self Defence Of The Polish Republic (S) | C | SRP Selfdefence of the Polish Republic | 92622 |
| Poland 2005 | | | |
| League of Polish Famailies Liga Polskich Rodzin (LPR) | E | LPR League of Polish Families | 92713 |
| Civic Platform Platforma Obywatelska RP (PO) | B | PO Citizens' Platform | 92435 |
| Law and Justice Prawo i Sprawiedliwosc (PiS) | A | PiS Law and Justice | 92436 |
| Polish Peasent Party (PSL) Polskie Stronnictwo Ludowe | F | Polskie Stronnictwo Ludowe | 92811 |
| Left Democratic Alliance (SLD) Sojusz Lewicy Demokratycznej | D | SLD Democratic Left Alliance | 92210 |
| Self-Defencev Samoobrona Rzeczpospolitej Polskiej (SRP) | C | SRP Selfdefence of the Polish Republic | 92622 |
| Poland 2007 | | | |
| Left and Democrats Lewica i Demokraci (LiD) | C | LiD Left and Democrats | 92021 |
| Civic Platform Platforma Obywatelska RP (PO) | A | PO Citizens' Platform | 92435 |
| Polish Peasent Party Polskie Stronnictwo Ludowe (PSL) | D | PSL Peasant Party | 92811 |
| Law and Justice Prawo i Sprawiedliwosc (PiS) | B | PiS Law and Justice | 92436 |
| Portugal 2002 | | | |
| Left Bloc (BE) Bloco De Esquerda | E | BE Left Bloc | 35211 |
| Popular Party (CDS/PP) Partido Popular | C | CDS-PP Democratic and Social Center | 35520 |
| Unitary Democratic Coalition (CDU) Coligacao Democratica Unitaria | D | CDU Unified Democratic Coalition | 35229 |
| Portuguese Communist Workers' Party (PCTP/MRPP) | F | PCP Communist Party | 35220 |
| Social Democratic Party (PPD/PSD) Partido Social Democrata | A | PSD Social Democratic Party | 35313 |
| Socialist Party (PS) Partido Socialista | B | PSP Socialist Party | 35311 |
| Portugal 2005 | | | |
| Left Bloc (BE) Bloco De Esquerda | E | BE Left Bloc | 35211 |
| Popular Party (CDS/PP) Partido Popular | D | CDS-PP Democratic and Social Center | 35520 |
| Unitary Democratic Coalition (CDU) Coligacao Democratica Unitaria | C | CDU Unified Democratic Coalition | 35229 |
| Portuguese Communist Party (PCP) Partido Comunista Portugues | F | PCP Communist Party | 35220 |
| Ecologist Party "The Greens" (PEV) Partido Ecologista - "Os Verdes" | G | PEV Greens | 35110 |
| Social Democratic Party (PPD/PSD) Partido Social Democrata | B | PSD Social Democratic Party | 35313 |
| Socialist Party (PS) Partido Socialista | A | PSP Socialist Party | 35311 |
| Portugal 2009 | | | |

Note: The PCP and PEV competed as an electoral alliance (Döring and Manow 2012), but still had individual manifestos. Ratings of the CDU from CSES were matched with data for both parties in the CMP.

| | | | |
|---|---|---|---|
| Bloco de Esquerda (BE) Left Bloc | D | BE Left Bloc | 35211 |
| Centro Democratico e Social - Partido Popular (CDS-PP) Democratic and Social Centre - People's Party | C | CDS-PP Democratic and Social Center | 35520 |
| Coligacao Democratica Unitaria (CDU) Unitary Democratic Coalition - Coalition of PCP and PEV | E | PCP Communist Party | 35220 |
| Coligacao Democratica Unitaria (CDU) Unitary Democratic Coalition - Coalition of PCP and PEV | E | PEV Greens | 35110 |
| Partido Social Democrata (PPD-PSD) Social Democratic Party | B | PSD Social Democratic Party | 35313 |
| Partido Socialista (PS) Socialist Party | A | PSP Socialist Party | 35311 |

<center>Slovenia 2004</center>

Note: Voter ratings for "United List of Social Democrats" were matched with CMP-data for "SD Social Democratic Party" (Döring and Manow 2012).

| | | | |
|---|---|---|---|
| Democratic Party of Pensioners of Slovenia (Demokraticna stranka upokojencev Slovenije-DeSUS) | G | Desus Democratic Party of Pensioners | 97951 |
| Liberal Democracy of Slovenia (Liberalna demokracija Slovenije-LDS) | B | LDS Liberal Democracy | 97421 |
| New Slovenia-Christian People's Party (Nova Slovenija-Krscanska ljudska stranka-NSi) | D | Nsi New Christian People's Party | 97522 |
| United List of Social Democrats (Zdruzena Lista socialnih demokratov-ZLSD) | C | SD Social Democratic Party | 97322 |
| Slovenian Democratic Party (Slovenska demokratska stranka-SDS) | A | SDS Slovenian Democratic Party | 97330 |
| Slovenian People's Party (Slovenska ljudska stranka-SLS) | E | SLS People's Party | 97521 |
| Slovenian National Party (Slovenska nacionalna stranka-SNS) | F | SNS National Party | 97710 |

<center>Spain 2004</center>

Note: Only data for the state-wide competing parties are used.

| | | | |
|---|---|---|---|
| United Left (Izquierda Unida-IU) | C | IU United Left | 33220 |
| Popular Party (Partido Popular-PP) | B | PP Popular Party | 33610 |
| Spanish Socialist Party (Partido Socialista Obrero Espanol (PSOE) | A | PSOE Socialist Workers' Party | 33320 |

<center>Sweden 2002</center>

| | | | |
|---|---|---|---|
| Centre Party | F | CP Centre Party | 11810 |
| People's Party Liberals | C | FP Liberal People's P | 11420 |
| Christian Democrats | D | KdS Christian Democratic Community | 11520 |
| Conservative Party | B | MSP Moderate Coalition Party | 11620 |
| Social Democrats | A | SdaP Social Democratic Labour Party | 11320 |
| Left Party | E | Vp Left Party | 11220 |

<center>Sweden 2006</center>

| | | | |
|---|---|---|---|
| Centre Party (Centerpartiet) | C | CP Centre Party | 11810 |
| People's Party Liberals (Folkpartiet Liberalerna) | D | FP Liberal People's P | 11420 |
| Green Party (Miljöpartiet De Gröna) | G | Green Ecology Party | 11110 |
| Christian Democrats (Kristdemokraterna) | E | KdS Christian Democratic Community | 11520 |
| Conservative Party (Moderata Samlingspartiet) | B | MSP Moderate Coalition Party | 11620 |
| Social Democrats (Socialdemokraterna) | A | SdaP Social Democratic Labour Party | 11320 |
| Left Party (Vänserpartiet) | F | Vp Left Party | 11220 |

<center>Switzerland 2003</center>

| | | | |
|---|---|---|---|
| Christian-Democratic People's Party (CVP/PDC) | D | CVP/PDC Christian Democratic People's Party | 43520 |
| Radical-Democratic Party (FDP/PRD) | C | FDP/PRD Radical Democratic Party | 43420 |
| Green Party (GPS/PES) | E | Green Party | 43110 |
| Social-Democratic Party (SP/PS) | B | SPS/PSS Social Democratic Party | 43320 |
| Swiss People's Party (SVP/UDC) | A | SVP/UDC People's Part | 43810 |
| Switzerland 2007 | | | |
| People's Party (SVP/UDC) | A | SVP/UDC Swiss People's Party | 43810 |
| Swiss Green Party (GPS/PES) | E | GPS/PES Green Party of Switzerland | 43110 |
| Radical-Democratic Party (FDP/PRD) | C | FDP/PRD Radical Democratic Party | 43420 |
| Christian Democratic People's Party (CVP/PDC) | D | CVP/PDC Christian Democratic People's Party of Switzerland | 43520 |
| Social Democratic Party (SP/PS) | B | SPS/PSS Social Democratic Party of Switzerland | 43320 |
| Ticino League - Lega | H | LdT Ticino League | 43901 |
| Protestant People's Party (EVP/PEP) | F | EVP/PEV Protestant People's Party of Switzerland | 43530 |

# Appendix B

# Supplementary Material for Chapter 3

Table B.1: Positional frames for conjoint analysis regarding party positions, original German version

| Issue | Position 1 | Position 0 | Position -1 |
|---|---|---|---|
| 1 | Steuern und Abgaben sollten so niedrig wie möglich sein. Dazu sollten sozialstaatliche Leistungen auf ein Mindestmaß beschränkt sein. | Sozialstaatliche Leistungen sollen gesellschaftliche Teilhabe ermöglichen, Steuerzahler dürfen aber auch nicht zu sehr belastet werden. | Sozialstaatliche Leistungen sollten ein gutes Leben ermöglichen. Dafür sollten Steuern und Abgaben auf einem hohen Niveau liegen. |
| 2 | Gleichgeschlechtliche Partnerschaften sollen keine besondere staatliche Anerkennung erfahren. | Gleichgeschlechtliche Partnerschaften sollen staatlich anerkannt werden, die Ehe aber Mann und Frau vorbehalten bleiben. | Gleichgeschlechtliche Paare sollen genauso heiraten dürfen wie Mann und Frau auch. |
| 3 | Einwanderer sollen sich den deutschen Sitten und Gebräuchen anpassen. | Einwanderer sollen ihre Sitten und Gebräuche bewahren können, aber auch die deutschen Sitten und Gebräuche beachten. | Einwanderer sollen auch hier möglichst nach ihren eigenen Sitten und Gebräuchen leben können. |
| 4 | Zur Bekämpfung der Kriminalität soll der Staat vor allem auf harte Strafen setzen. | Strafen sind notwendig zur Bekämpfung der Kriminalität, aber der Staat muss straffällig Gewordenen auch helfen, sich in der Gesellschaft zurechtzufinden. | Zur Bekämpfung der Kriminalität soll der Staat vor allem darauf setzen, Straftäter wieder in die Gesellschaft einzugliedern. |
| 5 | Nationale Politik sollte immer Vorrang haben vor der europäischen. | Koordination auf europäischer Ebene ist wichtig, bestimmte Kompetenzen sollten aber den Nationalstaaten vorbehalten bleiben. | Europa sollte eine gemeinsame Regierung haben. |

Table B.2: Descriptive Statistics - Respondent Level Sample

| Variable | Mean | Std. Dev. | Min. | Max. |
|---|---|---|---|---|
| interview time | 21.798 | 66.847 | 2.775 | 1404.265 |
| effort | 0.478 | 0.283 | 0.072 | 1.743 |
| weight (spending vs. tax.) | 0.155 | 0.377 | -0.997 | 1.157 |
| weight (same-sex marriage) | 0.475 | 0.326 | -0.643 | 1.231 |
| weight (immigr. behavior) | 0.521 | 0.449 | -0.824 | 1.429 |
| weight (crime prevention) | 0.345 | 0.398 | -0.7 | 1.245 |
| weight (Europ. integ.) | 0.273 | 0.356 | -0.828 | 1.111 |
| focus | 0.297 | 0.138 | 0.036 | 0.698 |
| unidimensionality | 0.004 | 0.164 | -0.343 | 0.807 |
| polarization (svt) | 0.767 | 0.262 | 0 | 1.155 |
| polarization (ssm) | 0.77 | 0.261 | 0 | 1.155 |
| polarization (imm) | 0.764 | 0.274 | 0 | 1.155 |
| polarization (cri) | 0.768 | 0.264 | 0 | 1.155 |
| polarization (eui) | 0.78 | 0.252 | 0 | 1.155 |
| strong order viol. | 0.543 | 0.499 | 0 | 1 |
| weak order viol. | 0.123 | 0.329 | 0 | 1 |
| intermediate secondary education | 0.382 | 0.486 | 0 | 1 |
| upper level secondary education | 0.485 | 0.5 | 0 | 1 |
| aged 18-29 | 0.194 | 0.396 | 0 | 1 |
| aged 30-39 | 0.19 | 0.393 | 0 | 1 |
| aged 40-49 | 0.212 | 0.409 | 0 | 1 |
| aged 50-59 | 0.234 | 0.424 | 0 | 1 |
| aged 60 or older | 0.17 | 0.376 | 0 | 1 |
| n = 505 | | | | |

Table B.3: Descriptive Statistics - Vignette Level Sample

| Variable | Mean | Std. Dev. | Min. | Max. |
|---|---|---|---|---|
| indifference | 0.305 | 0.46 | 0 | 1 |
| Party differential (svt) | -0.028 | 1.145 | -2 | 2 |
| Party differential (ssm) | 0.01 | 1.153 | -2 | 2 |
| Party differential (imm) | 0.037 | 1.147 | -2 | 2 |
| Party differential (cri) | 0.044 | 1.149 | -2 | 2 |
| Party differential (eui) | -0.024 | 1.162 | -2 | 2 |
| n = 2968 | | | | |

Table B.4: Descriptive Statistics - Respondent-Dimension Level Sample

| Variable | Mean | Std. Dev. | Min. | Max. |
|---|---|---|---|---|
| weight | 0.363 | 0.41 | -0.997 | 1.429 |
| salience | 6.838 | 2.526 | 0 | 10 |
| polarization | 0.769 | 0.264 | 0 | 1.155 |
| n = 2385 | | | | |

Table B.5: Issue Most Highly Weighted in Left-Right Judgments

| Issue | Freq. | Percent |
|---|---|---|
| Spending vs. Taxation | 63 | 12.48 |
| Same-Sex Marriage | 172 | 34.06 |
| Immigration | 197 | 39.01 |
| Crime Prevention | 47 | 9.31 |
| European Integration | 26 | 5.15 |
| Total | 505 | 100.00 |

Figure B.1: Examplary screen shot of vignette presentation

Partei A:

_

Zur Bekämpfung der Kriminalität soll der Staat vor allem auf **harte Strafen** set-zen.

_

Europa sollte eine **gemeinsame Regierung** haben.

_

Sozialstaatliche Leistungen sollten **gesellschaftliche Teilhabe** ermöglichen, Steuerzahler dürfen aber auch **nicht zu sehr belastet** werden.

_

Gleichgeschlechtliche Paare sollen genauso **heiraten** dürfen **wie Mann und Frau** auch.

_

Einwanderer sollen auch hier möglichst **nach ihren eigenen Sitten und Gebräuchen** leben können.

Partei B:

_

Zur Bekämpfung der Kriminalität soll der Staat vor allem darauf setzen, Straftä-ter **wieder in die Gesellschaft einzugliedern.**

_

**Nationale Politik** sollte immer **Vorrang** haben vor der europäischen.

_

**Steuern und Abgaben** sollten so **niedrig** wie möglich sein. Dazu sollten sozi-alstaatliche Leistungen auf ein **Mindestmaß** beschränkt sein.

_

Gleichgeschlechtliche Partnerschaften sollen **keine besondere staatliche An-erkennung** erfahren.

_

Einwanderer sollen ihre Sitten und Gebräuche **bewahren** können, aber **auch die deutschen Sitten und Gebräuche beachten.**

Bitte kreuzen Sie auf der linken Seite an, welche der beiden Parteien Ihrer Meinung nach weiter links steht und welche der beiden Ihnen mehr zusagt. Geben Sie bitte auf der rechten Seite an, wie sicher Sie sich mit Ihren Einschätzungen sind.

|  | Partei A | Partei B | Beide gleich | Sehr unsicher | Eher unsicher | Eher sicher | Sehr sicher |
|---|---|---|---|---|---|---|---|
| **Welche Partei steht weiter links?** | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| **Welche Partei sagt Ihnen mehr zu?** | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

# Appendix C

# Supplementary Material for Chapter 4

## C.1   Descriptive Statistics and Additional Analyses

Table C.1: Summary Statistics, *Satisfaction with Democracy* Sample.

| Variable | Mean | Std. Dev. | Min. | Max. |
|---|---|---|---|---|
| Satisfaction w/ Democracy | 5.4 | 2.41 | 0 | 10 |
| Dimensionality | 0.26 | 0.12 | 0.02 | 0.49 |
| Dimensionality (Country avg.) | 0.24 | 0.07 | 0.12 | 0.35 |
| Eff. No of Parties | 3.93 | 1.49 | 2.02 | 8.93 |
| Eff. No. of Parties (Country avg.) | 3.69 | 1.06 | 2.1 | 5.81 |
| Age of Democracy | 38.64 | 18.28 | 3 | 65 |
| CEE | 0.22 | 0.41 | 0 | 1 |
| Political Corruption | 0.11 | 0.12 | 0.01 | 0.44 |
| Age | 49.6 | 17.23 | 18 | 99 |
| Yrs of Education | 12.41 | 4.18 | 0 | 56 |
| Female | 0.53 | 0.5 | 0 | 1 |
| Partisan | 0.56 | 0.5 | 0 | 1 |
| Political Interest | 2.49 | 0.88 | 1 | 4 |
| Non-Voter | 0.14 | 0.35 | 0 | 1 |
| Winner Support | 0.39 | 0.49 | 0 | 1 |
| Unemployed | 0.04 | 0.19 | 0 | 1 |

n = 170428

Table C.2: Summary Statistics, *Political Disorientation* Sample.

| Variable | Mean | Std. Dev. | Min. | Max. |
|---|---|---|---|---|
| Political Disorientation | 3.1 | 1.14 | 1 | 5 |
| Dimensionality | 0.26 | 0.12 | 0.02 | 0.49 |
| Dimensionality (Country avg.) | 0.24 | 0.07 | 0.12 | 0.35 |
| Eff. No of Parties | 3.83 | 1.47 | 2.02 | 8.93 |
| Eff. No. of Parties (Country avg.) | 3.66 | 1.06 | 2.1 | 5.81 |
| Age of Democracy | 36.68 | 17.75 | 3 | 61 |
| Political Corruption | 0.12 | 0.12 | 0.01 | 0.44 |
| CEE | 0.21 | 0.41 | 0 | 1 |
| Age | 49.03 | 17.38 | 18 | 99 |
| Yrs of Education | 12.11 | 4.17 | 0 | 56 |
| Female | 0.53 | 0.5 | 0 | 1 |
| Partisan | 0.54 | 0.5 | 0 | 1 |
| Political Interest | 2.44 | 0.89 | 1 | 4 |
| Non-Voter | 0.2 | 0.4 | 0 | 1 |

n = 127870

Table C.3: Summary Statistics, *Trust in Parties* Sample.

| Variable | Mean | Std. Dev. | Min. | Max. |
|---|---|---|---|---|
| Trust in political parties | 3.65 | 2.3 | 0 | 10 |
| Dimensionality | 0.26 | 0.12 | 0.02 | 0.49 |
| Dimensionality (Country avg.) | 0.24 | 0.07 | 0.12 | 0.35 |
| Eff. No of Parties | 3.96 | 1.45 | 2.02 | 8.69 |
| Eff. No. of Parties (Country avg.) | 3.72 | 1.06 | 2.1 | 5.81 |
| Age of Democracy | 39.25 | 18.61 | 3 | 65 |
| CEE | 0.23 | 0.42 | 0 | 1 |
| Political Corruption | 0.11 | 0.12 | 0.01 | 0.44 |
| Age | 50.03 | 17.3 | 18 | 99 |
| Yrs of Education | 12.46 | 4.21 | 0 | 56 |
| Female | 0.53 | 0.5 | 0 | 1 |
| Partisan | 0.55 | 0.5 | 0 | 1 |
| Political Interest | 2.48 | 0.88 | 1 | 4 |
| Non-Voter | 0.14 | 0.35 | 0 | 1 |
| Winner Support | 0.4 | 0.49 | 0 | 1 |
| Unemployed | 0.04 | 0.19 | 0 | 1 |

n = 141121

Table C.4: Multilevel Regressions (REML estimation), DV: *Trust in political parties.* All non-dummy variables mean-centered. *** p<0.001, ** p<0.01, * p<0.05, + p<0.1, std. Errors in parentheses.

| | Model A1 | Model A2 | Model A3 | Model A4 | Model A5 | Model A6 | Model A7 |
|---|---|---|---|---|---|---|---|
| (Intercept) | -0.136 | -0.589*** | -0.518*** | -0.271+ | -0.515*** | -0.589*** | -0.589*** |
| | (0.194) | (0.168) | (0.127) | (0.161) | (0.140) | (0.168) | (0.168) |
| Age | | -0.002*** | -0.002*** | -0.002*** | -0.002*** | -0.002*** | -0.002*** |
| | | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Yrs of Education | | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 |
| | | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) |
| Female | | 0.120*** | 0.120*** | 0.120*** | 0.120*** | 0.120*** | 0.119*** |
| | | (0.011) | (0.011) | (0.011) | (0.011) | (0.011) | (0.011) |
| Partisan | | 0.493*** | 0.493*** | 0.493*** | 0.493*** | 0.493*** | 0.492*** |
| | | (0.012) | (0.012) | (0.012) | (0.012) | (0.012) | (0.012) |
| Political Interest | | 0.414*** | 0.414*** | 0.414*** | 0.414*** | 0.415*** | 0.415*** |
| | | (0.007) | (0.007) | (0.007) | (0.007) | (0.007) | (0.007) |
| Non-Voter | | -0.110*** | -0.110*** | -0.110*** | -0.110*** | -0.110*** | -0.111*** |
| | | (0.018) | (0.018) | (0.018) | (0.018) | (0.018) | (0.018) |
| Winner Support | | 0.360*** | 0.360*** | 0.360*** | 0.360*** | 0.359*** | 0.357*** |
| | | (0.012) | (0.012) | (0.012) | (0.012) | (0.012) | (0.012) |
| Unemployed | | -0.239*** | -0.239*** | -0.239*** | -0.239*** | -0.239*** | -0.240*** |
| | | (0.028) | (0.028) | (0.028) | (0.028) | (0.028) | (0.028) |
| Eff. no. of Parties | 0.035 | 0.028 | 0.058 | 0.090 | 0.042 | 0.028 | 0.028 |
| | (0.084) | (0.079) | (0.073) | (0.073) | (0.073) | (0.079) | (0.079) |
| Age of Democracy | | | 0.020*** | | | | |
| | | | (0.006) | | | | |
| CEE | | | | -1.025*** | | | |
| | | | | (0.291) | | | |
| Political Corruption | | | | | -4.162*** | | |
| | | | | | (1.157) | | |
| Interest * Dimens. | | | | | | 0.080 | |
| | | | | | | (0.052) | |
| Education * Dimens. | | | | | | | 0.070*** |
| | | | | | | | (0.011) |
| Dimensionality | 1.270* | 1.353* | 1.286* | 1.374* | 1.185* | 1.353* | 1.340* |
| | (0.605) | (0.587) | (0.617) | (0.583) | (0.574) | (0.587) | (0.584) |
| AIC | 607585.448 | 598102.271 | 598106.035 | 598094.912 | 598091.071 | 598106.010 | 598072.260 |
| BIC | 607644.592 | 598240.274 | 598253.896 | 598242.772 | 598238.932 | 598253.871 | 598220.121 |
| LogLikelihood | -303786.724 | -299037.135 | -299038.018 | -299032.456 | -299030.536 | -299038.005 | -299021.130 |
| Num.obs. | 141121 | 141121 | 141121 | 141121 | 141121 | 141121 | 141121 |
| Elections | 72 | 72 | 72 | 72 | 72 | 72 | 72 |
| Countries | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Variance Comp. Election | 0.161 | 0.154 | 0.185 | 0.160 | 0.151 | 0.154 | 0.152 |
| Variance Comp. Country | 0.872 | 0.640 | 0.319 | 0.384 | 0.414 | 0.639 | 0.642 |
| Residual Variance | 4.327 | 4.044 | 4.044 | 4.044 | 4.044 | 4.044 | 4.043 |

Table C.5: Multilevel Regressions (REML estimation), DV: *Satisfaction with Democracy. Dimensionality* and *Effective Number of Parties* averaged by country. All non-dummy variables mean-centered. *** p<0.001, ** p<0.01, * p<0.05, + p<0.1, std. Errors in parentheses.

| | Model A8 | Model A9 | Model A10 | Model A11 | Model A12 | Model A13 | Model 14 |
|---|---|---|---|---|---|---|---|
| (Intercept) | −0.104 | −0.452* | −0.370** | −0.040 | −0.362* | −0.452* | −0.452* |
| | (0.201) | (0.182) | (0.136) | (0.148) | (0.152) | (0.182) | (0.182) |
| Age | | −0.002*** | −0.002*** | −0.002*** | −0.002*** | −0.002*** | −0.002*** |
| | | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Yrs of Education | | 0.029*** | 0.029*** | 0.029*** | 0.029*** | 0.029*** | 0.028*** |
| | | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| Female | | −0.121*** | −0.121*** | −0.121*** | −0.121*** | −0.121*** | −0.122*** |
| | | (0.011) | (0.011) | (0.011) | (0.011) | (0.011) | (0.011) |
| Partisan | | 0.321*** | 0.322*** | 0.321*** | 0.321*** | 0.321*** | 0.320*** |
| | | (0.011) | (0.011) | (0.011) | (0.011) | (0.011) | (0.011) |
| Political Interest | | 0.171*** | 0.171*** | 0.171*** | 0.171*** | 0.171*** | 0.173*** |
| | | (0.007) | (0.007) | (0.007) | (0.007) | (0.007) | (0.007) |
| Non-voter | | −0.015 | −0.015 | −0.015 | −0.015 | −0.015 | −0.014 |
| | | (0.017) | (0.017) | (0.017) | (0.017) | (0.017) | (0.017) |
| Winner Support | | 0.653*** | 0.653*** | 0.653*** | 0.653*** | 0.653*** | 0.651*** |
| | | (0.012) | (0.012) | (0.012) | (0.012) | (0.012) | (0.012) |
| Unemployed | | −0.497*** | −0.497*** | −0.497*** | −0.497*** | −0.497*** | −0.498*** |
| | | (0.028) | (0.028) | (0.028) | (0.028) | (0.028) | (0.028) |
| Eff. No. Parties | −0.070 | −0.073 | 0.008 | 0.091 | 0.063 | −0.073 | −0.074 |
| (*Country avg.*) | (0.266) | (0.240) | (0.180) | (0.170) | (0.203) | (0.240) | (0.240) |
| Age of Democracy | | | 0.026*** | | | | |
| | | | (0.006) | | | | |
| CEE | | | | −1.488*** | | | |
| | | | | (0.292) | | | |
| Polit. Corruption | | | | | −4.406*** | | |
| | | | | | (1.224) | | |
| Interest * Dimens. | | | | | | −0.026 | |
| | | | | | | (0.090) | |
| Educ. * Dimens. | | | | | | | 0.166*** |
| | | | | | | | (0.020) |
| Dimensionality | 2.956 | 2.837 | 2.863 | 4.622+ | 0.487 | 2.838 | 2.840 |
| (*Country avg.*) | (4.182) | (3.770) | (2.795) | (2.635) | (3.196) | (3.770) | (3.769) |
| AIC | 753841.243 | 746170.052 | 746169.459 | 746154.715 | 746158.689 | 746174.957 | 746110.019 |
| BIC | 753901.520 | 746310.697 | 746320.150 | 746305.406 | 746309.380 | 746325.648 | 746260.711 |
| LogLikelihood | -376914.622 | -373071.026 | -373069.730 | -373062.358 | -373064.345 | -373072.479 | -373040.010 |
| Num. obs. | 170428 | 170428 | 170428 | 170428 | 170428 | 170428 | 170428 |
| Elections | 79 | 79 | 79 | 79 | 79 | 79 | 79 |
| Countries | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| Var. Comp. Elec. | 0.283 | 0.263 | 0.284 | 0.262 | 0.256 | 0.263 | 0.262 |
| Var. Comp. Cnt. | 0.914 | 0.729 | 0.347 | 0.298 | 0.472 | 0.730 | 0.730 |
| Resid. Var. | 4.868 | 4.652 | 4.652 | 4.652 | 4.652 | 4.652 | 4.650 |

Table C.6: Multilevel Ordered Logit Regression Models, DV: *Political Disorientation*. *Dimensionality* and *Effective Number of Parties* averaged by country. All non-dummy variables mean-centered. \*\*\* p<0.001, \*\* p<0.01, \* p<0.05, + p<0.1, std. Errors in parentheses.

| | Model A15 | Model A16 | Model A17 | Model A18 | Model A19 | Model A20 | Model A21 |
|---|---|---|---|---|---|---|---|
| 1—2 | −2.403\*\*\* | −2.471\*\*\* | −2.483\*\*\* | −2.476\*\*\* | −2.476\*\*\* | −2.471\*\*\* | −2.472\*\*\* |
| | (0.058) | (0.046) | (0.043) | (0.052) | (0.045) | (0.046) | (0.045) |
| 2—3 | −0.901\*\*\* | −0.805\*\*\* | −0.817\*\*\* | −0.810\*\*\* | −0.810\*\*\* | −0.805\*\*\* | −0.805\*\*\* |
| | (0.058) | (0.045) | (0.042) | (0.052) | (0.045) | (0.045) | (0.045) |
| 3—4 | 0.659\*\*\* | 1.010\*\*\* | 0.999\*\*\* | 1.005\*\*\* | 1.005\*\*\* | 1.011\*\*\* | 1.010\*\*\* |
| | (0.058) | (0.045) | (0.042) | (0.052) | (0.045) | (0.045) | (0.045) |
| 4—5 | 1.877\*\*\* | 2.414\*\*\* | 2.403\*\*\* | 2.408\*\*\* | 2.408\*\*\* | 2.414\*\*\* | 2.414\*\*\* |
| | (0.058) | (0.046) | (0.042) | (0.052) | (0.045) | (0.045) | (0.045) |
| Age | | 0.001\* | 0.001\* | 0.001\* | 0.001\* | 0.001\* | 0.001\* |
| | | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Yrs. of Education | | −0.087\*\*\* | −0.088\*\*\* | −0.087\*\*\* | −0.087\*\*\* | −0.087\*\*\* | −0.087\*\*\* |
| | | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) |
| Female | | 0.529\*\*\* | 0.529\*\*\* | 0.529\*\*\* | 0.529\*\*\* | 0.530\*\*\* | 0.530\*\*\* |
| | | (0.010) | (0.010) | (0.010) | (0.010) | (0.010) | (0.010) |
| Partisan | | −0.100\*\*\* | −0.097\*\*\* | −0.100\*\*\* | −0.100\*\*\* | −0.099\*\*\* | −0.099\*\*\* |
| | | (0.011) | (0.011) | (0.011) | (0.011) | (0.011) | (0.011) |
| Political Interest | | −0.775\*\*\* | −0.776\*\*\* | −0.775\*\*\* | −0.775\*\*\* | −0.776\*\*\* | −0.776\*\*\* |
| | | (0.007) | (0.007) | (0.007) | (0.007) | (0.007) | (0.007) |
| Non-voter | | 0.146\*\*\* | 0.151\*\*\* | 0.146\*\*\* | 0.146\*\*\* | 0.146\*\*\* | 0.145\*\*\* |
| | | (0.014) | (0.014) | (0.014) | (0.014) | (0.014) | (0.014) |
| Eff. No. Parties | −0.006 | 0.023 | 0.048 | 0.025 | 0.032 | 0.024 | 0.025 |
| (*Country avg.*) | (0.074) | (0.056) | (0.052) | (0.057) | (0.056) | (0.056) | (0.056) |
| Age of Democ. | | | 0.004\* | | | | |
| | | | (0.002) | | | | |
| CEE | | | | −0.021 | | | |
| | | | | (0.104) | | | |
| Polit. Corruption | | | | | −0.328 | | |
| | | | | | (0.343) | | |
| Interest \* Dimens. | | | | | | −0.228\*\* | |
| | | | | | | (0.088) | |
| Educ. \* Dimens. | | | | | | | −0.116\*\*\* |
| | | | | | | | (0.020) |
| Dimensionality | 0.114 | 0.196 | −0.082 | 0.218 | 0.006 | 0.213 | 0.197 |
| (*Country avg.*) | (1.163) | (0.890) | (0.821) | (0.897) | (0.897) | (0.890) | (0.885) |
| LogLikelihood | -190527.542 | -176593.824 | -176592.017 | -176593.804 | -176593.369 | -176590.482 | -176576.882 |
| AIC | 381071.084 | 353215.649 | 353214.034 | 353217.608 | 353216.738 | 353210.964 | 353183.763 |
| BIC | 381149.154 | 353352.272 | 353360.415 | 353363.990 | 353363.120 | 353357.346 | 353330.145 |
| Num. obs. | 127870 | 127870 | 127870 | 127870 | 127870 | 127870 | 127870 |
| Elections | 53 | 53 | 53 | 53 | 53 | 53 | 53 |
| Countries | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Var. Comp. Elec. | 0.017 | 0.024 | 0.026 | 0.024 | 0.024 | 0.024 | 0.025 |
| Var. Comp. Cnt. | 0.069 | 0.032 | 0.025 | 0.032 | 0.031 | 0.032 | 0.031 |

Table C.7: Multilevel Regression Models (REML estimation), DV: *Trust in Political Parties*. *Dimensionality* and *Effective Number of Parties* averaged by country. All non-dummy variables mean-centered. \*\*\* p<0.001, \*\* p<0.01, \* p<0.05, + p<0.1, std. Errors in parentheses.

| | Model A22 | Model A23 | Model A24 | Model A25 | Model A26 | Model A27 | Model A28 |
|---|---|---|---|---|---|---|---|
| (Intercept) | −0.155 | −0.608\*\*\* | −0.522\*\*\* | −0.194 | −0.529\*\*\* | −0.608\*\*\* | −0.637\*\*\* |
| | (0.204) | (0.176) | (0.115) | (0.149) | (0.142) | (0.176) | (0.184) |
| Age | | −0.002\*\*\* | −0.002\*\*\* | −0.002\*\*\* | −0.002\*\*\* | −0.002\*\*\* | 0.000 |
| | | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Yrs. of Education | | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.024\*\*\* |
| | | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) | (0.001) |
| Female | | 0.120\*\*\* | 0.120\*\*\* | 0.120\*\*\* | 0.120\*\*\* | 0.120\*\*\* | 0.027\* |
| | | (0.011) | (0.011) | (0.011) | (0.011) | (0.011) | (0.011) |
| Partisan | | 0.493\*\*\* | 0.493\*\*\* | 0.493\*\*\* | 0.493\*\*\* | 0.493\*\*\* | 0.647\*\*\* |
| | | (0.012) | (0.012) | (0.012) | (0.012) | (0.012) | (0.012) |
| Political Interest | | 0.414\*\*\* | 0.414\*\*\* | 0.414\*\*\* | 0.414\*\*\* | 0.415\*\*\* | |
| | | (0.007) | (0.007) | (0.007) | (0.007) | (0.007) | |
| Non-voter | | −0.110\*\*\* | −0.110\*\*\* | −0.110\*\*\* | −0.110\*\*\* | −0.110\*\*\* | −0.233\*\*\* |
| | | (0.018) | (0.018) | (0.018) | (0.018) | (0.018) | (0.018) |
| Winner Support | | 0.360\*\*\* | 0.359\*\*\* | 0.360\*\*\* | 0.360\*\*\* | 0.360\*\*\* | 0.372\*\*\* |
| | | (0.012) | (0.012) | (0.012) | (0.012) | (0.012) | (0.012) |
| Unemployed | | −0.239\*\*\* | −0.239\*\*\* | −0.239\*\*\* | −0.239\*\*\* | −0.239\*\*\* | −0.253\*\*\* |
| | | (0.028) | (0.028) | (0.028) | (0.028) | (0.028) | (0.028) |
| Eff. No. Parties | 0.076 | 0.077 | 0.158 | 0.264 | 0.169 | 0.077 | 0.083 |
| (*Country avg.*) | (0.276) | (0.238) | (0.157) | (0.172) | (0.192) | (0.238) | (0.249) |
| Age of Democ. | | | 0.026\*\*\* | | | | |
| | | | (0.006) | | | | |
| CEE | | | | −1.395\*\*\* | | | |
| | | | | (0.288) | | | |
| Polit. Corruption | | | | | −4.441\*\*\* | | |
| | | | | | (1.174) | | |
| Interest * Dimens. | | | | | | 0.069 | |
| | | | | | | (0.092) | |
| Educ. * Dimens. | | | | | | | 0.094\*\*\* |
| | | | | | | | (0.021) |
| Dimensionality | 3.043 | 2.766 | 2.721 | 3.970 | 1.009 | 2.761 | 2.889 |
| (*Country avg.*) | (4.289) | (3.702) | (2.407) | (2.616) | (2.985) | (3.701) | (3.866) |
| AIC | 607582.874 | 598100.670 | 598101.456 | 598086.776 | 598088.871 | 598105.048 | 601588.140 |
| BIC | 607642.018 | 598238.673 | 598249.316 | 598234.637 | 598236.731 | 598252.909 | 601726.144 |
| LogLikelihood | -303785.437 | -299036.335 | -299035.728 | -299028.388 | -299029.435 | -299037.524 | -300780.070 |
| Num. obs. | 141121 | 141121 | 141121 | 141121 | 141121 | 141121 | 141121 |
| Elections | 72 | 72 | 72 | 72 | 72 | 72 | 72 |
| Countries | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Var. Comp. Elec. | 0.163 | 0.159 | 0.199 | 0.159 | 0.157 | 0.159 | 0.156 |
| Var. Comp. Cnt. | 0.964 | 0.703 | 0.243 | 0.314 | 0.422 | 0.702 | 0.773 |
| Resid. Var. | 4.327 | 4.044 | 4.044 | 4.044 | 4.044 | 4.044 | 4.145 |

## C.2　Assessing the Validity of MDS-based Dimensionality Measures

Section 4.3.2 discusses at length the conceptual basis of our attempt to measure dimensionality. We argue that based on our research interest, we require a measure of effective dimensionality, and that the best data basis for our purposes are Manifesto Project data. From that, we conclude that multidimensional scaling (MDS) is the optimal method to produce our measure of dimensionality. We use the Stress from a one-dimensional MDS, performed on the parties contesting a given election, as our measure of effective dimensionality. While MDS attempts to reproduce the Euclidean distances between objects (parties) computed over all the variables (issues) included in the analysis in a space of given dimensionality, Stress quantifies the extent to which it fails to do so. It summarizes the deviations between the distances produced by MDS and the actual distances between objects and normalizes them with the latter. A value of zero hence means perfect reproduction of the distances. Thus, in this context, the higher it is, the worse does MDS perform in putting the parties on a single dimension, and the more are additional dimensions required. Figure C.1 gives an overview of the Stress values used in the analyses of this article (small dots), both on the election level and averaged over countries' democratic period (large dots).
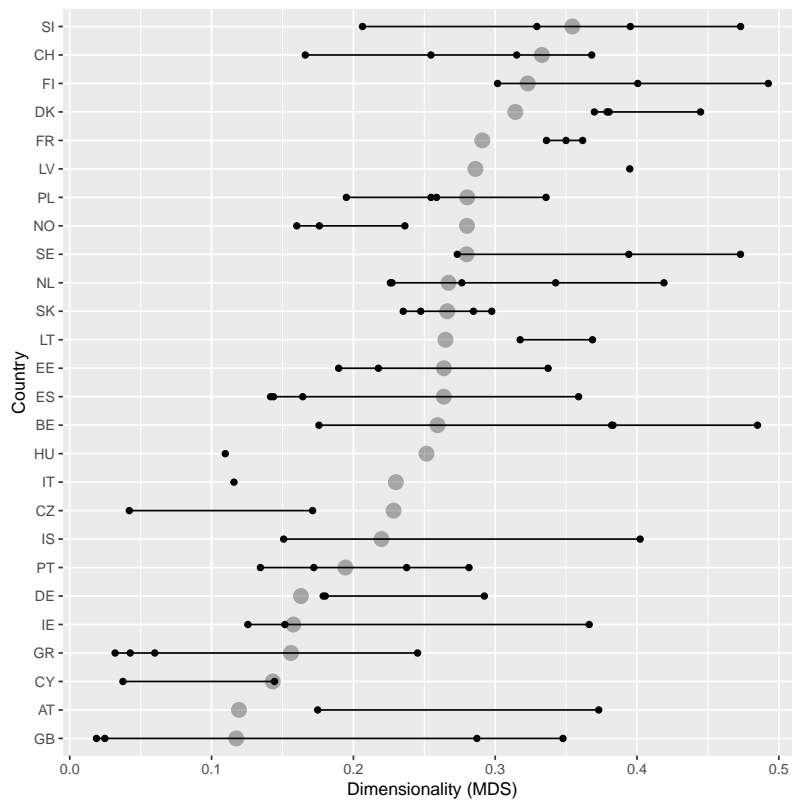


Figure C.1: Overview of values for *dimensionality* by election (small dots) and averaged over countries' democratic period (large dots).

We assess the validity of our measure in two different ways. First, we examine whether the MDS captures an actual ideological space by comparing the positions it produces with the rile scores provided by the Manifesto Project. The rile index is criticized often and forcefully (see e.g. Dinas and Gemenis 2010, Mölder 2016), for instance because it is computed the same way for all party systems and does not accommodate differences in meaning of issues across countries (as for example the index by Franzmann and Kaiser 2006 does). However, this point of criticism should provide an especially strong test for our measures derived from election-specific analyses. While of course, the manifesto data, which our dimensionality measure is based on, by construction contains political information, it is worthwhile to check whether our MDS solutions actually are a sensible representation of party competition in a given country or whether they are degenerative.

Our second check is whether our measure possesses convergent validity with other measures of dimensionality of the political space. There is not a single, established measure in the literature as there is for other concepts in political science, likely due to the fact that there are many conceptual, methodological, and data-related decisions to be made (see discussion in the main text; also Stoll 2011). While for the reasons argued in the article we believe that the approach we use is the most appropriate for the purpose at hand, other measures should, despite differences in approach, arrive at broadly similar findings.

Figure C.2 shows that positions produced by MDS generally follow the rile pattern. Since MDS by itself only reproduces differences and does not incorporate any information of whether issues are 'left' or 'right', we inverted the positions produced for a given election if they correlated negatively with the rile scores in that election – thus, it is the strength rather than the direction of the correlation that matters most in this context. While it is far from perfect, it is sufficiently strong in most cases that we feel confident that the method captures political discourse in its essence. The overall correlation of the two measures is 0.49.

The second step of our validation is a comparison of our dimensionality measure with existing indices. We use four measures that, like ours, intend to measure party-based effective ideological dimensionality, according to Stoll's (2011) typology. However, they vary widely regarding their data basis and method:

1. Lijphart's (1999) number of dimensions counts how many of seven predefined issue dimensions are actually salient in a country, according to the author's judgment (taken from Stoll 2011.

2. Ganghof *et al.* (2015) develop a measure based on the expert survey carried out by Benoit and Laver (2006). They perform a principal component analysis on the data and count the resulting factors, weighing them by their eigenvalues, to arrive at a 'effective number' of dimensions. We reproduced these data as well as we could based

on the description of this method in Ganghof *et al.* (2015), using figure 4 therein as a reference.

3. Bakker *et al.* (2012) use data from the Chapel Hill Expert Survey and reduce them to three ideological subdimensions (economic left/right, social left/right, and European integration). Since their measure, based on the average correlation between these three dimensions, shows low values for party systems with high dimensionality, it is reversed here to ease comparison with the other measures.

4. Nyblade (2004; data taken from Stoll 2011) uses Manifesto Project data, employing the angular separation scores of the issue salience scores to strip them from any in-between correlation to count effective dimensions.

Table C.8 shows the correlation between either of the indices for the countries in the sample. Among the measures presented here (and, to the best of our knowledge, among all party-based dimensionality measures), ours is the only one which varies on the election level rather than the country level. We therefore use over-time averages of the MDS-based measure to compute the correlations. Figure C.3 gives an impression how they compare with those from the literature when measured on the election level.
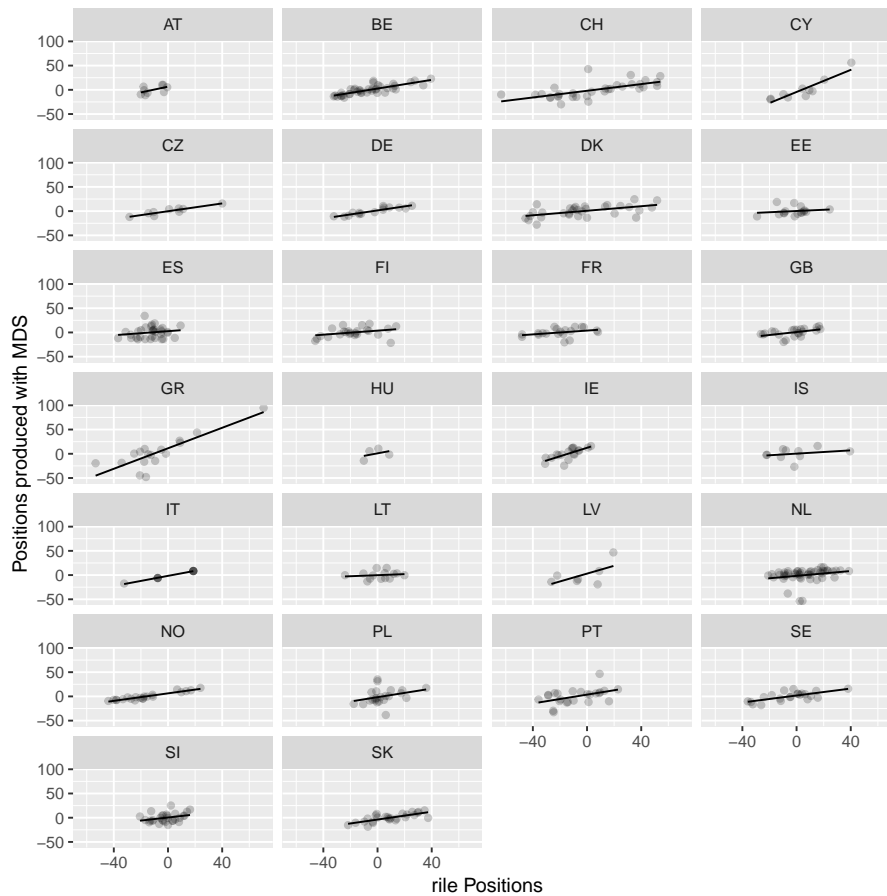


Figure C.2: Comparison of MDS-based positions and the *rile* scores.

Correlations among the different measures are, in general, rather low. Our measure is no exception to that. This lack of convergence among different approaches highlights the need for careful methodological reflection and discussion, as we hope to have provided here. Despite these efforts, it also might raise the suspicion that the results presented above are an artifact of the measurement. We therefore re-estimate models 2 and 9, respectively, on harmonized samples[1], with either of the different measures as independent variables (tables C.9 and C.10; the MDS-based measure is included as the over-time average). The respective coefficients display considerable heterogeneity, reflecting the divergence of the data. Their signs, however, predominantly turn out as expected. Most importantly for the interest of this article, they hardly provide evidence of a dilemma of preference representation, with only the specifications using Ganghof et al.'s measure yielding the according coefficients with somewhat noteworthy levels of statistical significance.

Table C.8: Correlation between different *dimensionality* measures on the country level. Upper right: harmonized data; lower left: pairwise correlation (number of observations in parentheses).

|  | Lijphart | Ganghof et al. | Bakker et al. | Nyblade | MDS |
|---|---|---|---|---|---|
| Lijphart |  | 0.33 | -0.21 | 0.14 | 0.67 |
|  |  | (13) | (13) | (13) | (13) |
| Ganghof et al. | 0.16 |  | 0.27 | 0.11 | 0.24 |
|  | (16) |  | (13) | (13) | (13) |
| Bakker et al. | -0.21 | 0.38 |  | 0.28 | -0.21 |
|  | (13) | (20) |  | (13) | (13) |
| Nyblade | 0.03 | 0.10 | 0.28 |  | 0.00 |
|  | (15) | (15) | (13) |  | (13) |
| MDS | 0.70 | 0.19 | 0.10 | -0.06 |  |
|  | (16) | (23) | (22) | (15) |  |

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[1]This harmonization and the ensuing data loss led to convergence problems with the ordered logit regressions used for political disorientation. Therefore, we use linear regression here.
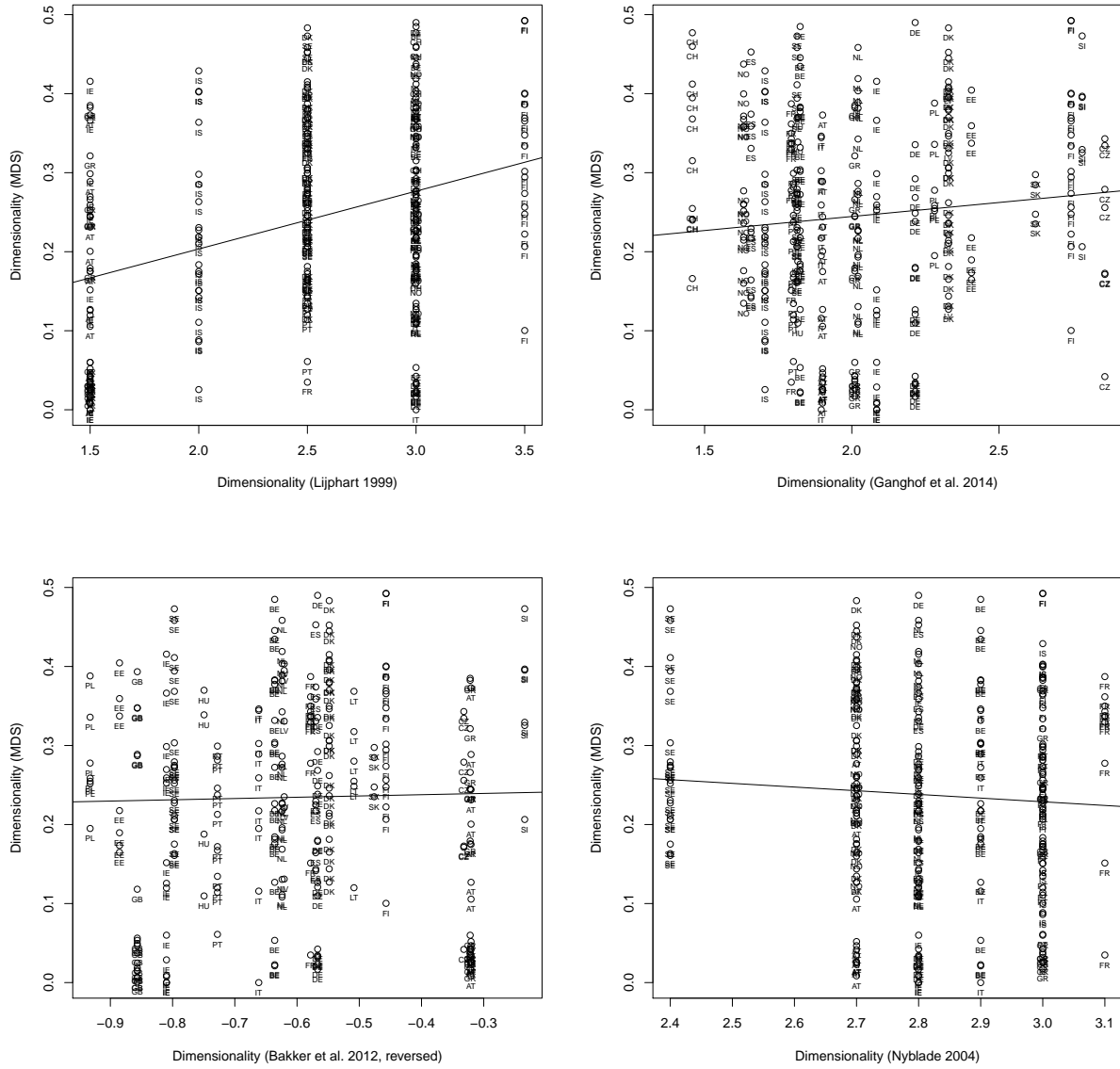
Figure C.3: Comparison of MDS-based measure of effective *dimensionality* (measured on election level) with different existing measures (measured on the country level).

Table C.9: Comparison of *Dimensionality* Measures. Multilevel Regression Models (REML estimation), DV: *Satisfaction with Democracy*. All non-dummy variables mean-centered. *** p<0.001, ** p<0.01, * p<0.05, + p<0.1, std. Errors in parentheses.

| | Model A29 | Model A30 | Model A31 | Model A32 | Model A33 |
|---|---|---|---|---|---|
| (Intercept) | −0.100 | −0.131 | −0.035 | −0.183 | −0.109 |
| | (0.206) | (0.233) | (0.216) | (0.223) | (0.205) |
| Age | −0.000 | −0.000 | −0.000 | −0.000 | −0.000 |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| Yrs of Education | 0.030*** | 0.030*** | 0.030*** | 0.030*** | 0.030*** |
| | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) |
| Female | −0.139*** | −0.139*** | −0.139*** | −0.139*** | −0.139*** |
| | (0.016) | (0.016) | (0.016) | (0.016) | (0.016) |
| Partisan | 0.316*** | 0.316*** | 0.316*** | 0.316*** | 0.316*** |
| | (0.017) | (0.017) | (0.017) | (0.017) | (0.017) |
| Political Interest | 0.187*** | 0.187*** | 0.187*** | 0.187*** | 0.187*** |
| | (0.010) | (0.010) | (0.010) | (0.010) | (0.010) |
| Non-voter | −0.041[+] | −0.041[+] | −0.041[+] | −0.041[+] | −0.041[+] |
| | (0.024) | (0.024) | (0.024) | (0.024) | (0.024) |
| Winner Support | 0.690*** | 0.690*** | 0.690*** | 0.690*** | 0.690*** |
| | (0.017) | (0.017) | (0.017) | (0.017) | (0.017) |
| Unemployed | −0.551*** | −0.551*** | −0.551*** | −0.551*** | −0.551*** |
| | (0.041) | (0.041) | (0.041) | (0.041) | (0.041) |
| Eff. No. Parties | −0.025 | 0.020 | 0.019 | 0.060 | 0.030 |
| *(Country Avg.)* | (0.113) | (0.131) | (0.108) | (0.112) | (0.106) |
| *Measure of Dimensionality* | *MDS [Cnt.Avg.]* | *Lijphart* | *Ganghof et al.* | *Bakker et al.* | *Nyblade* |
| *Coef.* | 6.180[+] | 0.113 | 1.261[+] | −1.543 | −2.074[+] |
| *SE* | (3.402) | (0.422) | (0.757) | (1.488) | (1.186) |
| AIC | 337768.461 | 337775.781 | 337771.952 | 337772.210 | 337770.823 |
| BIC | 337898.035 | 337905.354 | 337901.526 | 337901.783 | 337900.397 |
| LogLikelihood | -168870.231 | -168873.890 | -168871.976 | -168872.105 | -168871.411 |
| Num. obs. | 77285 | 77285 | 77285 | 77285 | 77285 |
| Election | 31 | 31 | 31 | 31 | 31 |
| Countries | 13 | 13 | 13 | 13 | 13 |
| Var. Comp. Elections | 0.185 | 0.189 | 0.188 | 0.192 | 0.189 |
| Var. Comp. Cnt. | 0.459 | 0.606 | 0.469 | 0.531 | 0.451 |
| Resid. Var. | 4.616 | 4.616 | 4.616 | 4.616 | 4.616 |

Table C.10: Comparison of *Dimensionality Measures.* Multilevel Regression Models (REML estimation), DV: *Political Disorientation.*  All non-dummy variables mean-centered.  \*\*\* p<0.001, \*\* p<0.01, \* p<0.05, + p<0.1, std. Errors in parentheses.

|  | Model A34 | Model A35 | Model A36 | Model A37 | Model A38 |
|---|---|---|---|---|---|
| (Intercept) | 2.980\*\*\* | 2.982\*\*\* | 3.002\*\*\* | 2.970\*\*\* | 2.976\*\*\* |
|  | (0.032) | (0.031) | (0.025) | (0.031) | (0.031) |
| Age | −0.001\*\*\* | −0.001\*\*\* | −0.001\*\*\* | −0.001\*\*\* | −0.001\*\*\* |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Yrs of Education | −0.047\*\*\* | −0.047\*\*\* | −0.047\*\*\* | −0.047\*\*\* | −0.047\*\*\* |
|  | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| Female | 0.292\*\*\* | 0.292\*\*\* | 0.291\*\*\* | 0.292\*\*\* | 0.292\*\*\* |
|  | (0.007) | (0.007) | (0.007) | (0.007) | (0.007) |
| Partisan | −0.049\*\*\* | −0.049\*\*\* | −0.049\*\*\* | −0.049\*\*\* | −0.049\*\*\* |
|  | (0.008) | (0.008) | (0.008) | (0.008) | (0.008) |
| Political Interest | −0.392\*\*\* | −0.392\*\*\* | −0.392\*\*\* | −0.392\*\*\* | −0.392\*\*\* |
|  | (0.005) | (0.005) | (0.005) | (0.005) | (0.005) |
| Non-voter | 0.070\*\*\* | 0.070\*\*\* | 0.069\*\*\* | 0.070\*\*\* | 0.070\*\*\* |
|  | (0.011) | (0.011) | (0.011) | (0.011) | (0.011) |
| Eff. No. Parties | 0.019 | 0.014 | 0.016 | 0.027$^{+}$ | 0.026 |
|  | (0.019) | (0.020) | (0.013) | (0.016) | (0.017) |
| *Measure of Dimensionality* | *MDS [Cnt.Avg.]* | *Lijphart* | *Ganghof et al.* | *Bakker et al.* | *Nyblade* |
| *Coef.* | 0.387 | 0.058 | 0.269\*\* | −0.241 | 0.140 |
| *SE* | (0.525) | (0.058) | (0.085) | (0.201) | (0.180) |
| AIC | 222116.538 | 222120.455 | 222112.625 | 222117.551 | 222118.599 |
| BIC | 222227.601 | 222231.518 | 222223.688 | 222228.614 | 222229.662 |
| LogLikelihood | -111046.269 | -111048.227 | -111044.313 | -111046.776 | -111047.300 |
| Num. obs. | 77285 | 77285 | 77285 | 77285 | 77285 |
| Elections | 31 | 31 | 31 | 31 | 31 |
| Countries | 13 | 13 | 13 | 13 | 13 |
| Var. Comp. Elections | 0.009 | 0.009 | 0.009 | 0.009 | 0.009 |
| Var. Comp. Cnt. | 0.008 | 0.008 | 0.003 | 0.007 | 0.008 |
| Resid. Var. | 1.034 | 1.034 | 1.034 | 1.034 | 1.034 |

# Appendix D

# Supplementary Material for Chapter 5

Table D.1: Number of simulation runs, by decision mode, number of parties and incidence of party system collapse.

| Decision Mode | Collapse | Number of Parties | | | | | |
|---|---|---|---|---|---|---|---|
| | | 3 | 4 | 5 | 6 | 7 | 8 |
| Bidimensional | No | 174 | 147 | 175 | 170 | 150 | 167 |
| Conforming, fixed util. fct. | No | 132 | 178 | 157 | 180 | 164 | 170 |
| | Yes | 48 | 0 | 0 | 0 | 0 | 0 |
| Idiosyncratic, fixed util. fct. | No | 37 | 149 | 120 | 146 | 154 | 191 |
| | Yes | 137 | 14 | 29 | 4 | 1 | 0 |
| Conforming, updating util. fct. | No | 167 | 173 | 161 | 183 | 167 | 178 |
| Idiosyncratic, updating util. fct. | No | 159 | 184 | 172 | 150 | 171 | 141 |

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# Curriculum Vitae

## Experience

| | |
|---|---|
| 2016 - present | Chair of Empirical Political Science, University of Mainz |
| 2013 - 2016 | Scholarship, DFG Research Training Group *'Social Orders and Life Chances in Cross-National Comparison'* (SO-CLIFE), University of Cologne |

EDUCATION

| | |
|---|---|
| 2006 - 2013 | Political Science & Economics, University of Cologne<br>Degree: Diplom-Politikwissenschaftler |
| 10/2010 - 01/2011 | ERASMUS-Fellowship for studies at the University of Warsaw |
| 2005 | Abitur, Abtei-Gymnasium Pulheim-Brauweiler |

## Publications

PEER REVIEWED

| | |
|---|---|
| 2020 | with Thorsten Faas:<br>Friends and Foes: How Coalition Formats Shape Voters' Perceptions of the Party System. In S. Bukow and U. Jun (eds.), Continuity and Change of Party Democracies in Europe, *German Political Science Quarterly - Special Issues*, DOI: 10.1007/978-3-658-28988-1_12 |
| 2019 | with Berta Barbet Porta:<br>Party System Dimensionality and Perceived Quality of Representation. *Party Politics*, DOI: 10.1177/1354068818823687 |
| 2014 | Party Competition and Voter Decision-Making. In F. Miguel, F. Amblard, J. Barceló and M. Madella (eds.), *Advances in Computational Social Science and Social Simulation*, Barcelona: UAB-DDD, 377-380. [PEER REVIEWED CONFERENCE CONTRIBUTION] |

| | |
|---|---|
| 2014 | with Alfredo Paloyo, Arndt Reichert and Harald Tauchmann: <span style="color:red">The Causal Link between Financial Incentives and Weight Loss: An Evidence-Based Survey of the Literature.</span> *Journal of Economic Surveys*, **28** (3), 401-420. |

## Other Academic Experience

### Presentations

| | |
|---|---|
| 05/2019 | Annual Meeting of the Standing Group on Decision Theory of the DVPW, Bremen |
| 08/2018 | ECPR General Conference, Hamburg |
| 05/2018 | Annual Meeting of the Standing Group on Decision Theory of the DVPW, Oldenburg |
| 05/2018 | Annual Meeting of the Standing Group on Elections and Political Attitudes of the DVPW, Berlin |
| 10/2017 | Annual Meeting of the Standing Group on Political Parties of the DVPW, Düsseldorf |
| 06/2017 | EPSA Annual Conference, Milan |
| 06/2017 | Annual Meeting of the Standing Group on Decision Theory of the DVPW, Mannheim |
| 05/2017 | Annual Meeting of the Standing Group on Elections and Political Attitudes of the DVPW, Frankfurt |
| 05/2017 | Annual Meeting of the Methods Section of the DVPW, Mainz |
| 04/2016 | MPSA Annual Conference, Chicago |
| 08/2015 | ECPR General Conference, Montreal |
| 06/2015 | Manifesto Project User Conference, Berlin |
| 02/2015 | GraPa - Graduate Conference on Party Research, Düsseldorf |
| 09/2014 | ESSA Social Simulation Conference, Barcelona |
| 07/2014 | ECPR Graduate Student Conference, Innsbruck |
| 03/2014 | SOCLIFE Spring Workshop, Cologne (Workshop held in cooperation with Bremen International Graduate School of Social Sciences) |

### Teaching

| | |
|---|---|
| Summer 2020 | Basic Statistics for Political Scientists *(in German, BA level)* *(held online completely due to Covid-19 pandemic)* |

| | |
|---|---|
| Winter 2019/20 | Ideology and the Left-Right Dimension in International Comparison - Concepts, Measurement and Empirics<br>*(in German, BA level)* |
| | Statistics for Political Scientists Using STATA<br>*(in German, BA level)* |
| Summer 2019 | Basic Statistics for Political Scientists<br>*(in German, BA level)* |
| Winter 2018/19 | *Parental Leave* |
| Summer 2018 | Basic Statistics for Political Scientists<br>*(in German, BA level)* |
| Winter 2017/18 | Statistics for Political Scientists Using STATA<br>*(in German, BA level)* |
| Summer 2017 | Basic Statistics for Political Scientists<br>*(in German, BA level)* |
| Winter 2016/17 | Statistics for Political Scientists Using STATA<br>*(in German, BA level)* |
| Winter 2015/16 | The Political System of the Federal Republic of Germany<br>*(in German, BA level)* |