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Party-system fragmentation and its effect on likelihood of voting: The  
moderating role of polarization

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**Abstract:** The relation between party-system fragmentation and turnout is a puzzling one. Theoretically, some authors argue that higher fragmentation boosts turnout, whereas others argue the opposite. Empirically, different studies have paid support to both these expectations.

This dissertation aims to shed some light over this controversy. It contends that these conflicting results are due to a neglect of the moderating role that polarization is expected to play over the relation between fragmentation and turnout. In highly polarized party systems, parties are likely to provide voter with more differentiated alternatives. Thus, a higher number of parties is likely to work as an incentive to voting, by increasing overall levels of party identification and increasing the likelihood that the mobilization efforts of parties will reach different voters. Yet in poorly polarized systems, as the higher number of parties does not translate into a richer array of options, increasing fragmentation should depress voter turnout, by making it harder to collect information on the parties and putting the same voter under cross pressures.

These expectations are tested through a survey experiment. The results support the main argument. Fragmentation has a positive effect over likelihood of voting in highly polarized contexts, but a negative one in lowly polarized contexts. The negative effect of fragmentation over likelihood of voting when polarization is low is partly mediated by the cognitive costs of voting. In highly polarized contexts, it is rather the intensity of preference for a party that partly mediates the relation, although this mediation has a direction opposite to expected.

**Keywords:** Electoral participation; party-system fragmentation; party-system polarization; survey experiment.

**Resumo:** A relação entre fragmentação dos sistemas partidários e participação eleitoral é controversa. Teoricamente, alguns autores argumentam que a fragmentação tem um efeito positivo sobre a participação eleitoral, enquanto outros defendem o oposto. Empiricamente, diferentes estudos têm corroborado ambas as expectativas.

Esta dissertação pretende contribuir para resolver esta controvérsia. Argumenta que os resultados contraditórios da literatura se devem à sua negligência do papel moderador que a polarização deve desempenhar sobre a relação entre fragmentação e participação eleitoral. Em contextos altamente polarizados, os partidos oferecem alternativas mais diferenciadas aos eleitores. Assim, é expectável que um maior número de partidos funcione como incentivo ao voto, por tornar a identificação partidária mais provável e possibilitar que os esforços de mobilização dos partidos alcancem diferentes eleitores. No entanto, em contextos pouco polarizados o maior número de partidos não se traduz numa maior riqueza das alternativas. Um aumento da fragmentação deve assim reduzir a participação eleitoral, por aumentar os custos de acesso a informação e colocar os eleitores debaixo da pressão simultânea de diferentes partidos.

Estas expectativas são testadas através de um inquérito experimental. Os resultados corroboram o argumento central. Em contextos altamente polarizados, a fragmentação tem um efeito positivo sobre a probabilidade de um indivíduo votar, mas este efeito é negativo em contextos pouco polarizados. O efeito negativo da fragmentação em contextos pouco polarizados é parcialmente mediado pelos custos cognitivos do voto. Em contextos altamente polarizados, é a intensidade com que um indivíduo prefere um partido que medeia a relação, embora esta mediação funcione no sentido oposto ao esperado.

**Palavras-chave:** Participação eleitoral; fragmentação dos sistemas partidários; polarização dos sistemas partidários; inquérito experimental.

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## INTRODUCTION

Voter turnout is one of the most studied topics in Political Science. Studies concerning this topic are usually divided into two perspectives: the aggregate and the individual one. The former intends to shed some light over the factors that explain variation in voter turnout across different temporal and spatial contexts. The latter intends to understand the differences in the voting rates of individuals with diverging characteristics, as well as the factors that explain those differences (Blais, 2007: 623).

At the contextual level, the sets of independent variables that have been used in the study of voter turnout are frequently divided into institutional factors, socioeconomic factors and factors related to the party system (Blais, 2000; Blais, 2006; Blais, 2007; Blais and Dobrzynska, 1998; Cancela and Geys, 2016; Dettrey and Schwindt-Bayer, 2009; Fornos, Power and Garand, 2004; Freire and Magalhães 2002; Geys, 2006; Kostadinova, 2003; Kostadinova and Power, 2007). Among the factors related to the party system, one that has been commonly used to explain variation in levels of voter turnout is that of party-system fragmentation. Yet, as shall be discussed below, there is still poor understanding of the relation between these two variables.

This dissertation aims to deepen our knowledge of that relation, by answering the following research questions: *How does party-system fragmentation influence one's likelihood of voting? And how does party-system polarization moderate this relation?* Its main argument is that the lack of consensus in the literature regarding how party-system fragmentation affects voter turnout is due to a tendency of the literature to overlook the moderating role that party-system polarization can be expected to play in this relation. It contends that, in highly polarized party systems, where parties are likely to provide more differentiated alternatives to voters, a higher number of parties should work as an incentive to voting. In turn, in poorly polarized systems, as the higher number of parties does not translate into a richer array of options being offered to voters, increasing fragmentation should instead depress voter turnout.

From a methodological point of view, the empirical part of this dissertation relies on an experimental survey. The resource to this method makes an important contribution to extant research, as I am aware of no experimental study drawing upon the effect of party-system fragmentation over turnout. Moreover, experiments are particularly well suited to deal with this particular topic, for two main reasons. In the first place, experiments allow for the manipulation of the specific variables under study, in order to disentangle the effects of a number of highly correlated variables that shape voter turnout (Gallego, 2014: 66–67; McDermott, 2002a: 334–335). In the second place, they allow one to dig deeper into the mechanism by which the independent variable exerts its effect upon the dependent variable (Morton and Williams, 2008). This is especially important because, as shall be discussed above, the specific mechanism by which fragmentation affects turnout is a matter of debate in the literature.

The results of the empirical analyses support the main argument. Fragmentation does have a positive effect over likelihood of voting when accompanied by high polarization, but a negative one when accompanied by low polarization instead. The results also suggest that the cognitive costs of voting partly mediate the relation between fragmentation and likelihood of voting in lowly polarized contexts, such that higher fragmentation increases the difficulty of voting, which decreases one's likelihood of voting. In highly polarized contexts, it is instead the intensity of preference for a party that partly mediates the relation between fragmentation and likelihood of voting. However, this mediation is not as expected by the theoretical argument put forward in this dissertation. Higher fragmentation still depresses the intensity of preference for one of the parties when polarization is high. Intensity of preference, in turn, bears a positive relation to likelihood of voting.

The remainder of the dissertation will be structured as follows. The next section presents the theory on which the dissertation is grounded. It opens with a discussion of the social and academic pertinence of studying voter turnout. After that, it presents the main theoretical and empirical studies that have focused on the effect of party-system fragmentation over voter turnout. Then, it provides a theory of why this literature has to come to ambiguous results, by arguing that such ambiguity is due to a neglect of the moderating role that polarization is expected to play over this relation. It closes with a discussion of the empirical literature that has already provided evidence concerning the effect of party-system polarization over turnout.

The second section presents the research design. It starts with a presentation of the objectives that the dissertation aims to pursue, followed by the justification of why it employs an experiment. Then, it discusses the extent to which this study can suffer from a lack of external validity. After that, it presents the conceptual model that guides the empirical analysis and the statistical procedures it employs, after what it presents its hypotheses. The section follows with a discussion of the conceptual and operational definitions of the variables under study and closes with the description of the experimental survey it employs.

The following section aims at presenting the findings of the empirical analyses. After characterizing the sample, it provides empirical tests of each of the hypotheses of the dissertation. It closes with a discussion of these findings.

Finally, a last section concludes the dissertation, by reflecting on its main findings, its contributions for the literature and by pointing some of its limitations, which open some avenues for future research.

**CHAPTER I — THEORY**

**1.1. Social and academic pertinence of the dissertation**

From a social and political point of view, it is crucial to understand the factors that explain variation in levels of voter turnout, because the act of voting is central for the working of democracy. It is so for three main reasons.

In the first place, voting is a building block of citizen’s ability to participate in politics. It is the most basic form of political activity (Blais, 2000) and the one that has the most direct consequences upon the process of decision-making, as it allows discontent voters to “throw the rascals out” and replace them with a new government. It is also the form of political activity that is exercised by most people (Crepaz, 1990). Table 1.1. shows the rate of respondents of the European Social Survey (ESS) Round 7 who reported to take part in each form of political participation. It shows how voting is, by far, the most common form of participation.

**Table 1.1.** – Rate of ESS Round 7 respondents who reported to have engaged in each form of political participation.

	Form of participation	Percentage
Conventional participation	Voting	69,9
	Contacting politician or government official	16,1
	Working in a political party or action group	4,5
Unconventional participation	Signing a petition	25
	Taking part in a lawful public demonstration	7,4
	Boycotting certain products	19,5

Source: Table elaborated by the author, based on data from the ESS Round 7.

Moreover, voting plays a crucial role in the legitimization of democratic systems. By allowing citizens to communicate their preferences and exert control over their rulers, it constitutes the primary source of legitimacy of a democratic government (Hill, 2014: 333; Michelson and Nickerson, 2011: 228). Low levels of voter turnout can thus be regarded as an indicator of an unhealthy democratic system (Ballinger, 2006; Kymlicka and Norman, 1994; Van Deth, 2001). If one assumes the legitimacy of governing bodies to come from their ability to present themselves as the representatives of the majority of the population, low turnout may cast a shadow over such legitimacy. That is because, with very low levels of voter turnout, the winner of an election can actually be elected by a minority of the citizens eligible to vote (Hoffman and Graham, 2006).

In the third place, turnout bears an important relation to the democratic ideal of political equality. By awarding each citizen with one vote, universal suffrage makes the voice of every

individual equally important in the choosing of her country's government. Election day can thus be regarded as the one moment in which democracy comes closer to achieving its ideal of equal political influence (Verba, Schlozman and Brady, 1995: 304), which can work as a means for compensating for socioeconomic inequalities (Verba and Nie, 1972). Conversely, low electoral participation has been associated with unequal participation, meaning that citizens with lower socioeconomic status tend to participate at lower-than-average rates (Lijphart, 1997),<sup>1</sup> as well as to low accountability of policymakers to the preferences of social groups that tend to participate less (Burnham, 1987; Key, 1949). These reasons have led some authors (e.g., Schattschneider, 1960) to argue that, under such situations, there is a danger that policy outcomes can come to be unjust.

The study of the determinants of voter turnout is thus one of very high social pertinence. In the context of the academic literature devoted to study such determinants, this dissertation is relevant for three main reasons.

In the first place, despite the large number of studies devoted to studying the influence of party-system fragmentation on voter turnout, there is still a poor understanding of the relation between these two variables. As shall be discussed in the two following sections, there is disagreement on both the theoretical and empirical level. Some authors have put forward reasons to expect a negative relation between fragmentation and turnout, whereas others have argued that this relation should rather be positive. Different empirical studies have paid support to both of these theoretical expectations.

This dissertation has an academic contribution in that it pushes towards the solving of this disagreement, on both the theoretical and empirical levels. Theoretically, it argues that the two sides of the debate are not necessarily incompatible, if one takes into consideration the way in which party-system polarization should moderate the relation between fragmentation and voter turnout. It contends that the two sides of the debate assume fragmentation and polarization to be related in a rather mechanical way, even though there is empirical evidence showing that they are not. Building on this realization, I argue that both sides of the debate may be partly right, but their arguments apply to contexts where the level of polarization is different. Empirically, this dissertation provides an experimental analysis of how fragmentation and polarization interact in influencing voter turnout, whose results supports the main theoretical argument.

In the second place, the literature on the effect of party-system fragmentation over turnout has also been unable to conclude as to the specific mechanism by which one variable affects the other. By relying on an experiment, this dissertation is able to test different mechanisms, instead of just assuming some mechanism to be operating to produce the relations found. Moreover, it is able to

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<sup>1</sup> However, Gallego (2014) shows how the inequality of electoral participation does not have such a mechanic relation to levels of voter turnout. Inequality rather seems to vary widely along democratic systems worldwide.

check whether or not different mechanisms affect this relation under contexts where the level of polarization is different.

Finally, the methodological choice of relying on an experiment is in itself academically relevant as well, because it provides a debate that has been exclusively grounded on analyses of observational data with new sorts of evidence. An experiment brings important evidence to this debate, because of its focus on internal, instead of external validity, which makes it particularly well suited to provide a first test of the theoretical argument that this dissertation puts forward.

## **1.2. Literature review**

### **1.2.1. Party system fragmentation and voter turnout: Theory**

As mentioned above, the relation between party-system fragmentation and voter turnout is not a straightforward one. To start with, theoretical arguments can be found for both a positive and a negative relation between these variables. This section aims at presenting the most relevant ones.

A negative relation can be expected on the basis of three main arguments. The first two build upon rational choice theory. The milestone of the application of this approach to Political Science is Downs' (1957) rational voter model. This model regards individuals as endowed with strategic rationality, i.e., the ability to set a number of goals they want to achieve, as well as to choose the means most suited to attain them. Rational individuals aim to maximize their utility, either by maximizing output for a given input or by minimizing input for a given output (Downs, 1957: 5). Electoral participation is regarded as the result of a calculus of cost and benefit. The individual will choose to vote when the benefits of such action outweigh its costs, and to abstain when they do not.<sup>2</sup> Therefore, any mechanism that lowers the costs of voting or increases its benefits can be expected to increase an individual's likelihood of voting, by making it more likely that the costs of voting she needs to endure will be outweighed by its benefits. Conversely, any mechanism that increases the costs of voting or lowers its benefits can be expected to decrease one's likelihood of voting.

The first argument relates to how elections in multiparty systems can *increase the costs of voting*. These costs are made up of opportunity costs and information costs. The former consist of the activities that the voter could be performing during the time she goes to the voting station, whereas the later refer to the costs that voters needs to bear in order to be acquainted with the parties or candidates running for the election (Geys, 2004: 42).

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<sup>2</sup> It should be noted that the classical rational choice model has struggled with the so-called "paradox of turnout". Because the benefits of voting relate mostly to the possibility of electing an individual's preferred government, and because the chances of a single voting being decisive for the electoral outcome are virtually zero, one should conclude that the rational action is to abstain. However, this conclusion is at odds with the levels of voter turnout that can be found in democratic systems. This paradox – as well as the ways in which it can be overcome – have fuelled intense debate, with several reformulations of the original model being proposed (for reviews, see Dhillon and Peralta, 2002; Dowding, 2005; Feddersen, 2004; Geys, 2006b).

This argument relates to the latter. In two-party systems, deciding the party to which one relates the most should be fairly simple. However, as the number of parties increases, each voter has to get acquainted with a higher number of parties, which increases the costs of accessing information about all of them.

Furthermore, in multiparty systems it is increasingly likely that no party will win a majority of the vote, and coalitions need to be formed. Under such circumstances, it becomes harder for a voter to identify the potential government alignments coming out of the election (Narud and Valen, 1996). That voter would need to acquire more information in order to make a voting decision: she would need to know not only the likely voting scores of each party, but also the coalitions that are likely to end up being formed (Downs, 1957: 142–163).

Both the need to get acquainted with a higher number of parties and the need to access information regarding the coalition negotiations increase the overall cognitive costs of voting. It thus becomes more likely that, for a given individual, those costs will outweigh its benefits, increasing that individual's likelihood of abstaining instead of voting.

The second argument also relates to the consequences of the necessity of coalition building in multiparty systems, but it rather concerns its effect upon the *benefits* of voting. The main benefit that individuals get from voting in a given election is the possibility of electing their favourite party to the government.<sup>3</sup> However, the frequent need for coalition building in multiparty systems means that, under such systems, a given voter will be voting for *just one part* of the government. Furthermore, in the process of coalition negotiation, a given voter's preferred party will be forced to make concessions that can drag it away from her preferences (Downs, 1957: 142–143). This makes the formation of government depend less on the results of elections and more on the process of elite negotiation, which makes the electoral process less decisive. The benefits of the act of voting will thus tend to decrease, making it more likely that they are outweighed by its costs.

Even though this argument has been presented from a rational choice theory point of view, it should be noted that a number of classic works from different perspectives also claim that individuals are less likely to vote when they perceive elections as being less decisive (Burnham, 1971; Key, 1955; Lipset, 1960; Milbrath and Goel, 1977).

The last argument relates to socio-psychological models of electoral behaviour, instead. Since the seminal work of Campbell *et al* (1960), party identification has come to be regarded as one of the main predictors of voter turnout. According to these authors (Campbell *et al*, 1960: 96-101), the likelihood that an individual will cast a vote in a given election is higher when she has a strong attachment to a party. However, it has been argued that, as the number of parties rises, the amount of

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<sup>3</sup> However, in order to solve the “paradox of turnout”, Riker and Ordeshook (1968) have famously contended that, apart from these instrumental benefits, voters also extract expressive benefits from the act of voting. These benefits mostly concern the feeling that the individual is fulfilling a civic duty.



signals a voter receives that can help her determine which party is closer to her attitudes become increasingly “noisier” (Achen, 1992; see also Huber, Kernell and Leoni, 2005). This makes it more unlikely for voters to build strong attachments to any one party, as it becomes harder to determine the differences between them. And, with lower levels of party identification, it becomes increasingly likely for voters to abstain.

In a similar vein, Dittrich and Johansen (1983: 111) argue that, in multiparty systems, voters are under the effect of a higher number of cross-pressures (Berelson, Lazarsfeld and McPhee, 1954: 283–284), which may discourage them from participating in an election. There is indeed some empirical evidence suggesting that exposure to cross-pressures depresses political involvement (Tóka, 2003).

Let us now draw upon the two main arguments supporting a positive relation between party-system fragmentation and voter turnout. In the first place, if one regards voting as a way of individual self expression (Crepaz, 1990; Milbrath and Goel, 1977), one should expect a higher number of parties to enhance aggregate levels of political participation. In fact, according to Milbrath and Goel (1977: 35), an individual will tend to participate deeper and more frequently in politics when the political stimuli to such participation are higher.

On this regard, Campbell *et al* (1960: 399) draw a distinction between low and high stimulus elections, as well as between core and peripheral voters. While core voters tend to vote in every election, peripheral voters do so only in high stimulus elections. An election’s stimuli can have several sources, one of which is the existence of a party whose policy preferences are closer to those of the individual (Crepaz, 1990: 186–187). One can thus expect systems with more parties to improve the likelihood that any given voter will have a party closer to her preferences. This, in turn, can be expected to boost electoral participation.

In the second place, one can expect an increasing number of parties to lead to higher mobilization of voters (Banducci and Karp, 2009: 111; Blais, 2006: 118). The effects of party mobilization over turnout have been supported by a number of empirical studies (Adams and Smith, 1980; Bedolla, Green and Michelson, 2008; Bochel and Denver, 1971; Eldersveld, 1956; Gerber and Green, 2000; Gosnell, 1926; Gray and Caul, 2000; Michelson, Bedolla and Green 2007; Vavreck, 2007).<sup>4</sup> One can thus assume that, in multiparty systems, the mobilization of voters will be more far reaching as more parties strive to secure and mobilize their own specific constituency.<sup>5</sup>

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<sup>4</sup> For a review of these studies, see Green, McGrath and Aronow (2013).

<sup>5</sup> However, it should be noted that Karp, Banducci and Bowler (2008) find party mobilization to be higher under candidate-based elections, typical of the majoritarian two-party system. These authors thus conclude that the effect of party mobilization cannot account for the levels of turnout in countries with proportional electoral systems.

### 1.2.2. Party-system fragmentation and voter turnout: Empirical studies

The discussion carried out in the previous section highlighted the different theoretical expectations for how party-system fragmentation should affect voter turnout. Is the empirical literature more consensual? This section aims to answer this question, by reviewing the most important studies that have set out to empirically assess the impact of fragmentation on turnout.

A broad number of empirical studies have focused on this relation, drawing upon different sets of cases. An important distinction should be made between comparative studies, whose level of analyses is the nation state, and case studies of one country, whose analyses rather compare sub-state entities. Also, one should distinguish between studies that focus mostly on advanced industrial democracies and studies that consider other sets of countries. This distinction is important because it has been suggested that economic development is an important predictor of aggregate levels of voter turnout (Blais and Dobrzynska, 1998; Dettrey and Schwindt-Bayer, 2009; Fornos, Power and Garand, 2004; Norris, 2002).

Case studies, both in and out of advanced industrial democracies, present the most contradictory findings. On the one hand, most studies find a negative relation between party-system fragmentation and voter turnout (Berdiev and Chang, 2013; Boulding and Brown, 2013;<sup>6</sup> Couture, Breux and Bherer 2014; Franklin and Hirczy de Miño, 1998; Geys and Heyndels, 2006; Hoffman-Martinot, Rallings and Thrasher, 1996; Jou, 2010; Lehoucq and Wall, 2004; Settle and Abrams, 1976).

On the other hand, the findings of a number of studies run against this general rule. Positive relations have been found in the United Kingdom (Seidle and Miller, 1976), Norway (Hansen, 1994), Brazil (Boulding and Brown, 2013), and Taiwan (Berdiev and Chang, 2013). Also, studies drawing upon the cases of India (Diwakar, 2008) and South Africa (Fauvelle-Aymar, 2008) have found insignificant relations, as has Henderson and McEwen's (2010) comparative study of regional elections. Finally, in their case study of the Belgian municipal elections, Ackaert *et al* (1992) have found a curvilinear relation between these two variables.<sup>7</sup>

Comparative studies with samples consisting mostly of advanced industrial democracies have also mostly found a negative relation between party-system fragmentation and voter turnout (Blais and

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<sup>6</sup> Boulding and Brown (2013) analyse municipal elections in both Brazil and in Bolivia, and they conclude that in the former there is a negative relation between party system fragmentation and turnout, whereas in the latter that relation is rather positive. However, because their results consist of two separate analyses, they are presented in that way.

<sup>7</sup> Some authors (e.g., Geys and Heyndels, 2006) also consider Franklin and Hirczy de Miño's (1998) study among those that draw upon the effect of party-system fragmentation on voter turnout. Yet the measure used in this study is the number of years of divided government in the United States. Because this measure is drastically different from the other ones included in this literature review, I have opted to exclude this study. Nevertheless, it does find that the number of years of divided government bears a negative relation to voter turnout.

Carty, 1990; Blais and Dobrzynska, 1998; Jackman, 1987; Jackman and Milner, 1995; Radcliff and Davis, 2000; Siaroff and Merer, 2002).

Yet, this pattern is again far from consensual. Crepaz's (1990) study finds a positive relation between the two variables. Similarly, Brockington (2004) reports that, once the existence of coalitions is controlled for, a higher number of parties increases voter turnout. It should be noted, however, that none of these authors controls for the level of closeness of each election, a political factor that has been consistently reported to have an important role in predicting voter turnout (e.g., Cann and Cole, 2011; Chapman and Palda, 1983; Cox and Munger, 1989; Freire and Magalhães, 2002). Yet, while controlling for the effect of closeness, Banducci and Karp (2009) also find a positive relation between party-system fragmentation and electoral participation.

In turn, Dittrich and Johansen (1983) and Kaempfer and Lowenberg (1993) have found insignificant relations. However, these analyses may once again lack some controls. The former relies on mere correlations, leaving aside a number of important factors that can influence the relation between party system fragmentation and voter turnout. The latter controls solely for the level of proportionality of the electoral system and the aggregate level of literacy, leaving aside the effect of closeness once again.

Finally, two studies (Capron and Kruseman, 1988; Taagepera, Selb and Grofman, 2014) find curvilinear relations. I shall come to these later.

The results of comparative studies outside advanced industrial democracies are even more ambiguous. A negative relation seems to exist in Eastern Europe (Kostadinova, 2003; Kostadinova and Power, 2007), but studies drawing upon Latin American countries have consistently reported insignificant relations (Fornos, Power and Garand, 2004; Kostadinova and Power, 2007; Pérez-Liñan, 2001), as has Kuenzi and Lambright's (2007) study of Sub-Saharan Africa. In turn, studies comprising large samples of non-advanced industrial democracies as well as some advanced industrial democracies have again found negative relations (Dettrey and Schwindt-Bayer, 2009; Elgie and Fauvelle-Aymar, 2012).

This discussion suggests that, even if most studies do conclude that a higher level of party-system fragmentation leads to lower levels of voter turnout, this finding is far from consistent. Moreover, it appears not to be replicated in some national and regional contexts.

But these results are even more puzzling if one takes into consideration the results of some of the few studies that have tried to investigate the reasons lying behind the negative relation they found between fragmentation and turnout. As mentioned in the previous section, one of the theoretical reasons why one could expect such a relation is the fact that a higher number of parties leads to a need for coalition-building, which in turn makes elections less decisive. It is true that the aforementioned results of Brockington (2004) and Banducci and Karp'(2009) seem to support this claim. Yet, by the same token, elections in which a single part wins a majority of the seats should have higher turnout.

However, studies explicitly testing this hypothesis have concluded that such is not the case (Blais and Carty, 1990; Blais and Dobrzynska, 1998).

Another theoretical explanation why one might expect an increasing number of parties to depress voter turnout is that it increases the cognitive costs of voting. If this were true, the magnitude of turnout decrease should be greater when the level of parties becomes extremely high. Yet the findings of Blais (2000) and Blais and Dobrzynska (1998) both suggest that this is not the case. The reduction in turnout levels seems to be greater when one moves from two- or three-party systems to systems with around six parties. From that point on, an increase in the number of parties still depresses turnout but the magnitude of such decrease is *smaller*. This runs contrary to the expectation derived from the theoretical argument according to which the negative relation between party-system fragmentation and voter turnout is due to the higher cognitive costs of voting that are brought about by an increasing number of parties (Blais, 2000).

One possible explanation for these puzzling results is that the effect of party-system fragmentation over voter turnout is curvilinear, taking the shape of an inverted U-Curve. In fact, such a relation has been reported by the comparative studies of Capron and Kruseman (1988) and Taagepera, Selb and Grofman (2014), as well as by Ackaert *et al's* (1992) case study of Belgium.

Yet this explanation is again not entirely satisfactory, as it runs contrary to the above-mentioned findings of Blais (2000) Blais and Dobrzynska (1998). Again, these authors find that an increasing number of parties *always* leads to a decrease in voter turnout. Such decrease seems to be higher when one moves from a small number of parties to a moderate one, and smaller when one moves from a moderate number of parties to a very high one. This finding runs against the possibility that the relation between these two variables takes the shape of an inverted U-Curve.

Still another possibility is that the effect of party-system fragmentation on voter turnout is different according to the electoral system that is in place, as argue Boulding and Brown (2013). According to these authors, a higher number of parties should be expected to increase the levels of voter turnout under proportional systems, but to depress it under majoritarian systems. This expectation is supported by their comparative analysis of the Brazilian and Bolivian municipal elections.

However, this explanation is not entirely satisfactory either. Boulding and Brown rely on a comparative analysis of local elections in Brazil and Bolivia, which is problematic for three main reasons. In the first place, this sample is rather small for one to conclude as to the general effect of party-system fragmentation over voter turnout under different electoral systems. In the second place, it is a sample made up of subnational regions of Latin American countries, a continent where, as mentioned above, the analyses of the relation between fragmentation and turnout have produced results that do not follow the general trend. Finally, Seidle and Miller's (1976) analysis of voter turnout in United Kingdom counties yields a positive relation between number of parties and electoral

participation. As this is a country with a majoritarian electoral system, these findings run contrary to Boulding and Brown's (2013) argument.

All in all, this literature review suggests that we still have a poor understanding of how party-system fragmentation explains variation in levels of voter turnout. There is a tendency for empirical studies to find a negative relation, but there are important exceptions to this rule. Furthermore, the few studies that have tried to understand the mechanism lying behind this relation have been unable to come to conclusive results. Finally, all proposed explanations for why the literature has produced such ambiguous results clash with the findings of other empirical studies.

### **1.2.3. A theory of how and why polarization should moderate the relation between fragmentation and turnout**

This dissertation argues that, in order to shed some light over the contradictions discussed in the two previous sections, one needs to move away from a mere numeric analysis of party-system fragmentation, so as to take into consideration the moderating role that party-system polarization can be expected to play in the relation between fragmentation and turnout.

Both arguments supporting a negative relation between party-system fragmentation and turnout and those supporting a positive one implicitly or explicitly assume that party-system fragmentation has a mechanical effect over the level of party-system polarization. However, they assume that mechanical effect to work in quite different ways.

On the one hand, arguments for a negative relation assume that a higher number of parties translates into a low level of party-system polarization. Arguing that a higher level of party-system fragmentation leads to an increase in the cognitive costs of voting is to assume that an increasingly fragmented party system leads parties to be increasingly undifferentiated, making it more difficult for individuals to determine the one to which they relate the most. Similarly, arguing that higher fragmentation puts voters under cross-pressures is to assume that a higher number of parties does not translate into a higher array of options, which makes various parties aim at similar constituencies, putting the same voter under the influence of several parties.

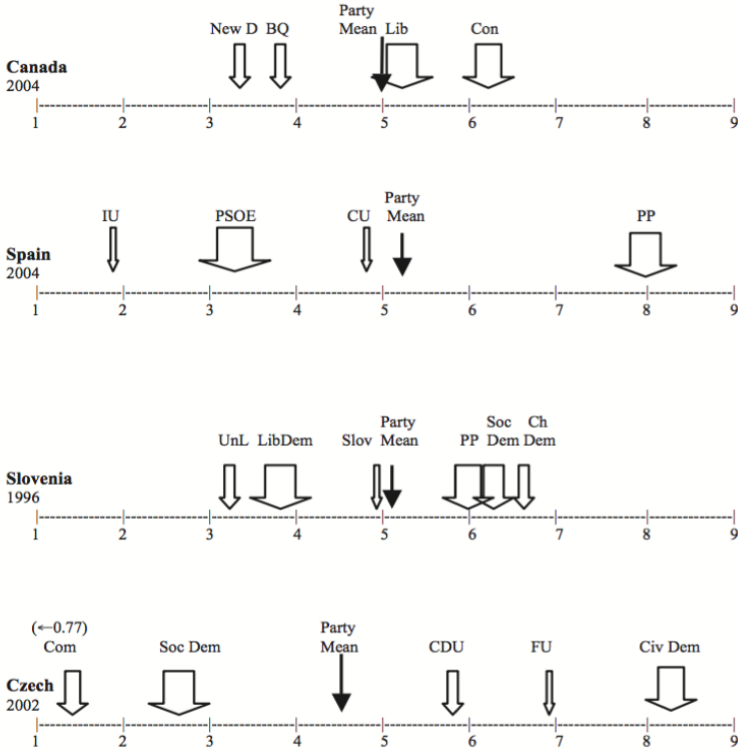
On the other hand, arguments for a positive relation assume that a higher number of parties automatically translates into a high level of party-system polarization. Arguing that a higher number of parties increases the likelihood that any given voter will have a party close to her preferences makes sense only as long as those parties are differentiated enough for them to create bonds with different voters. Likewise, to argue that a higher number of parties makes parties capable of mobilizing different constituencies makes sense only as long as these parties are differentiated enough for their mobilization efforts to reach individuals that were not already under the mobilization of another party.

The fact that there are there conflicting expectations as to how the mechanical relation between fragmentation and polarization should play out is a first hint that such relation is probably not indeed mechanical. It cannot be so and simultaneously work in radically different ways. But, apart from that,

one can find literature arguing that ideological polarization and fragmentation are not necessarily correlated. One example of such is Sartori's (1976) classical distinction between segmented and polarized multipartism – the former having a high level of fragmentation but a low level of ideological polarization, the latter having a high level of both fragmentation and ideological polarization.

Further empirical evidence also suggests that these two variables are indeed not mechanically related. For example, Dalton (2008) shows how systems with the same number of parties can have very different levels of polarization. Figure 1.1. – retrieved from Dalton's (2008) article – provides some examples that should make clear how fragmentation and polarization are not mechanically related. It compares Spain to Canada and Slovenia to Czech Republic, two pairs of countries with similar number of parties, but whose level of polarization varies widely.

**Figure 1.1.** – Left-right placement of Canadian, Spanish, Slovenian and Czech parties, according to citizen perceptions.



Note: The width of the arrows represents the relative size of each party.  
 Source: Retrieved from Dalton (2008: 905).

The discussion thus far suggests that the fact that we have been assuming party-system fragmentation as a proxy for polarization – in either one way or another –, when it is actually not so may be a clue as to why the results of studies concerned with effect of fragmentation on turnout have been rather puzzling. That is, indeed, the main argument of this dissertation.

Theoretical wise, this argument builds upon spatial models of party systems. The origin of these models goes back to Downs' (1957) contention that voters will tend to vote for the party that is closer

to their ideal position, in a unidimensional left-right continuum. To be sure, one can find examples of dimensions of competition that are orthogonal to the left-right scale, such as the centre-periphery cleavage in countries like Spain or Canada. Yet many authors have suggested that the left-right scale possesses an impressive flexibility which has enabled it to absorb the main dimensions of political conflict through different time periods (Inglehart, 1984; Inglehart and Klingemann, 1976; Laponce, 1981; Sani and Montero, 1986). This flexible character allows different political issues to be reduced to the left-right continuum without major distortions (McDonald and Budge, 2005: 47). Further, it has the advantage of reducing the complexity of contemporary politics, allowing for a comparison of the ideological placement of the parties of different systems (Powell, 2000: 162).

This Downsian assumption according to which voters pay support to the party that is closer to their left-right position has been further explored in a number of later studies concerned with electoral behaviour (e.g., van der Eijk, Schmitt and Binder, 2005), coalition building (e.g., Warwick, 1996), or political representation (e.g., Powell, 2000). This dissertation shares such assumption. However, it also assumes that two other characteristics of the party system play a crucial role when deciding whether to vote or to abstain: the distance between a voter's position on the left-right scale and that of the closest party; and the relative position of the various parties of the system.

On this regard, it is important to refer to Hinich and Munger's (1997: 151) distinction between abstention by indifference and by alienation. The former refers to a situation where a voter perceives little or no difference between the party alternatives that are presented to her, whereas the latter refers to a situation in which all those alternatives are far from the voter's ideal point. Both situations can lead a voter to abstain from voting.

This suggests that perceiving political parties as offering clearly differentiated options – which should happen under highly polarized contexts –, as well as being close to one of those options, are necessary conditions for a voter to cast a vote (Brockington, 2009: 439). It also suggests that a minimal level of aggregate alienation and indifference represent the conditions under which voter turnout is higher.

One can thus assume that the optimal situation in order to maximize aggregate voter turnout is one where there is a high number of parties spread throughout the whole left-right spectrum – a system that is both polarized and fragmented. On the one hand, the high level of polarization minimizes the number of voters that are indifferent. On the other hand, the high number of parties providing clearly differentiated alternatives maximize the chances that any one of those parties will be closer to a given voter's optimal position, thus minimizing aggregate levels of voter alienation. Conversely, when one of these conditions is missing, aggregate levels of voter turnout can be expected to be lower.

However, just like party fragmentation and polarization are not necessarily related and can vary independently from one another, so can aggregate alienation and indifference. One can thus expect that when the number of parties increases but polarization does not, voter turnout will *decrease* rather than increase. That is so because, under such contexts, aggregate levels of indifference will tend to

increase. With more parties offering similar sets of policies, voters will tend to have a stronger feeling that “parties are all the same”. At the same time, overall levels of alienation are not likely to decrease: as parties are not offering clearly differentiated choices, they are not appealing to different voters either.

The discussion made so far suggests that an increasing number of parties can have a contradictory effect under contexts where the level of party-system polarization is different. When polarization is high, increasing fragmentation will tend to increase overall levels of voter turnout by reducing aggregate levels of both indifference and alienation. But, when polarization is low, increasing fragmentation will rather tend to depress overall levels of turnout by increasing overall levels of indifference while not decreasing overall levels of alienation.

On an empirical level, this means that party-system polarization should play a moderating role in the relation between fragmentation and turnout, such that this relation is positive when polarization is high, and negative when it is low. Yet studies drawing upon this relation very rarely take party-system polarization into consideration – the only exception are the studies by Crepaz (1990) and Siaroff and Merer (2002), which use it as a control variable. The neglect of the effect of this variable may thus explain the ambiguous results found in the literature.

On a theoretical level, this means that arguments contending that a higher level of party-system fragmentation should have a negative relation to voter turnout and the ones contending that it should have a positive one may actually not be incompatible. The reason for the disagreement lies on divergent implicit assumptions regarding the mechanical effect of party-system fragmentation over polarization. By making such claim explicit, one can reconcile both sides of the discussion, pushing forward our understanding of the factors that influence voter turnout. Party-system fragmentation does not have a mechanical impact on the differentiation of choices provided by parties. Instead, the arguments favouring a positive and a negative relation may both be partly correct, but *they apply to contexts where the level of party-system polarization is different*.

#### **1.2.4. Party-system polarization and voter turnout: Empirical studies**

It is not innovative to argue that individuals are more likely to vote when they perceive the choices presented to them as being clearly differentiated. A number of authors have drawn upon the effect of polarization on voter turnout. Even though they all rely on the placement of parties along the left-right scale, the actual operationalization of the independent variable has diverged from one study to the next.

Anduiza (1999) and Crepaz (1990) have both operationalized polarization according to the placement of parties along the ideological continuum, as made by experts. They both conclude that such distance has a positive effect over turnout. Yet the former relies on the ideological distance between the two major parties of a given system, whereas the latter relies on the ideological distance between parties placed at the extreme ends of the ideological spectrum. A measure of the ideological



distance between the two main parties of the system, however, may present an advantage because extreme parties may be too small to have a relevant impact on the political system (Anduiza, 1999: 166–167).

Wessels and Schmitt (2008) also rely on expert judgements, but they analyse the meaningfulness of electoral choices provided to voters along two dimensions: the structure and differentiation of policy support and the institutional effectiveness in translating electoral results to public policy. The first dimension – the one that is closer to the aims of this dissertation – is measured according to the effective number of parties, the ideological distance between the most extreme parties according to expert judgements and left-right differentiation, which is measured by the mean of absolute left-right distances between pairs of parties of a given system. These authors also conclude that this dimension has a positive effect over voter turnout.

In turn, Siaroff and Merer (2002) measure the ideological distance between the most extreme relevant parties of a system (i.e., those winning more than 10% of the vote) by introducing a dummy variable for polarized systems – those in which the difference between the most extreme relevant parties in a 10-point left-right scale is above 3,75. Their placement of the parties along the left-right scale is based on expert judgements, as they rely on data provided by Huber and Inglehart (1995). Their results also suggest that this variable has a significant positive effect over voter turnout.

Another study, that of Aarts and Wessels (2005), conducts two different analyses. The first one relies on data from the Comparative Manifesto Project (CMP) (Budge *et al*, 2001; Klingemann, *et al*, 2006), and relies on the weighted mean distance between the parties of each country as its independent variable. Its results are mixed. For some of the countries included in the sample, this variable bears a positive relation to voter turnout. For others, it bears a negative one. The second analysis of the study is rather based on individual-level data. The authors rely on questions of how sympathetic or unsympathetic voters are to a specific party in order to build measures of indifference and alienation, according to the afore-mentioned definition of Hinich and Munger (1997). The results suggest that both measures have a strong negative effect over turnout.

Finally, three studies have measured polarization by building an index of the dispersion of a country's parties along the left-right scale. This measure has an important advantage over measures of ideological distance between only two parties, be they the major ones or the most extreme ones: it takes into account all the ideological position relevant parties in the system.

Brockington (2009) and Dalton (2008) have built such measures by relying on the position of parties made by voters, according to data from the Comparative Study of Electoral Systems (CSES). They both conclude that, when parties cover the left-right continuum to a larger extent, voter turnout tends to increase. Significantly, the latter also concludes that this index is a better predictor of voter turnout than party-system fragmentation. In the last place, Steiner and Martin's (2012) index is conceptually similar to the two previous ones, except for the fact that it relies on data from the CMP. Their aim is to understand how economic integration affects the policy positions of national parties

and how these, in turn, influence voter turnout. Their data suggests that increasing economic integration does lead national parties to converge in terms of their policy positions, and that such convergence depresses turnout.

These studies have provided extensive support for the claim that higher levels of party-system polarization tend to boost voter turnout. However, none of these studies has focused on the moderating role that polarization can be expected to play in the relation between party-system fragmentation and voter turnout.

## **CHAPTER II: THE RESEARCH DESIGN**

### **2.1. Objectives of the study**

Following the discussion made in the theoretical sections, this study aims at extending our knowledge of how party-system fragmentation influences the decision to vote or to abstain, pushing towards a better understanding of the ambiguous results that the literature has found hitherto. The main objective of this dissertation is thus *to understand how party-system polarization moderates the relation between party-system fragmentation and one's likelihood of voting*. This broad objective can be further divided into three more specific objectives:

- (1) To understand the way in which party-system polarization moderates the direct effect of party-system fragmentation over one's likelihood of voting;
- (2) To test competing mechanisms by which party-system fragmentation can be expected to influence one's likelihood of voting, in contexts where the level of polarization is different;
- (3) To provide a pioneer experimental study of the how party-system fragmentation and polarization affects one's likelihood of voting.

It should be noted that the main focus of this study is on internal validity. It aims at providing a first empirical test of the theoretical argument put forward in Section 1.2.3. While I shall argue in section 2.3. that there are reasons to believe that the study does possess external validity, it should still be noted that its main objective is to test the theory it puts forward, rather than generalizing it.

### **2.2. Why an experiment?**

The empirical sections of this study rely on a survey experiment. Experiments are still rather rare in Political Science, even if the amount of experimental studies published in top journals in the field has been steadily increasing since the beginning of the 1960's (cf. Druckman *et al*, 2011b: 3, Figure 1.1.).

Thus far, experimental studies of voter turnout have mostly consisted of field experiments concerned with the effect of mobilization over electoral participation (Adams and Smith, 1980; Bedolla, Green and Michelson, 2008; Eldersveld, 1956; Gerber and Green, 2000; Gerber, Green and Shachar, 2003; Gosnell, 1926; Michelson and Nickerson, 2011; Miller, Bositis and Baer, 1981; Nickerson, 2007; Vavreck, 2007). Experimental literature focusing on the effect of other independent variables over voter turnout is much more scarce. A rare example is the study by Gallego (2014), which relies on a survey experiment to test the effect of ballot structure and coalition formation over one's likelihood of voting.

Regarding the effect of party-system fragmentation and polarization, in turn, I am aware of no experimental evidence available. The literature overwhelmingly relies on observational data to test the effect of these characteristics of the party system over voter turnout. Yet, an experiment presents a number of advantages that observational studies lack. In the context of this study, concretely, the resource to an experiment has three main advantages.

In the first place, some authors have recently cast some doubts over the ability of studies based on observational data to come to internally valid conclusions, especially regarding the factors that explain variation in levels of voter turnout. It has been argued that the factors that affect voting decisions are so deeply entangled in one another that it is very difficult for the researcher to sort out the impact of each of them, making conclusions very sensitive to the specific configuration of each statistical model (Gallego, 2014: 66–67; McDermott, 2002a: 334–335). Experiments are particularly well suited to avoid these problematic issues, because internal validity is their main strength. By allowing the researcher to interfere in the process of creation of data through systematic manipulations of the independent variables whose effect is being tested (Morton and Williams, 2008), they make it possible to test the effect of each independent variable per se, avoiding omitted-variable biases and the danger that the conclusions of the study depend on model specifications.

In the second place, the usage of experiments is particularly pertinent when it comes to topics regarding which the remaining methods have come to contradictory results (McDermott, 2002b). As the sections devoted to the literature review have made clear, the effect of party-system fragmentation on voter turnout is one such topic, which makes an experimental study of this effect especially pertinent.

Finally, an experiment allows for the testing of the mechanism by which an independent variable exerts its effect upon a dependent variable, through analyses of mediation effects (Bullock and Ha, 2011). This possibility is particularly important in the context of this study because, as discussed above, the mechanism by which fragmentation should affect one's likelihood to vote is itself a matter of debate in the literature.

### **2.3. Student samples and the issue of external validity**

The classic distinction between external and internal validity is often defined in Campbell and Stanley's (1963: 5) terms. According to these authors, in the context of an experiment, internal validity answers the question of whether or not the experimental treatment made a difference in the specific experimental instance one is concerned with. In turn, external validity “asks the question of generalizability: to what populations, settings, treatment variables, and measurement variables can this effect be generalized?”.

As mentioned in the previous section, the main strength of experiments is their internal validity. The fact that internal validity is, indeed, the main focus of this study explains why it relies on an experiment. Political science, however, tends to emphasize external validity (McDermott, 2002a: 335; 2011: 27), which has been referred to as the Achilles' heel of experimental social science (Kam, Wilking and Zechmeister, 2007: 417). Concretely, Campbell (1968, *Apud* McDermott, 2011: 37–38) identifies six factors that can threaten the external validity of a study, two of which may apply to the experiment on which this dissertation relies. The first one is the fact that its sample is not representative of the whole population. The second factor is the so-called “Hawthorne effect”

(Roethlisberger and Dickson, 1939), which refers to the possibility that individuals change their behaviour because they are aware that they are under study. In the case of voter turnout, this effect may be particularly strong, due to the strong social desirability bias to vote.

A further reason for concern is the fact that the experiment relies on a student sample. This is a common practice in experiments. Between 1990 and 2006, a quarter of the experiments published in Political Science journals relied on student samples, and 70% of the experiments published in specialized journals did so (Kam, Wilking and Zechmeister, 2007: 420).

However, despite the frequency with which these samples are used, a number of authors have expressed concerns about the external validity of experiments relying on them. Many of these concerns were put forward in the very influential contribution of Sears (1986).

In the first place, this author argues that, due to their age, students lack the kind of strong self-definition that is associated with steady social and political attitudes. Some attitudinal traits, such as self-interest, may actually be not present at all in young adults.

In the second place, Sears also argues that students have a tendency to feel pressured to provide the right answer to each question, which leads them to put in an extra cognitive effort that other individuals would not. Yet this may actually be an advantage in the case of the experiment on which this dissertation relies. As shall be discussed below, the experiment is rather cognitively demanding. Therefore, the fact that students put in that extra effort lessens the risk of attrition – a situation where the experimenter fails to measure the outcome of the treatment due to respondents quitting it halfway through, or simply being disengaged from it (McDermott, 2011: 28) – which is one of the major threats to the internal validity of experiments (Druckman *et al*, 2011b).

The fact that students put some extra effort into their answers, however, does not mean that the results of the experiment cannot be extrapolated to other populations. The experiment does mimic, in a rather schematic way, the process by which individuals are presented with the parties running for an election. The difference is that it presents the positions of those parties all at once, which contrasts with the long-term process of acquisition of information and familiarity with each party that happens in real life. The fact that individuals are presented with all the information at once does make the experiment cognitively demanding, and thus makes the usage of a student sample an advantage, due to their tendency to put in an extra effort. But it still resembles the way in which individuals access information on parties and, as such, it does provide an important insight into the way in which party-system polarization moderates the relation between party-system fragmentation and one's likelihood of voting.

In the third place, Sears and other authors (e.g., Miller and Krosnick, 2000) have argued that students have not piled up the same amount of life experiences that other adults have, which may lead them to react differently to certain stimuli.

Finally, Carpini and Keeter (1993) argue that students may be more politically interested than the remaining population. This, again, may lead them to respond differently to experimental

treatments. For this reason, I have included the standard question on political interest in the survey. In the four-point scale in which individuals are asked to place their interest for politics, my sample displays a mean of 2,95 (SD = 0,81). Albeit higher, this value is not distant from the value registered by the Portuguese population in general. Data from the ESS Round 7 suggests that the mean for the Portuguese population in 2014 was 2,81 (SD = 0,99).

Despite all these concerns about the external validity of experiments in general, and student samples in particular, there are still a number of reasons for one to rely on them. In the first place, empirical evidence is not so sanguine in showing significant differences between student and non-student samples. Some studies (Henrich, 2000; Henrich *et al*, 2001; Mintz, Redd and Vedlitz, 2006) do suggest that such differences exist. However, this body of work suggests that different samples react to treatments differently, due to the fact that they share different cultural norms. This applies to all comparisons of samples from different cultural backgrounds, not only to student vs. non-student ones (cf. Kam, Wilking and Zechmeister, 2007: 423).

In turn, other studies have concluded that student and non-student samples do react in a quite similar manner to experimental stimuli (Druckman, 2004; Druckman and Nelson, 2003). Moreover, Druckman and Kam (2009) conclude that student and non-student samples are not distinguishable from the general population in a number of key political covariates. Finally, Benz and Meier (2008) compare the behaviour of students in an experimental setting to that of individuals in the field, and conclude that the two are correlated.

Furthermore, according to Druckman and Kam (2009: 7), the extent to which student samples affect the external validity of a study is contingent on three considerations: the research agenda upon which the study builds, the relative generalizability of its subjects and whether its goal is to build or to generalize a theory. On all these aspects, there are reasons to believe that the usage of a student sample in this dissertation is not necessarily a problem.

Regarding the research agenda upon which the study builds, there are no prior studies that have aimed at studying the relations being tested here. As such, it is less pressing to incorporate non-student populations.

Regarding generalizability, again, all respondents were asked some questions designed to tap basic political covariates: interest for politics, internal and external efficacy, trust in political institutions and left-right self-placement, age, gender and the level of education of the respondent's parents. These questions were worded in the same way as they appear in the Portuguese version of the ESS. They can be found in Appendix A.1. A comparison of these key political covariates – provided in section 3.1. – suggests that my sample is in some ways similar to the Portuguese population. When differences exist, they can only be expected to make it even harder to find a treatment effect, as the sample used in the experiment displays a set of attitudes that would make its respondents more likely to cast a vote. This would also make them more likely to report a high likelihood of voting in the fictitious elections, making it harder to find differences between individuals subjected to different

treatments. This suggests that my sample may be a critical group upon which to test the relation I am concerned with. As such, this should not be regarded as a threat to the external validity of the study, but quite the opposite. Should there be a treatment effect in a subgroup of the population that can be expected to display a higher propensity of voting, one can assume that such effect would also exist – or even be stronger – in the whole population.

Finally, as mentioned in section 2.1., the central goal of the study is to build and test a theory of how party-system polarization moderates the relation between fragmentation and one's likelihood of voting, rather than generalizing it. Even though efforts were made to endow the experiment with as much external validity as possible, its focus is still on internal validity. Its aim is to show how an individual's likelihood of voting responds to contexts with different levels of party-system fragmentation and polarization, in an experimental environment that is stripped out of all other variables that affect those relations.

## **2.4. The conceptual model**

The dependent variable in the study is each respondent's self-reported likelihood of voting in the fictitious election. The main independent variable included in the empirical analysis is the level of party-system fragmentation. The study also includes one moderator, party-system polarization.<sup>8</sup>

Apart from these three variables, the study also includes mediators intended to tap the mechanism by which party-system fragmentation affects one's likelihood of voting, under differently polarized contexts. The literature review carried out in section 1.2.1. allowed for the identification of the variables that can be predicted to mediate these relations. In short, rational choice theories argue that more fragmentation depresses turnout in two ways: by increasing the cognitive costs of voting and by making each voter's influence over the election become less direct. Socio psychological theories have conflicting predictions regarding the direction of the relation – some authors argue that it should be negative, other argue that it should be positive. Yet the two sides assume that fragmentation affects one's likelihood of voting by influencing one's ability to develop an intense preference for one of the parties in a given system. This, in turn, will tend to influence an individual's ability to develop party identification, a strong predictor of turnout. Finally, group mobilization theories predict fragmentation to have a positive over turnout by increasing aggregate levels of party mobilization.

Unfortunately, the effect of the dynamics of the party system that rational choice theories predict to impact on the benefits of voting and the effect of mobilization efforts on the behalf of parties are factors that relate to the mechanics of the political system, which cannot be tested experimentally. One is thus left with two mechanisms that can be expected to mediate the relation between party-system fragmentation and one's likelihood to vote, under differently polarized contexts,

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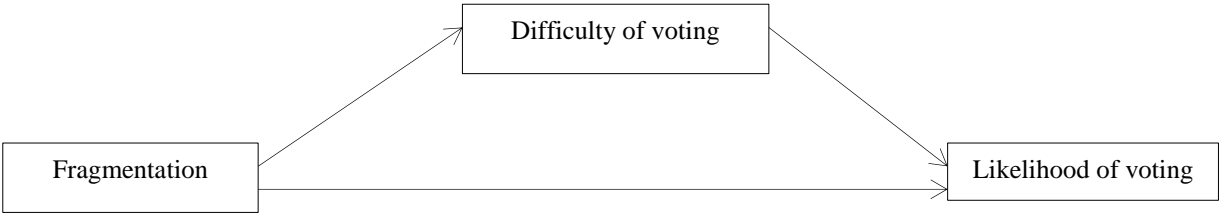
<sup>8</sup> A discussion of the conceptual and operational definitions of all the variables is provided in section 2.7.

and which can indeed be tested experimentally: the cognitive costs voting and the intensity with which a voter prefers a given party in the system to the detriment of others.

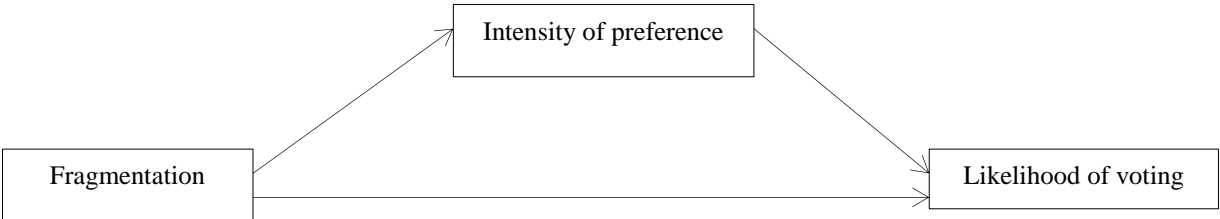
It should be noted that this latter mechanism is not intended to tap party identification per se, as the development of such identification is a long-term process (Dalton, 2016) which would be very hard to test in an experimental environment. Yet, socio psychological theories predict changing levels of party-system fragmentation to impact on one’s intensity of preference for one party of the system, which will make it more likely for one to relate to a party with such intensity that she will go out and cast a vote for that party instead of abstaining. This intense preference will then also impact on one’s ability to develop party identification. As such, the question designed to tap the socio-psychological mechanism is rather designed to tap the extent to which voters have a strong preference for any one party of a given system.

The two conceptual diagrams for the two models whose mechanisms are being tested in the experiment can be found in figures 2.1. and 2.2.

**Figure 2.1.** – Conceptual diagram for the rational choice model.



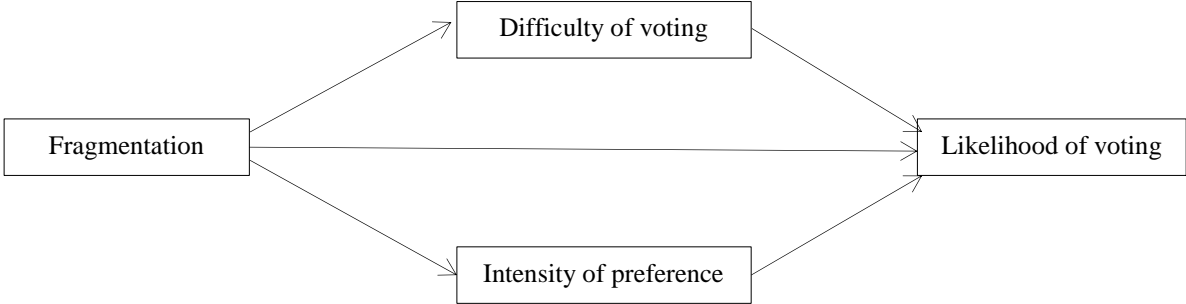
**Figure 2.2.** – Conceptual diagram for the socio-psychological model.



As discussed in section 2.1., one of the objectives of this dissertation is to assess the extent to which each of these mechanisms mediates the relation between party-system fragmentation and one’s likelihood of voting. As such, its conceptual model will combine the rational choice and socio psychological models, so as to include both difficulty of voting and intensity of preference as mediators. A conceptual diagram for the combined model can be found in figure 2.3.

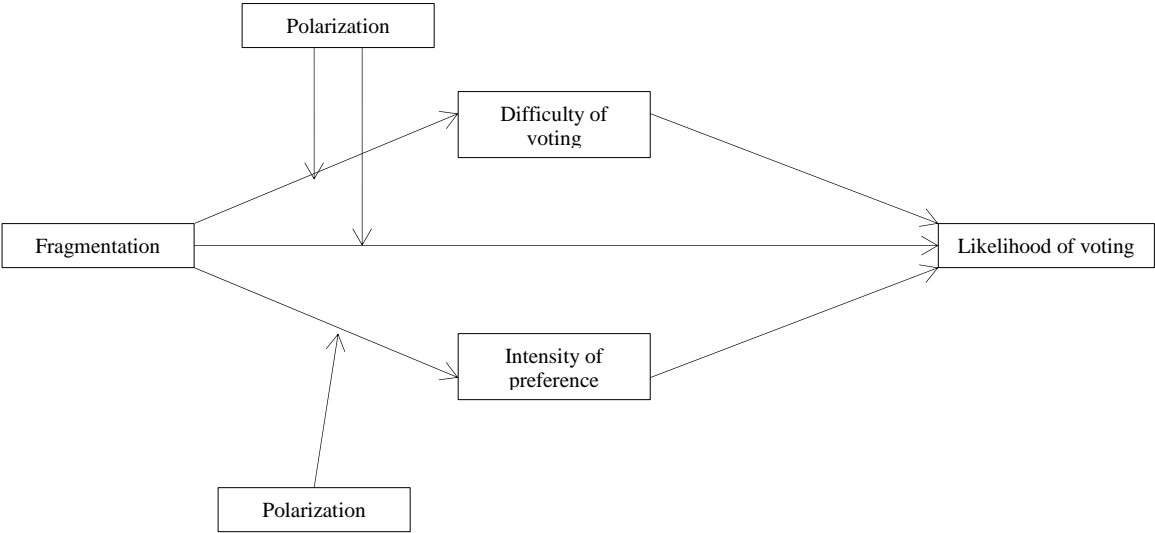


**Figure 2.3.** – Conceptual diagram for the combined model, including the mediators from both the rational choice and socio-psychological models.



However, the originality of this dissertation lies on the fact that it takes into account the moderating role that party-system polarization can be expected to play in these relations. As such, the complete model to be tested consists of a moderated mediation with two mediators – difficulty of voting and intensity of preference – and one moderator – polarization. The conceptual diagram for the complete model can be found in figure 2.4.

**Figure 2.4.** – Conceptual diagram for the complete model, including the mediators from both the rational choice and socio-psychological models and polarization as a moderator.



**2.5. Presentation of the statistical procedures**

From a statistical point of view, a moderated mediation model is a conditional process model, which means that it consists of mediation and moderation analyses pieced together (Hayes, 2013: 325).<sup>9</sup>

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<sup>9</sup> For a discussion of differences and similarities between moderated mediation and mediated moderation, as well as the argument for why the former is conceptually more useful than the latter, see Hayes (2013: 281–289).

Mediation analysis has become a common way for behavioural social research to understand the specific way in which an independent variable X exerts its effect upon a dependent variable Y. It assumes that, rather than having only a direct effect on Y, X influences Y through an indirect effect, that is to say, it affects a mediator variable which in turn influences the outcome variable Y (Baron and Kenny, 1986: 1176). Statistically speaking, this indirect effect is the product of the effect of the independent variable on the mediator multiplied by the effect of the mediator on the dependent variable (Marôco, 2014: 760–761). Difficulty of voting and intensity of preference thus enter the model as mediators because, as mentioned in the previous section, they consist of mechanisms by which the literature predicts fragmentation to exert its effect over one's likelihood of voting.

It should be noted that the statistical method by which to properly assess the significance of a mediation analysis is a matter of debate in the literature. The classical Baron and Kenny (1986) model suggests that it should be done through three steps. In the first place, the researcher should regress the dependent variable on the independent variable and check whether or not the latter significantly predicts the former. Then, she should regress the mediator variable on the independent variable, to check if the independent variable also significantly predicts the value of the mediator. Finally, the dependent variable should be simultaneously regressed on both the mediator and the independent variable. For mediation to occur, the mediator should significantly predict the dependent variable, and the effect of the independent variable as checked in the first step should become insignificant – in the case of full mediation – or see its strength reduced – in the case of partial mediation (Gunzler *et al*, 2013). Should all the relations tested for in these three steps prove significant, one should then perform the z-test put forward by Sobel (1982), in order to check if the relation between the independent and dependent variable has been significantly reduced by the inclusion of the mediator.

However, the Sobel test has the shortcoming of assuming that the sampling distribution of the indirect effect is normal, when it is frequently not so (e.g., MacKinnon *et al*, 2002). Thus, some authors (Preacher and Hayes, 2004; 2008; Preacher, Rucker and Hayes, 2007) have argued that one should instead rely on bootstrapping methods, which resample observations in the investigator's sample, with replacement. After repeating this process a large number of times, the mean indirect effect is calculated for the new sample size constructed through this resampling process (Hayes, 2013: 106). Upper and lower limit confidence intervals are then calculated and, should zero not fall in between these, one can conclude that the indirect effect is significant. Hayes (2013) has developed the Process plugin for SPSS and SAS, which makes these calculations. The empirical part of this dissertation relies on version 16.3 of such plugin.

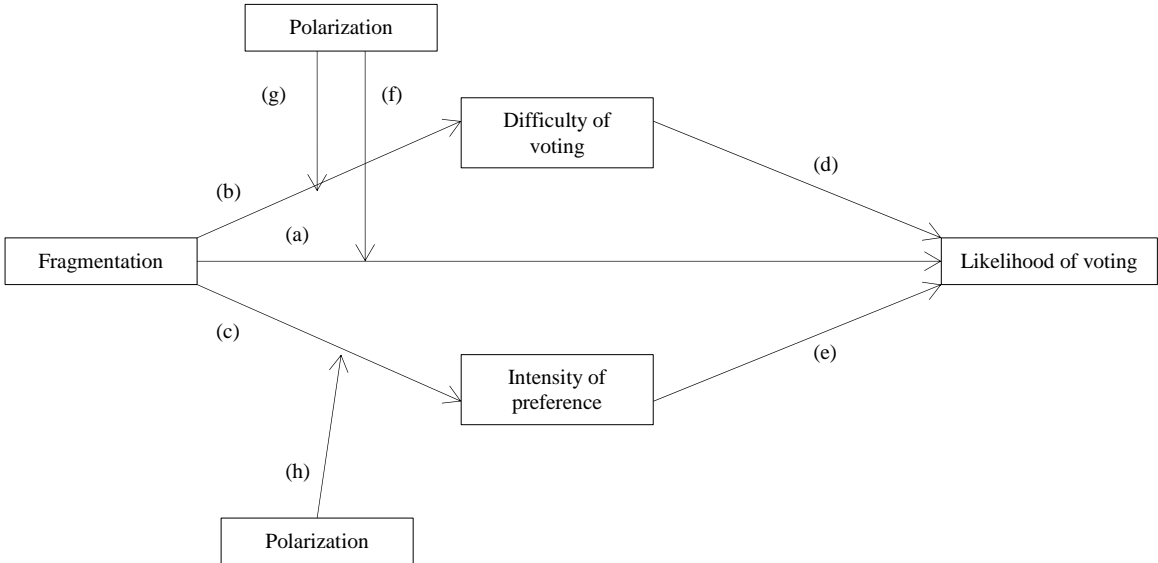
Apart from the two mediators, the model also includes a moderator. Moderation occurs when the effect of an independent variable X on a dependent variable Y has a strength and/or a direction that depends on, or can be predicted by, a moderator variable (Baron and Kenny, 1986: 1174; Hayes, 2013: 208). Statistically speaking, moderation effects are calculated by integrating an interaction term in the statistical model, which consists of the product of the multiplication of the independent variable and

the moderator. Should this coefficient be significant, one can conclude that the relation between the independent variable and the dependent variable is indeed moderated by the variable included in the model as a moderator (Aiken and West, 1991; Marôco, 2014: 756).

Because the model already includes two mediators – difficulty of voting and intensity of preference – the inclusion of a moderator turns it into a moderated mediation model: one in which the indirect effect of the independent variable on the dependent variable is no longer the product of two numbers, but rather depends on the value of the moderator (Hayes, 2013: 334; Muller, Judd, and Yzerbyt, 2005: 854). In other words, the effect of fragmentation over the likelihood of voting via difficulty of voting (the first mediator) and the effect of fragmentation over likelihood of voting via intensity of preference (the second mediator) should be different depending on the value of polarization (the moderator). In this moderated mediation, specifically, the direct effect of the independent variable (fragmentation) over the dependent variable (likelihood of voting) is also moderated, making it conditional on the value of polarization as well. These expectations are more thoroughly exposed in section 2.6., devoted to the presentation of the hypotheses.

The analysis will thus provide information on a number of relations, illustrated by the arrows in figure 2.5.: the direct effect of the independent variable (fragmentation) on the dependent variable (likelihood of voting) (arrow a); the effect of the independent variable on each mediator (difficulty of voting and intensity of preference) (arrows b and c); the effect of each mediator on the dependent variable (arrows d and e); the interaction between the independent variable and the moderator (polarization) as predictors of the dependent variable (arrow f); the interaction between the independent variable and the moderator as predictors of each mediator (arrows g and h); and the indirect effect of the independent variable on the dependent variable via each of the mediators (to be shown in separate tables: tables 3.4. and 3.5. on section 3.2.).

**Figure 2.5.** – Conceptual diagram for the complete model, indicating the different relations on which the analysis will provide information.



## 2.6. Hypotheses

To carry out the objectives put forward in section 2.1., the study puts forward a number of hypotheses. The first hypothesis relates to the major contribution of this study, which is to provide an insight into how polarization moderates the relation between fragmentation and one's likelihood of voting. As discussed in the previous sections, I expect that *party-system polarization should moderate the relation between party-system fragmentation and one's likelihood of voting, such that this relation should be negative when polarization is low and positive when polarization is high* (H1).

The study also intends to test the mechanism by which fragmentation influences one's likelihood of voting, in differently polarized systems. As mentioned in section 2.4., two mechanisms are to be tested, which will be included in the model as mediators: the effect of the difficulty of voting and that of the intensity of preference for one of the parties in the system.

Let us start with the difficulty of voting. Following the rational choice literature – from which this mediator is retrieved – I assume that a higher number of parties should increase the cognitive costs of voting, which should decrease one's likelihood of voting, when polarization is low. That is because, under lowly polarized contexts, it should be harder for voters to identify clear differences between the parties running for an election, which makes it more costly to make a voting decision. As such, I expect that *difficulty of voting should mediate the relation between fragmentation and likelihood of voting when polarization is low, such that the indirect effect of fragmentation over likelihood of voting via difficulty of voting should be negative* (H2.1).

However, as discussed in the theoretical sections, an increasing number of parties should increase the cognitive costs of voting only as long as polarization is low, with those parties not providing voters with clearly differentiated alternatives. When polarization is high, it should be easier for voters to clearly identify the positions of the parties running for the election. A higher number of parties should not increase the cognitive costs of voting under these contexts. As such, the effect of this mediator under highly polarized contexts should be non-significant. I thus expect that *the indirect effect of fragmentation over likelihood of voting via difficulty of voting should be significant only when polarization is high* (H2.2).

Finally, let us turn to intensity of preference. As mentioned above, the socio psychological literature – from which this mediator is retrieved – has conflicting expectations regarding how fragmentation should affect one's likelihood of voting. Some authors hold that this relation should be positive, while others hold that it should be negative. But both sides of the debate assume that the intensity of preference for one of the parties in the system does mediate this relation. Both sides of the debate also assume that, the more intensely one prefers one party to others, the more likely she will be to vote. The disagreement thus lies solely on the effect of fragmentation over intensity of preference. Some authors argue that an increasing number of parties should make it more likely for one to feel an intense preference for any of them, whereas others argue the exact opposite.

I have argued that these two views may actually be compatible if one takes into consideration the moderating role that polarization can be expected to play over this relation. In lowly polarized contexts, an increasing number of parties should make it harder for a voter to feel an intense preference for any one party. Instead, in highly polarized contexts, an increasing number of parties should make it easier for a voter to feel an intense preference for any one party. As such, I expect that *intensity of preference should mediate the relation between fragmentation and likelihood of voting, such that the indirect effect of fragmentation over likelihood of voting via intensity of preference should be negative when polarization is low (H3.1); and that intensity of preference should mediate the relation between fragmentation and likelihood of voting, such that the indirect effect of fragmentation over likelihood of voting via intensity of preference should be positive when polarization is high (H3.2).*

## **2.7. Conceptual and operational definitions<sup>10</sup>**

As discussed in section 2.4., this study has five variables of interest: likelihood of voting, the dependent variable; party-system fragmentation, the independent variable; party-system polarization, the moderator; and, finally, difficulty of voting and the intensity of preference for a party, the two mediators.

Likelihood of voting is an experimental equivalent with which to test voter turnout. Because all the studies reviewed in section 1.2.2. rely on observational data, they all rely on actual voter turnout. Explicit conceptual definitions of this variable, however, are not usually provided. Yet most scholars would probably agree with defining voter turnout as “the amount of individuals that, having the capacity to actively exert their electoral duties, do so in the choosing of their political representatives, in a given election” (Freire and Magalhães, 2002: 21; translation by myself). The operationalization of the concept is more problematic. Some authors calculate rates of voter turnout as the percentage of the *voting age population* that did cast a vote in a given election (Endersby and Krieckhaus, 2008; Fornos, Power and Garand, 2004; Gray and Caul, 2000; Jackman, 1987; Jackman and Milner, 1995; Powell 1980; 1982; 1986). Others rather rely on the percentage of *registered voters* that did participate in a given election (Black, 1991; Blais, 2000; Blais and Aarts, 2006; Blais and Carty, 1990; Blais and Dobrzynska, 1998; Franklin, 1996; 2004; Kuenzi and Lambright, 2007).<sup>11</sup> A third possibility is to measure voter turnout according to the self-reported vote of individuals, by relying on the data of surveys such as the CSES (e.g., Brockington, 2009).

However, none of these operationalizations is possible in an experimental study like the one employed in this dissertation, which presents respondents with a fictitious election. As such, voter

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<sup>10</sup> The definition of concepts follows Pollock (2012: 6–27).

<sup>11</sup> It should be noted, however, that there is a high positive correlation between both these measures of voter turnout (Dettrey and Schwindt-Bayer, 2009: 1326).

turnout as such cannot be measured. One can only ask respondents about their likelihood of voting in the election they are presented with. One experimental study that relies on such operationalization is the one by Gallego (2014). This author's experiment asks respondents how likely they would be to vote in a fictitious election they were presented with, in a scale from 0 to 10. This measure is better than a yes or no question, because it allows for a fine-grained analysis of an individual's intention to vote or not to vote. Furthermore, as mentioned above, one can expect that there is strong social desirability bias for individuals to report that they would vote in a fictitious election. Therefore, should I make this a yes or no question, respondents would likely massively report that they would vote in the fictitious election.<sup>12</sup> The option for a 0-10 thus makes it easier to identify differences from one group to another. The response to this item allowed for the construction of the variable "likelihood of voting", the dependent variable of the study.

Let us now turn to party-system fragmentation. As with voter turnout, this concept is seldom defined. One of the few definitions available is that of Geys (2004), according to whom fragmentation refers to "the number of parties (or politicians) that are involved in the decision-making process and the size inequalities between these participants".

Even though providing no explicit definition, a number of authors has followed this bidimensional understanding of the concept, implicitly agreeing that one needs to look at both the number of parties and the size inequalities between them in order to measure party system fragmentation (Capron and Kruseman, 1988; Dittrich and Johansen, 1983; Fornos, Power and Garand, 2004; Jackman, 1987; Jackman and Milner, 1995; Jou, 2010; Kuenzi and Lambright, 2007; Pérez-Liñan, 2001; Radcliff and Davis, 2000).

Yet some authors have taken issue with this conceptual and operational definition of party-system fragmentation, especially when studying its effect on voter turnout. It has been argued that size inequalities should not be taken into account. For example, Kostadinova (2003: 748) contends that measures such as the effective number of parties account for changes in the relative size of the parties that are too small for voters to appreciate, having no real impact on electoral behaviour. According to this view, party-system fragmentation should rather be a unidimensional concept, referring simply to the actual number of parties running for a given election.

Following this reasoning, a number of authors have studied the effect of party-system fragmentation on voter turnout by relying on measures that do not take into account the size inequalities between parties (Ackaert *et al*, 1992; Crepaz, 1990; Dettrey and Schwindt-Bayer, 2009; Hansen, 1994; Henderson and McEwen, 2010; Kaempfer and Lowenberg, 1993; Kostadinova, 2003;

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<sup>12</sup> In fact, as shall be discussed in section 3.2, the mean likelihood of voting is 7, in a scale of 0 to 10. Because this value is quite above the half-point of the scale (5), this suggests that, indeed, most respondents would likely report that they would vote in the election, should this be a yes or no question.

Siaroff and Merer, 2002). These authors rely on a numeric count of the number of parties or candidates running for each election whose vote share is over a specific threshold.<sup>13</sup>

In an experimental study relying on a fictitious election such as this one, party-system fragmentation must be operationalized according to the number of parties that compete in the fictitious election each group is presented with. It would be possible to include information regarding the relative weight of those parties – for example, by indicating the share of the vote that fictitious polls were awarding to each of them. Yet, the experiment is already quite cognitively demanding without including further information. Making it even more difficult would make the experiment run the risk of attrition. For this reason, and because there are arguments in the literature for the both the inclusion and the exclusion of the relative weight of the parties in measures of fragmentation, I have opted by keeping it out of the experiment.

Let us now draw upon the concept of party-system polarization. Again, conceptual definitions should be rather unproblematic, and most authors would not take issue with defining the concept as “the degree of ideological differentiation among political parties in a system” (Dalton, 2008: 900).

However, as discussed in section 1.2.4., different operational definitions of polarization have come to be used. Some authors rely on measures of the ideological distance between the two most extreme parties of a given system, on a left-right scale (Crepaz, 1990; Wessels and Schmitt, 2008), whereas others have relied on the ideological distance between the two biggest parties of a system (e.g., Anduiza, 1999; Freire, 2006). Finally, some authors have relied on Dalton's (2008) polarization index, which captures the extent to which the parties of a given system are equally spread throughout the whole left-right scale (Brockington, 2009; Dalton, 2008; Steiner and Martin, 2012).

This dissertation employs an experimental survey and, as such, the level of party-system polarization is itself manipulated across groups. Yet this manipulation follows the view according to which the relative position of all parties should be taken into consideration when measuring polarization. The policy positions of the several fictitious parties presented to respondents were manipulated in a way that would make their party system score higher or lower in a measure such as the one put forward by Dalton (2008).

Let us now focus on the first mediator included in the analysis: difficulty of voting. This variable intends to tap the cognitive costs of the act of voting. While it is common for the literature to make arguments concerning citizens' electoral behaviour that are based on changes to these costs, this variable does not usually enter the empirical analyses because it is very hard to measure with resource to observational data. By relying on an experiment, this study is able to measure it. The difficulty of voting was operationalized as each respondents' answer to a question of how difficult it would be for

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<sup>13</sup> There is, however, little consensus on what that threshold should be. There are studies using the 2 (Dittrich and Johansen, 1983), 4 (Kostadinova, 2003), 5 (Dettrey and Schwindt-Bayer, 2009; Gray and Caul, 2000), or 10 per cent thresholds (Siaroff and Merer, 2002).

her to choose the party she would vote for in the fictitious election she was presented with, on a scale from 0 to 10.

Finally, let us discuss the other mediator: intensity of preference. This mediator intends to tap the argument put forward by the socio psychological literature, according to which different levels of party-system fragmentation affect one's likelihood of voting through an impact on one's ability to relate to one of the parties of the system with a strong degree of intensity. This makes it more likely for voters to prefer that party to others to such an extent that they will go out to vote for that party, instead of abstaining. It also makes it more likely for voters to develop party identification, a strong predictor of turnout.

This variable was operationalized according to the respondents' answer to the question of how intense their preference was for the party they would vote for, in the fictitious election. Even though, as discussed in section 2.4., this variable does not intend to tap party identification, I still aimed at making its operationalization as close as possible to that of party identification, so as to make it easier to compare my findings to those of extant literature (Druckman and Kam, 2009: 23) As such, the question asks respondents whether their preference was a "not at all intense", "not intense", "quite intense", or "very intense",<sup>14</sup> a four-point scale that resembles the one used to measure the degree of party identification in the ESS.

## **2.8. Description of the experiment**

The empirical sections of this dissertation rely on a survey experiment in which respondents were presented with a fictitious election. The parties running for that election were presented according to their stance on a number of policy issues. As discussed above, each respondent was then asked what were the chances that she would cast a vote on that election, on a scale from 0 to 10.

The experiment follows a 2x2 design, with the level of party-system fragmentation and polarization being manipulated across groups. Two groups were presented with lowly polarized elections, in which the policy positions of parties were not very differentiated. These two groups differed in how fragmented the election they were presented with was. Group 1 was presented with a lowly polarized, two-party election. Group 2 was presented with a lowly polarized, four-party election. Even though the positions of these parties overlap and the level of polarization of the party system they represent is low, these positions were designed so as to mimic those of actual party families, thus making the experiment as realistic as possible.<sup>15</sup>

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<sup>14</sup> In the survey, the questions were asked in Portuguese. The untranslated version of the four categories can be found in Appendix A.1. Both the Portuguese and the English version presented in the text follow the wording of the ESS in each of those languages.

<sup>15</sup> The positions of the parties can be found in Appendices A.2. through A.5. In Group 1, Party A represents the views of a centre-left party with a relatively liberal stance on economic issues. Party B represents the views of a centre-right party that is liberal on both economic and cultural issues. In Group 2, Party A represents the views



The two other groups were presented with highly polarized elections. Group 3 was presented with a highly polarized, two-party election, containing one clear left-wing party and one clear right-wing party. Group 4 was presented with a highly polarized, four-party election, containing one radical right-wing party, one centre-right party, one centre-left party and one radical left party.<sup>16</sup> Table 2.1 summarizes the level of party-system fragmentation and polarization of the fictitious election with which each experimental group was presented.

**Table 2.1.** – Level of party-system fragmentation and polarization of the fictitious election presented to each experimental group.

	<b>Two-party election</b>	<b>Four-party election</b>
<b>Low polarization</b>	<b>Group 1:</b> two-party election, low polarization	<b>Group 2:</b> four-party election, low polarization
<b>High polarization</b>	<b>Group 3:</b> two-party election, high polarization	<b>Group 4:</b> four-party election, high polarization

The experiment was run in Portugal. For this reason, the sets of issue positions chosen to identify the parties are made up of four policy issues relevant in the Portuguese pattern of political competition. These were loosely based on the Voting Advice Application developed by the Institute for Social Studies (ICS) of the University of Lisbon (Costa Lobo, Vink and Lisi, 2010). The questions included by these authors were reduced to only four, in order to keep the survey from being too complex. Also, the questions in the Voting Device Application were worded in a manner that expressed values, as it was aimed at voters. These were changed to a wording that expressed policy proposals, because the survey refers to parties instead.

Respondents were presented with a figure indicating the stance of each fictitious party regarding these issues. Parties were marked as strongly agreeing, slightly agreeing, slightly disagreeing or strongly disagreeing with each one. In order to make these figures easier to read, the several policy

of a left-wing party with a conservative stance on cultural issues – a party of the “Old Left”. Party B represents the views of a centre-left party with a relatively liberal stance on economic issues. Party C represents the views of a conservative right-wing party. Finally, Party D represents the views of right-wing party with an economic stance on both economic and cultural issues.

<sup>16</sup> The decision to include a two-party and a four-party election rested on two main criteria. In the first place, the experiment is rather cognitively demanding. To include an election with more than four parties would make it even more so, and risk disengaging the respondents. In the second place, there are also theoretical reasons to believe that the one should find important differences between two- and four-party elections. The mean number of parties gaining a vote above 10 per cent, a commonly used threshold, in the elections included in the third round of the CSES was 3,08. As such, by including a two- and a four-party election in the experiment, one includes a level of fragmentation that is around one point below this mean, and another that is around one point above it.

positions were worded in a manner that always expressed right-wing positions, and the cells were coloured in a way that helped respondents identify the position of the parties. Dark green meant that a party was strongly in favour of a measure; light green meant that the party was slightly in favour of it; orange meant that it was slightly against; and red meant that it was strongly against. This allowed respondents to easily understand how coherent the position of a party is, and to what extent it overlaps with that of other parties. For example, a party whose rows are all coloured light green is a coherently centre-right party.

Respondents were also presented with information regarding the level of voter turnout in the previous election. As mentioned above, this level was rather low – 57%, the level of turnout in the last Portuguese legislative election –, in order to remove some of the social desirability bias for reporting a high likelihood of voting.

As also discussed above, the survey further included questions designed to tap the mechanism lying behind the reasons that lead individuals to report a different likelihood of voting under party systems with diverging levels of fragmentation and polarization. Two questions were introduced in the survey, to test the two mechanisms that can be tested experimentally.<sup>17</sup> To measure the cognitive cost of voting, the survey included a question that asked respondents to report how difficult it would be for them to decide which party they would vote for in the fictitious election they were presented with, in a scale from 0 to 10. This allowed for the construction of the variable “difficulty of voting”, one of the mediators in the model.

To test the level of intensity with which each individual preferred one of the parties in the fictitious election to the remaining ones, the survey asked respondents which party they would vote for, and what their level of preference for that party was. This allowed for the construction of the variable “intensity of preference”, the other mediator in the model.

Appendices A.2 through A.5 display the final version of the experimental survey with which respondents of the four groups were presented, including the specific wording of each question, in untranslated Portuguese.

Respondents were 194 students of ISCTE-University Institute of Lisbon. Of these, 59 (30,41%) were from History, 7 (3,61%) were from Modern and Contemporary History, 20 (10,31%) were from Anthropology, 47 (24,22%) were from Economics and 31 (15,98%) were from Political Science majors. In order to assure random assignment of individuals to the four groups, each class did not constitute a whole group. Instead, the four different questionnaires were randomly assigned to the individuals of each class. The process of data collection took place between March and May 2017.

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<sup>17</sup> A discussion of the reasons why these mechanisms are the only ones one can test experimentally can be found in section 2.4.

## CHAPTER III — FINDINGS

### 3.1. Characterization of the sample

The average age in the sample is 20,9 years old (SD = 4,97). The sample includes 114 (58,76%) female respondents and 75 (38,65%) male respondents. The figures regarding the gender of the respondents are similar to those of the general population of Portuguese students in the fields of Social Sciences and Humanities. According to PORDATA (2017), in 2016, 58,9% of the Portuguese students enrolled in Social Sciences, Commerce and Law majors and 58,6% in the fields of Arts and Humanities were females.

As mentioned in section 2.3., the mean level of interest for politics in the sample is 2,95 (SD = 0,81). This value is little above the mean interest for politics value for the whole Portuguese population in 2014, which, according to data from the ESS Round 7, was 2,81 (SD = 0,99). The data for placement on the left-right scale in my sample also resembles that of the Portuguese population. In my sample, it has a mean value of 4,67 (SD = 1,91), whereas the mean value for the Portuguese population in 2015, according to the CSES Round 4 was 4,94 (SD = 2,82).

Concerning efficacy and trust in institutions, however, there are larger differences between my sample and the mean values for the Portuguese population. Regarding external efficacy, my sample displays a mean value of 4,93 (SD = 1,83). This value is substantially higher than the mean value for the Portuguese population in ESS Round 7, which was 2,06 (SD = 2,12). Regarding internal efficacy, my sample displays a mean value of 5,24 (SD = 2,41), while the mean for Portuguese population in 2014, according to the ESS Round 7, was 3,05 (SD = 2,96).

The same pattern can be found for trust in political institutions – the parliament, politicians, political parties and the European Parliament. The mean values for each of these variables in my sample were 5,73 (SD = 1,856), 4,01 (SD = 1,79), 4,48 (SD = 1,91) and 5,96 (SD = 2,00), respectively. In the ESS Round 7, the mean values for the Portuguese population were rather lower: 3,18 (SD = 2,62), 2,04 (SD = 2,27), 2,24 (SD = 2,23) and 3,45 (SD = 2,63).

The higher values of efficacy and trust in the institutions found in my sample can both be justified by the fact that these attitudes are commonly found to be predicted by the level of education (Denters, Gabriel and Torcal, 2007; Newton, 2006; Pasek *et al*, 2008). Because my sample consists of higher education students, it is not surprising that their mean values are higher than those of the general population.

However, as argued in section 2.3., should these differences affect the findings in any way, they can only be expected to make it even harder to find differences between the four experimental groups, as both internal and external efficacy and trust in the institutions are commonly found to predict political participation (Almond and Verba, 1963; Campbell *et al*, 1960; Magalhães, 2005; Martín and Van Deth, 2007; Torcal and Lago, 2006; Verba and Nie, 1972), and, as such, can also be expected to lead individuals to report a higher likelihood of voting.

There are no significant differences across groups in any of these key covariates, which makes for a good comparability of the results across them. The results of an ANOVA testing for such differences can be found in Appendix B.

### 3.2. Testing the hypotheses

Before coming to the actual test of the hypotheses, I check for differences across the four experimental groups in the mean likelihood of voting, difficulty of voting and intensity of preference, by running three one-way ANOVAs.

Let us begin with likelihood of voting, the dependent variable of the study. The results of the ANOVA suggest that there are statistically significant differences across groups [ $F_{(3, 190)} = 16,987, p = 0,000$ ].<sup>18</sup> Table 3.1 shows the results of the Scheffe post-hoc test, as well as the descriptive statistics for the four groups.

**Table 3.1.** – Descriptive statistics for likelihood of voting in the four experimental groups, and results of the Scheffe post-hoc test (indicated by the letters that follow each mean).

	N	Mean likelihood of voting (0-10)	Standard deviation	Standard error	LBCI	UBCI
Group 1 (two parties, low polarization)	49	7,1 a	2,79	0,39	6,3	7,9
Group 2 (four parties, low polarization)	50	5,12 b	2,58	0,36	4,39	5,85
Group 3 (two parties, high polarization)	48	7,23 a	2,54	0,37	6,49	7,97
Group 4 (four parties, high polarization)	47	8,66 c	1,82	0,27	8,12	9,19
Total	194	7	2,75	0,19	6,61	7,39

Note: LLCI and ULCI correspond to lower- and upper-bound 95% confidence intervals for the mean.

Groups with equal letter do not have statistically different means; groups with different letters do have statistically different means ( $p < 0,05$ ).

These results seem to support the main theoretical argument of this dissertation. Individuals report a significantly lower likelihood of voting in the group presented with a four-party, lowly polarized election (Group 2) than in the group presented with a two-party, lowly polarized election (Group 1). This suggests that, in lowly polarized contexts, fragmentation decreases one's likelihood of

<sup>18</sup> The assumptions for this ANOVA were tested for and can be found in Appendix C.1.

voting. In turn, respondents report a significantly higher likelihood of voting in the group presented with a four-party, highly polarized election (Group 4) than in the group presented with a two-party, highly polarized election (Group 3). This suggests that, in highly polarized contexts, fragmentation increases one's likelihood to vote. Thus, the diverging effect of party-system fragmentation under contexts where the level of polarization is different seems to be supported by this analysis.

Let us now move on to the results concerning the difficulty of voting, the first mediator in the analysis. The results of the ANOVA suggest that there are statistically significant differences across groups [ $F_{(3, 189)} = 7,297, p = 0,000$ ].<sup>19</sup> Table 3.2 shows the results of the Scheffe post-hoc test, as well as the descriptive statistics for the four groups.

**Table 3.2.** – Descriptive statistics for difficulty of voting in the four experimental groups, and results of the Scheffe post-hoc test (indicated by the letters that follow each mean).

	N	Mean difficulty of voting (0-10)	Standard deviation	Standard error	LBCI	UBCI
Group 1 (two parties, low polarization)	49	4,92 a	2,62	0,37	4,17	5,67
Group 2 (four parties, low polarization)	49	7,14 b	2,06	0,29	6,55	7,74
Group 3 (two parties, high polarization)	48	4,94 a	3,15	0,46	4,02	5,85
Group 4 (four parties, high polarization)	47	5,57 a	2,88	0,42	4,73	6,42
Total	193	5,65	2,83	0,20	6,61	6,05

Note: LLCI and ULCI correspond to lower- and upper-bound 95% confidence intervals for the mean.

Groups with equal letter do not have statistically different means; groups with different letters do have statistically different means ( $p < 0,05$ ).

These results show that the only significant differences in the difficulty of voting are found between the group presented with a four-party, lowly polarized election (Group 2) and all others, with the former displaying a higher mean than the latter. The difference found between this group and the group presented with a two-party, lowly polarized election (Group 1) suggest that, in lowly polarized environments, an increasing number of parties makes it more difficult to decide which party to vote for. Yet, the same does not seem to hold under highly polarized environments: there are no significant differences between the group presented with a highly polarized, two-party election (Group 3) and the

<sup>19</sup> The assumptions for this ANOVA were tested for and can be found in Appendix C.2.

one presented with a highly polarized, four-party election (Group 4). As long as polarization is high, an increasing number of parties does not seem to increase the cognitive costs of voting.

Finally, let us draw upon the results concerning intensity of preference, the second mediator included in the analyses. Unlike what had happened with likelihood of voting and difficulty of voting, the ANOVA shows that there are no statistically differences across groups [ $F_{(3, 190)} = 0,545, p = 0,652$ ].<sup>20</sup> Table 3.3 shows the descriptive statistics for the four groups.

**Table 3.3.** – Descriptive statistics for intensity of preference in the four experimental groups.

	N	Mean intensity of preference (1-4)	Standard deviation	Standard error	LBCI	UBCI
Group 1 (two parties, low polarization)	49	2,43	0,65	0,09	2,24	2,61
Group 2 (four parties, low polarization)	50	2,34	0,59	0,08	2,17	2,51
Group 3 (two parties, high polarization)	48	2,71	0,77	0,11	2,48	2,93
Group 4 (four parties, high polarization)	47	2,38	0,61	0,09	2,2	2,56
Total	194	2,46	0,67	0,05	2,37	2,56

Note: LLCI and ULCI correspond to lower- and upper-bound 95% confidence intervals for the mean.

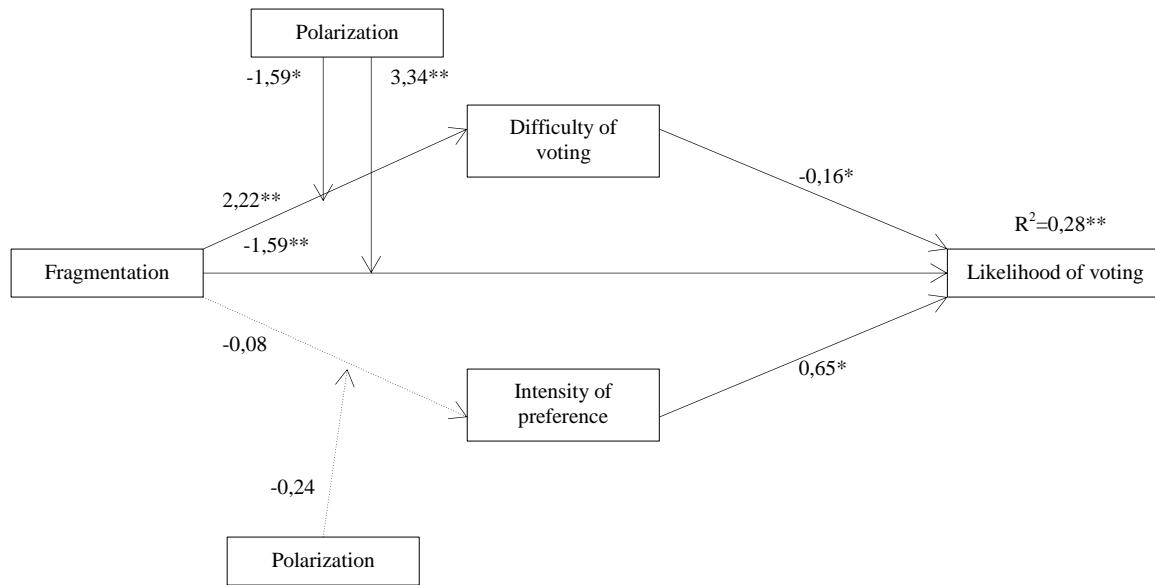
These results seem to suggest that the changes to the level of party-system fragmentation and polarization do not significantly alter the extent to which one has an intense preference for one of the parties in the system. This may be due to the fact that the survey relies on a fictitious election, which may make it hard for respondents to feel a strong preference any of the parties running for it, as they are not real parties.

Yet, in order to check the hypotheses of the study, a more fine-grained analysis using regression analysis is warranted. I thus estimated the complete moderated mediation model presented in sections 2.4. and 2.5. To do so, I code fragmentation and polarization as two dummy variables. Fragmentation was awarded a score of 0 in the two groups presented with a two-party election (Groups 1 and 3) and a score of 1 in the two groups presented with a four-party election (Groups 2 and 4). Polarization was awarded a score of 0 in the two groups presented with a lowly-polarized election (Groups 1 and 2) and a score of 1 in the two groups presented with a highly-polarized election (Groups 3 and 4).

<sup>20</sup> The assumptions for this ANOVA were tested for and can be found in Appendix C.3.

Then, I estimate a moderated mediation model, with fragmentation as an independent variable; polarization as a moderator; and difficulty of voting and intensity of preference as mediators.<sup>21</sup> Figure 3.1. and tables 3.4. and 3.5. summarize the findings of this model.

**Figure 3.1.** – Results for the complete model (moderated mediation).



N=193  
 Note: \*  $p < 0,05$ ; \*\*  $p < 0,01$ .  
 Dashed arrows signal non-significant relations.

**Table 3.4.** – Bootstrapped indirect effects of fragmentation on likelihood of voting via difficulty of voting at specific levels of the moderator (polarization).

		$\beta$	SE	LLCI	ULCI
Polarization	0	-0,36	0,19	-0,83	-0,03
	1	-0,10	0,13	-0,48	0,05

Note: LLCI – Lower limit confidence interval; BBCI – Upper limit confidence interval. Results for 5000 bootstrapping samples.

**Table 3.5.** – Bootstrapped indirect effects of fragmentation on likelihood of voting via intensity of preference at specific levels of the moderator (polarization).

		$\beta$	SE	LLCI	ULCI
Polarization	0	-0,05	0,09	-0,32	0,08
	1	-0,21	0,15	-0,64	-0,02

Note: LLCI – Lower limit confidence interval; BBCI – Upper limit confidence interval. Results for 5000 bootstrapping samples.

<sup>21</sup> The assumptions for this moderated mediation model were tested for, and can be found on Appendix C.4.

These results seem to support H1. Polarization does moderate the relation between fragmentation likelihood of voting, in a way that changes the direction of that relation. When fragmentation is low (i.e., when it has a value of 0), the magnitude of its effect over likelihood of voting equals that of its direct effect. This is a negative, significant effect, with a magnitude of -1,59. However, the interaction between fragmentation and polarization is positive and significant, with a magnitude of 3,34. As such, when polarization is high (i.e., when it has a value of 1), the effect of fragmentation over likelihood of voting is actually positive (1,75).

Regarding the effect of the mediators, fragmentation has a positive, significant effect (2,22) over difficulty of voting. In turn, difficulty of voting has a negative, significant effect over likelihood of voting (-0,16). Because, as mentioned above, the direct effect of fragmentation over likelihood of voting is also significant, this seems to suggest that difficulty of voting partly mediates this relation.

However, the testing of hypotheses H2.1 and H2.2 demands an analysis of the indirect effects at specific levels of the moderator, as provided in table 3.4. Its analysis shows that zero does not fall in between the two confidence intervals when the moderator has a value of 0. This suggests that the effect of fragmentation over likelihood of voting is, indeed, partly mediated by difficulty of voting, but only when polarization is low. The fact that the indirect effect of fragmentation over likelihood of voting via difficulty of voting at this level of the moderator is negative supports H2.1.

In turn, zero does fall between the two confidence intervals when the moderator has a value of 1. This suggests that the indirect effect of fragmentation over likelihood of voting via difficulty of voting when polarization has a value is high is non-significant, a finding that supports H2.2.

Finally, let us look at intensity of preference. At first sight, the results do not seem to support H3.1. Intensity of preference does have a positive, significant effect over likelihood of voting. However, the effect of fragmentation over intensity of preference is non-significant. According to Baron and Kenny's (1986) method, this would suggest that intensity of preference does not mediate the relation between fragmentation and likelihood of voting.

Yet, again, the analysis of the indirect effects at specific levels of the moderator, provided in Table 3.5., allows for a more fine-grained analysis of the effect of this mediator, necessary for the testing of H3.1 and H3.2 – which refer to the expected different indirect effects of fragmentation over likelihood of voting via intensity of preference in contexts where the level of polarization is different. The analysis of this table suggests that the indirect effect of fragmentation over likelihood of voting via intensity of preference is non-significant when polarization has a value of 0 (i.e., when it is low), as zero falls between the two confidence intervals. This does not support H4.1., which predicted a negative effect at this value of the moderator.

Yet the effect of fragmentation over likelihood of voting via intensity of preference when polarization has a value of 1 (i.e., when it is high) is significant, as zero does not fall between the two confidence intervals. However, the coefficient of this relation is negative, instead of positive, as postulated in H4.2. This hypothesis is thus not supported either. Because the effect of intensity of



preference over likelihood of voting is positive and significant (0,65), this finding suggests that the indirect effect of fragmentation over likelihood of voting via intensity of preference in highly polarized contexts is negative due to the negative effect of fragmentation over intensity of preference, under such contexts. Thus, intensity of preference does partly mediate the relation between party-system fragmentation and likelihood of voting in highly polarized contexts, but in a direction that is contrary to the one hypothesized.

### **3.3. Discussion of the findings**

The findings presented in the previous section pay support to the main theoretical claim of this dissertation. Fragmentation has a positive effect over likelihood of voting in highly polarized contexts, but a negative one in lowly polarized contexts. This is an important finding, because it suggests that the lack of consensus in the literature concerning the way in which party-system fragmentation affects voter turnout is, indeed, due to a neglect of the moderating role that party-system polarization plays over that relation.

Regarding the mechanisms by which fragmentation affects likelihood of voting, the results suggest that, as hypothesized, its impact is partly mediated by difficulty of voting in lowly polarized contexts. These results suggest that, in contexts where parties do not provide voters with clearly differentiated alternatives, a higher number of parties increases the cognitive costs of voting, which reduce one's likelihood of voting.

Interestingly, difficulty of voting does not mediate the effect of fragmentation over likelihood of voting in highly polarized contexts. This suggests that, in contexts where parties provide voters with clearly differentiated alternatives, a higher number of parties does not influence the amount of cognitive effort that individuals need to endure in order to cast a vote.

In turn, the intensity of preference for a party partly mediates the relation between fragmentation and voter turnout only when polarization is high. However, the direction of this mediation is contrary to what is hypothesized by the theoretical argument of this dissertation. In highly polarized contexts, an increasing number of parties reduces the intensity of preference with which voters prefer one party of the system to others, which in turn bears a positive relation to one's likelihood of voting. Although the empirical results of this dissertation suggest that the effect of fragmentation over likelihood of voting is moderated by the level of polarization, the way in which intensity of preference mediates this relation pays support to the mechanism put forward by the socio psychological argument for a negative relation between fragmentation and turnout (Achen, 1992; Dittrich and Johansen, 1983).

Yet, it is puzzling that intensity of preference does not mediate the relation between fragmentation and likelihood of voting in lowly polarized contexts. If, as the results suggest, an increasing number of parties reduces the intensity of preference that individuals have for a specific party under highly polarized contexts, it would be logical that the same would happen in lowly

polarized contexts. In fact, one could even expect this effect to be stronger under such contexts. These puzzling results are probably driven by the fact that the election presented in the experiment is a fictitious one, including fictitious parties, which makes it difficult for respondents to report a strong preference for any one of them.

Also, the findings have been unable to shed light over the specific mechanism by which fragmentation bears a positive relation to likelihood of voting under highly polarized systems. Although this finding does support the theoretical argument put forward in this dissertation, the mediators included in the analysis cannot explain it. Difficulty of voting does not mediate the relation between fragmentation and likelihood of voting when polarization is high. In turn, intensity of preference does partly mediate that relation, but the indirect effect of fragmentation on likelihood of voting via intensity of preference is negative, instead of positive. This suggests that some other mechanism should be in place to explain why, when parties offer clearly differentiated alternatives to their voters, a higher number of parties increases an individual's likelihood of voting.

The literature reviewed in section 1.2.1. does put forward one mechanism that could mediate the relation between fragmentation and turnout, and which was not included in the experiment due to the difficulty of testing it in an experiment such as the one employed in this dissertation: the effect of the mobilization efforts of parties. Yet, the effect of such mobilization efforts is excluded from the survey experiment employed in this dissertation. Its effect is thus controlled for, and cannot account for this finding.

It may be that increasing fragmentation under highly polarized contexts increases one's likelihood of voting by increasing the chances that a party for which one has a high degree of aversion may win the election. Because in such contexts parties are spread throughout the whole ideological spectrum, it is more likely that the system contains a party against which a given voter will have strong feelings. For example, a radical-left individual may have a stronger incentive to vote in order to keep a radical-right party from winning, and vice-versa. Even centre-leaning voters may have an incentive to vote in order to keep radical parties in both ends of the spectrum from winning the election. Unfortunately, even though a question designed to tap this mechanism could have been included in the survey, I did not find any literature putting forward this argument and, as such, did not include it in the experiment.

Finally, it should be noted that both difficulty of voting and intensity of preference partly mediate the relation between fragmentation and likelihood of voting – albeit they do so when the value of the moderator (polarization) is different. Both the mechanisms used by socio psychological theories to explain the effect of fragmentation over turnout and those used by rational choice theories are thus empirically supported, even though they take place in contexts where the level of polarization is different. These results thus suggest that these two theories complement each other in understanding how fragmentation impacts on one's likelihood of voting.

## CONCLUDING REMARKS

This dissertation has set out to assess the way in which party-system fragmentation influences one's likelihood of voting, in contexts where the level of polarization is different. On a theoretical level, it has argued that the diverging arguments put forward in the literature regarding the way in which the number of parties should affect the decision to vote or to abstain are not necessarily contradictory. They do not take into account the moderating role that party-system polarization can be expected to play over that relation and, as such, they have contradictory expectations regarding the level of polarization that should accompany each level of fragmentation of the party system. By taking into account the moderating role of polarization, one can reconcile the two sides of the debate, while pushing forward our understanding of the way in which party systems affects voting behaviour. The main theoretical argument of the dissertation has thus been that fragmentation should have a positive effect over one's likelihood of voting in highly polarized party systems, and a negative effect in lowly polarized ones.

Empirically, this dissertation has tested these expectations with resource to a survey experiment. Its results support the main theoretical argument. Fragmentation does bear a positive relation over one's likelihood of voting when polarization is high, but a negative one when polarization is low. In lowly polarized systems, this effect is partly mediated by the difficulty of choosing which party to vote for. In highly polarized systems, this effect is partly mediated by the level of intensity with which a voter prefers a party. However, as discussed in the previous section, the direction of this latter mediation runs contrary to the theoretical expectations.

This dissertation has contributed to the literature on electoral behaviour in five main ways. First, it has put forward an argument for why there is a lack of consensus in the literature regarding the relation between party-system fragmentation and voter turnout. Moreover, it elaborated a theory of how party-system polarization should moderate this relation, which includes contributions by both sides of the debate. In the third place, it provided empirical evidence that supports the main hypothesis of the theory. It also provided empirical evidence for the mechanism lying behind this relation, something that is rarely done. Finally, it has contributed with a different type of evidence to a debate too focused on observational data that has had mixed results.

Despite these contributions, however, the study does have some limitations, which future research should address. In the first place, the experimental nature of the study makes it incapable of testing two of the mechanisms put forward in the literature for the way in which party-system fragmentation should affect one's likelihood of voting. The first is the effect of coalitions, by which rational choice theories predict fragmentation to reduce one's likelihood of voting. The second is the effect of the mobilization efforts of parties, by which mobilization theories predict fragmentation to increase one's likelihood of voting.

Also, as discussed in section 2.3., all experiments raise issues of external validity. I have argued that my sample does seem to be comparable to the general population in a number of attitudinal traits and, when it is not so, the differences would only make it even harder to find differences across groups. Furthermore, the focus of this dissertation is on internal validity. Still, future research should focus on this same topic in a manner that awards its findings with more incontestable external validity.

Ideally, future studies would address these two shortcomings in two complementary ways: with resource to experimental surveys applied to representative samples, which would allow for the testing of the same mechanisms over a population that does not raise issues of external validity, and with resource to multi-level analysis of observational data, which would allow for the testing of some mechanisms that could not be tested here, while at the same time providing evidence from real elections.

A third limitation of this dissertation is that it cannot provide an explanation for the findings concerning the mediation role of the intensity of preference for one of the parties in the system. The indirect effect of fragmentation over likelihood of voting via intensity of preference is negative and significant in highly polarized contexts, but non-significant in lowly polarized contexts. I have argued that this may be due to the fictional character of the election that the experiment presents respondents with. Yet this shortcoming also opens interesting avenues for research. Future studies should aim at findings different ways of testing for how the intensity of preference for a party changes in contexts with different levels of party-system fragmentation and polarization.

In the fourth place, because the mediation of intensity of preference works against my theoretical expectation, this dissertation is unable to provide evidence regarding the specific mechanism by which fragmentation bears a positive relation to likelihood of voting in highly polarized systems. One mechanism that could explain this relation, albeit not being predicted by the literature, has already been suggested in section 3.3.: it may be that, under highly polarized systems, individuals are more likely to vote when there are more parties because they fear that a party that they strongly dislike will win the election. Future studies should aim at explicitly testing this hypothesis. In experimental surveys, it would be possible to ask respondents how satisfied they would be with a scenario in which each of the parties in the fictitious election won it. This would allow for the building of a measure to tap this mechanism. But future literature should also discuss other possible mechanisms that can be in place here, and provide empirical tests of them.

Finally, it should be noted that this study focuses upon the effect of fragmentation over one's likelihood of voting when the number of parties increases from two to four. The reasons for this choice are discussed in section 2.8. (Footnote 16). Yet, this does not allow one to conclude as to whether the results still apply when one moves from systems with four parties to systems with even more parties. Future studies should thus try to understand what happens when the number of parties increases above four, by either replicating this study and changing the number of parties presented to

respondents – running the risk of making the experiment too cognitively demanding –, or through analyses of observational data.

## **DATA SOURCES**

The Comparative Study of Electoral Systems ([www.cses.org](http://www.cses.org)). CSES MODULE 4 FOURTH ADVANCE RELEASE [dataset]. April 11, 2017 version. doi:10.7804/cses.module4.2017-04-11

ESS Round 7: European Social Survey Round 7 Data (2014). Data file edition 2.1. NSD - Norwegian Centre for Research Data, Norway – Data Archive and distributor of ESS data for ESS ERIC.

PORDATA, Base de Dados de Portugal Contemporâneo (2017). Retrieved May 15<sup>th</sup> 2017, from <http://www.pordata.pt>.

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## APPENDICES

### APPENDIX A – The survey

**Appendix A.1. – Survey questions designed to tap key political covariates (in untranslated Portuguese, all worded in the standard way, as found in international surveys such as the European Social Survey).**

De um modo geral, qual o seu interesse pela política?

Indique a sua resposta colocando uma cruz por baixo da expressão que melhor corresponde ao seu grau de interesse.

Nenhum interesse	Pouco interesse	Algum interesse	Muito interesse

Em que medida diria que os políticos se preocupam com aquilo que as pessoas como a senhora/o senhor pensam?

Responda circundando um dos pontos da escala abaixo representada, em que 0 significa que diria que os políticos não se preocupam nada com aquilo que as pessoas como a senhora/o senhor pensam e 10 significa que se preocupam totalmente.

0    1    2    3    4    5    6    7    8    9    10

Não se preocupam  
nada

Preocupam-se  
totalmente

4. E em que medida se sente confiante da sua capacidade de participar na política? Responda circundando um dos pontos da escala abaixo representada, em que 0 significa que não se sente nada confiante e 10 significa que se sente totalmente confiante.

0    1    2    3    4    5    6    7    8    9    10

Nada confiante

Totalmente confiante

Qual a confiança pessoal que tem em cada uma das instituições abaixo indicadas?

Situe a sua posição nesta escala em que 0 significa que não tem nenhuma confiança na instituição em questão e 10 significa que tem toda a confiança nessa instituição.

Nenhuma  
confiança

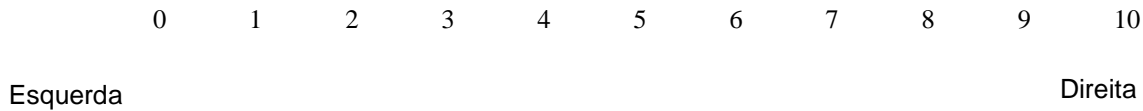
Toda a  
confiança

Assembleia da República	0	1	2	3	4	5	6	7	8	9	10
Políticos	0	1	2	3	4	5	6	7	8	9	10
Partidos políticos	0	1	2	3	4	5	6	7	8	9	10



Parlamento Europeu	0	1	2	3	4	5	6	7	8	9	10
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Em política, é comum falar-se de esquerda e direita. Como é que se posicionaria na escala abaixo representada, em que 0 representa a posição mais à esquerda e 10 a posição mais à direita?



Idade: \_\_\_\_

Sexo:

Feminino       Masculino       Prefiro não dizer

Qual foi o grau de escolaridade mais elevado que a sua mãe atingiu?

Nenhum .....	<input type="checkbox"/>
Primário incompleto .....	<input type="checkbox"/>
Primário completo (4ª classe) .....	<input type="checkbox"/>
Secundário incompleto .....	<input type="checkbox"/>
Secundário completo (antigo 7º/actual 12º ano) ....	<input type="checkbox"/>
Superior incompleto .....	<input type="checkbox"/>
Superior completo (bacharelato/licenciatura) .....	<input type="checkbox"/>
Outro. Qual? _____	<input type="checkbox"/>

Qual foi o grau de escolaridade mais elevado que o seu pai atingiu?

Nenhum .....	<input type="checkbox"/>
Primário incompleto .....	<input type="checkbox"/>
Primário completo (4ª classe) .....	<input type="checkbox"/>
Secundário incompleto .....	<input type="checkbox"/>
Secundário completo (antigo 7º/actual 12º ano) ....	<input type="checkbox"/>
Superior incompleto .....	<input type="checkbox"/>
Superior completo (bacharelato/licenciatura) .....	<input type="checkbox"/>
Ouro. Qual? _____	<input type="checkbox"/>

**Appendix A.2. – Experimental survey questions: Group 1 (two party-election, low polarization).**

Suponha uma eleição legislativa para a qual concorressem os partidos apresentados na figura abaixo. Estes são representados de acordo com a sua posição em relação a um conjunto de temas frequentemente discutidos em política. Na eleição anterior, o nível de abstenção tinha sido de 43%.

De acordo com a figura, por favor responda às questões que se seguem.

	Partido A	Partido B
Aumentar o papel do setor privado no sistema educacional	Ligeiramente a favor	Ligeiramente a favor
Flexibilizar as leis laborais para estimular o crescimento económico	Ligeiramente contra	Ligeiramente a favor
Criminalizar o aborto	Ligeiramente contra	Fortemente contra
Implementar medidas mais severas para punir os criminosos	Ligeiramente contra	Ligeiramente contra

a) Por qual dos partidos acima representados diria que tem preferência?

Indique a sua resposta colocando uma cruz por baixo do partido da sua preferência.

Partido A	Partido B
<input type="checkbox"/>	<input type="checkbox"/>

b) Com que grau de intensidade diria que tem preferência pelo partido que identificou na alínea anterior, em relação ao outro?

Responda colocando uma cruz por baixo da expressão que melhor corresponde ao grau de intensidade da sua preferência.

Preferência muito pouco intensa	Preferência pouco intensa	Preferência algo intensa	Preferência muito intensa
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

c) Por uma razão ou por outra, atualmente muitas pessoas não votam. Qual diria que seria a sua probabilidade de votar numa eleição para a qual concorressem os partidos acima representados?

Responda circundando um dos pontos da escala abaixo representada, em que 0 significa que seria altamente improvável votar na eleição acima apresentada e 10 significa seria altamente provável votar na eleição acima apresentada.

0      1      2      3      4      5      6      7      8      9      10

Altamente  
improvável

Altamente  
provável

d) Se votasse na eleição acima apresentada, quão difícil diria que lhe seria decidir em que partido votar?

Responda circundando um dos pontos da escala abaixo representada, em que 0 significa que lhe seria extremamente fácil decidir e 10 significa que lhe seria extremamente difícil.

0      1      2      3      4      5      6      7      8      9      10

Extremamente  
fácil

Extremamente  
difícil

**Appendix A.3. – Experimental survey questions: Group 2 (four party-election, low polarization).**

Suponha uma eleição legislativa para a qual concorressem os partidos apresentados na figura abaixo. Estes são representados de acordo com a sua posição em relação a um conjunto de temas frequentemente discutidos em política. Na eleição anterior, o nível de abstenção tinha sido de 43%. De acordo com a figura, por favor responda às questões que se seguem.

	Partido A	Partido B	Partido C	Partido D
Aumentar o papel do setor privado no sistema educacional	Fortemente contra	Ligeiramente a favor	Ligeiramente contra	Ligeiramente a favor
Flexibilizar as leis laborais para estimular o crescimento económico	Ligeiramente contra	Ligeiramente contra	Ligeiramente contra	Fortemente a favor
Criminalizar o aborto	Ligeiramente a favor	Ligeiramente contra	Fortemente a favor	Ligeiramente contra
Implementar medidas mais severas para punir os criminosos	Ligeiramente a favor	Ligeiramente contra	Ligeiramente a favor	Ligeiramente contra

a) Por qual dos partidos acima representados diria que tem preferência? Indique a sua resposta colocando uma cruz por baixo do partido da sua preferência.

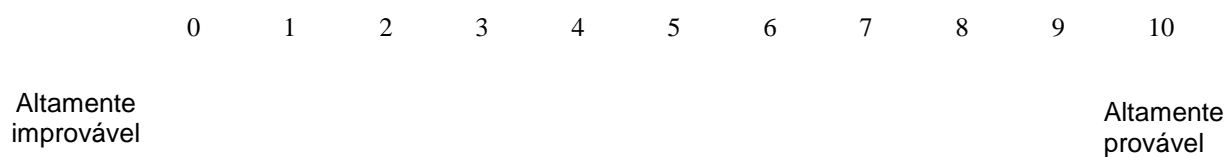
Partido A	Partido B	Partido C	Partido D

b) Com que grau de intensidade diria que tem preferência pelo partido que identificou na alínea anterior, em relação aos restantes? Responda colocando uma cruz por baixo da expressão que melhor corresponde ao grau de intensidade da sua preferência.

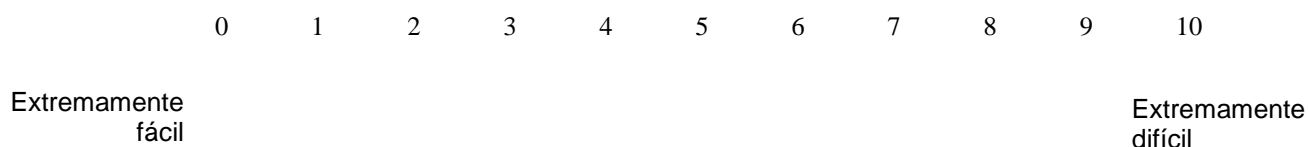
Preferência muito pouco intensa	Preferência pouco intensa	Preferência algo intensa	Preferência muito intensa

c) Por uma razão ou por outra, atualmente muitas pessoas não votam. Qual diria que seria a sua probabilidade de votar numa eleição para a qual concorressem os partidos acima representados?

Responda circundando um dos pontos da escala abaixo representada, em que 0 significa que seria altamente improvável votar na eleição acima apresentada e 10 significa seria altamente provável votar na eleição acima apresentada.



d) Se votasse na eleição acima apresentada, quão difícil diria que lhe seria decidir em que partido votar?  
Responda circundando um dos pontos da escala abaixo representada, em que 0 significa que lhe seria extremamente fácil decidir e 10 significa que lhe seria extremamente difícil.



**Appendix A.4. – Experimental survey questions: Group 3 (two party-election, high polarization).**

Suponha uma eleição legislativa para a qual concorressem os partidos apresentados na figura abaixo. Estes são representados de acordo com a sua posição em relação a um conjunto de temas frequentemente discutidos em política. Na eleição anterior, o nível de abstenção tinha sido de 43%.

De acordo com a figura, por favor responda às questões que se seguem.

	Partido A	Partido B
Aumentar o papel do setor privado no sistema educacional	Fortemente contra	Fortemente a favor
Flexibilizar as leis laborais para estimular o crescimento económico	Fortemente contra	Fortemente a favor
Criminalizar o aborto	Fortemente contra	Fortemente a favor
Implementar medidas mais severas para punir os criminosos	Fortemente contra	Fortemente a favor

a) Por qual dos partidos acima representados diria que tem preferência?

Indique a sua resposta colocando uma cruz por baixo do partido da sua preferência.

Partido A	Partido B
<input type="checkbox"/>	<input type="checkbox"/>

b) Com que grau de intensidade diria que tem preferência pelo partido que identificou na alínea anterior, em relação ao outro?

Responda colocando uma cruz por baixo da expressão que melhor corresponde ao grau de intensidade da sua preferência.

Preferência muito pouco intensa	Preferência pouco intensa	Preferência algo intensa	Preferência muito intensa
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

c) Por uma razão ou por outra, atualmente muitas pessoas não votam. Qual diria que seria a sua probabilidade de votar numa eleição para a qual concorressem os partidos acima representados?

Responda circundando um dos pontos da escala abaixo representada, em que 0 significa que seria altamente improvável votar na eleição acima apresentada e 10 significa seria altamente provável votar na eleição acima apresentada.

0      1      2      3      4      5      6      7      8      9      10

Altamente  
improvável

Altamente  
provável

d) Se votasse na eleição acima apresentada, quão difícil diria que lhe seria decidir em que partido votar?

Responda circundando um dos pontos da escala abaixo representada, em que 0 significa que lhe seria extremamente fácil decidir e 10 significa que lhe seria extremamente difícil.

0      1      2      3      4      5      6      7      8      9      10

Extremamente  
fácil

Extremamente  
difícil

**Appendix A.5. – Experimental survey questions: Group 4 (four party-election, high polarization).**

Suponha uma eleição legislativa para a qual concorressem os partidos apresentados na figura abaixo. Estes são representados de acordo com a sua posição em relação a um conjunto de temas frequentemente discutidos em política. Na eleição anterior, o nível de abstenção tinha sido de 43%. De acordo com a figura, por favor responda às questões que se seguem.

	Partido A	Partido B	Partido C	Partido D
Aumentar o papel do setor privado no sistema educacional	Fortemente contra	Ligeiramente contra	Ligeiramente a favor	Fortemente a favor
Flexibilizar as leis laborais para estimular o crescimento económico	Fortemente contra	Ligeiramente contra	Ligeiramente a favor	Fortemente a favor
Criminalizar o aborto	Fortemente contra	Ligeiramente contra	Ligeiramente a favor	Fortemente a favor
Implementar medidas mais severas para punir os criminosos	Fortemente contra	Ligeiramente contra	Ligeiramente a favor	Fortemente a favor

a) Por qual dos partidos acima representados diria que tem preferência?  
Indique a sua resposta colocando uma cruz por baixo do partido da sua preferência.

Partido A	Partido B	Partido C	Partido D

b) Com que grau de intensidade diria que tem preferência pelo partido que identificou na alínea anterior, em relação aos restantes?  
Responda colocando uma cruz por baixo da expressão que melhor corresponde ao grau de intensidade da sua preferência.

Preferência muito pouco intensa	Preferência pouco intensa	Preferência algo intensa	Preferência muito intensa



c) Por uma razão ou por outra, atualmente muitas pessoas não votam. Qual diria que seria a sua probabilidade de votar numa eleição para a qual concorressem os partidos acima representados?

Responda circundando um dos pontos da escala abaixo representada, em que 0 significa que seria altamente improvável votar na eleição acima apresentada e 10 significa seria altamente provável votar na eleição acima apresentada.

0      1      2      3      4      5      6      7      8      9      10

Altamente  
improvável

Altamente  
provável

d) Se votasse na eleição acima apresentada, quão difícil diria que lhe seria decidir em que partido votar?

Responda circundando um dos pontos da escala abaixo representada, em que 0 significa que lhe seria extremamente fácil decidir e 10 significa que lhe seria extremamente difícil.

0      1      2      3      4      5      6      7      8      9      10

Extremamente  
fácil

Extremamente  
difícil

**APPENDIX B – Results of ANOVA analysis testing for differences between experimental groups in the key political covariates.**

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
Interest for politics	Between Groups	2,727	3	,909	1,395	,246
	Within Groups	123,855	190	,652		
	Total	126,582	193			
How much do politicians care about what people like you think?	Between Groups	3,502	3	1,167	,346	,792
	Within Groups	640,627	190	3,372		
	Total	644,129	193			
Trust in the parliament	Between Groups	13,240	3	4,413	1,289	,280
	Within Groups	647,205	189	3,424		
	Total	660,446	192			
Trust in politicians	Between Groups	5,857	3	1,952	,606	,612
	Within Groups	609,138	189	3,223		
	Total	614,995	192			
Trust in political parties	Between Groups	6,312	3	2,104	,571	,634
	Within Groups	695,874	189	3,682		
	Total	702,187	192			
Trust in European Parliament	Between Groups	2,513	3	,838	,206	,892
	Within Groups	768,233	189	4,065		
	Total	770,746	192			
Left-right self placement	Between Groups	14,311	3	4,770	1,318	,270
	Within Groups	684,125	189	3,620		
	Total	698,435	192			
Age of the respondent	Between Groups	26,257	3	8,752	,350	,789
	Within Groups	4746,882	190	24,984		
	Total	4773,139	193			
How confident do you feel on your ability to participate in politics?	Between Groups	10,638	3	3,546	,609	,610
	Within Groups	1100,398	189	5,822		
	Total	1111,036	192			
Level of education of respondent's mother	Between Groups	8,147	3	2,716	1,174	,321
	Within Groups	434,853	188	2,313		
	Total	443,000	191			
Level of education of respondent's father	Between Groups	745,078	3	248,359	1,386	,248
	Within Groups	34049,108	190	179,206		
	Total	34794,186	193			

## APPENDIX C – Assumptions of the various statistical analyses

### Appendix C.1.: Assumptions of the ANOVA analysis for the differences in the mean likelihood of voting across the four experimental groups (section 3.2.).

According to (Field 2013, 442–443), there are two assumptions to an ANOVA analysis: the normal distribution of the sample, and homogeneity of variances.

1. *Normal distribution of the samples*: Due to the large size of the samples of the four experimental groups ( $N > 30$  in all of them), one can resource to the Central Limit Theorem and state that the violation of this assumption does not compromise the results of this statistical test.
2. *Homogeneity of variances*: I ran a Levene test to check for this assumption, whose results can be found in the table below:

**Test of Homogeneity of Variances**  
Likelihood of voting

Levene Statistic	df1	df2	Sig.
4,704	3	190	,003

These results suggest that one should reject the null hypothesis of the test (the homogeneity of variances in the four groups), thus violating the assumption for the ANOVA analysis. However, because the largest sample (Group 2,  $N = 50$ ) is not twice as large as the smallest sample (Group 4,  $N = 47$ ), it is still possible to carry on with the ANOVA (Laureano 2011, 48).

**Appendix C.2. – Assumptions of ANOVA analysis for the differences in the mean difficulty of voting across the four experimental groups (section 3.2.).**

According to (Field 2013, 442–443), there are two assumptions to an ANOVA analysis: the normal distribution of the sample, and homogeneity of variances.

1. *Normal distribution of the samples*: Due to the large size of the samples of the four experimental groups ( $N > 30$  in all of them), one can resource to the Central Limit Theorem and state that the violation of this assumption does not compromise the results of this statistical test.
2. *Homogeneity of variances*: I ran a Levene test to check for this assumption, whose results can be found in the table below:

<b>Test of Homogeneity of Variances</b>			
Difficulty of voting			
Levene Statistic	df1	df2	Sig.
4,931	3	189	,003

These results suggest that one should reject the null hypothesis of the test (the homogeneity of variances in the four groups), thus violating the assumption for the ANOVA analysis. However, because the largest sample (Group 2,  $N = 49$ ) is not twice as large as the smallest sample (Group 4,  $N = 47$ ), it is still possible to carry on with the ANOVA (Laureano 2011, 48).

**Appendix C.3. – Assumptions of the ANOVA analysis for the differences in the intensity of preference across the four experimental groups (section 3.2.).**

According to (Field 2013, 442–443), there are two assumptions to an ANOVA analysis: the normal distribution of the sample, and homogeneity of variances.

1. *Normal distribution of the samples:* Due to the large size of the samples of the four experimental groups ( $N > 30$  in all of them), one can resource to the Central Limit Theorem and state that the violation of this assumption does not compromise the results of this statistical test.
2. *Homogeneity of variances:* I ran a Levene test to check for this assumption, whose results can be found in the table below:

**Test of Homogeneity of Variances**  
Intensity of preference

Levene Statistic	df1	df2	Sig.
,545	3	190	,652

These results suggest that one should not reject the null hypothesis of the test (the homogeneity of variances in the four groups). As such, one can assume that there homogeneity of variances in the four experimental groups, which means that the assumption is met.

**Appendix C.4. – Assumptions of the moderated mediated analysis for the complete model (section 3.2.).**

As the analysis follows the method put forward by Baron and Kenny (1986), its assumptions are the same as those for multiple linear regression. According to Tabachnick and Fidell (2007, 123–128), these assumptions are:

1. That there is a substantial ratio of cases to IV's;
2. That there is no evidence of multicollinearity;
3. That there are no outliers; and
4. That there is normality, linearity and homoscedascity of residuals.

Let us test each of these assumptions.

1. *Ratio of cases to IV's*: I have used the software G\*Power Version 3.1 (Faul, Erdfelder, Buchner, and Lang 2009) to calculate the number of cases necessary for an analysis such as this. For a moderated mediation with two mediators and one moderator, the software reports that one needs a sample size of at least 129 individuals. As there are 193 individuals in the sample, this assumption is met.
2. *Absence of evidence of multicollinearity*: The table below shows the SPSS output for the multicollinearity diagnosis (VIF and tolerance values):

	Collinearity Statistics	
	Tolerance	VIF
Difficulty of voting	,753	1,328
Intensity of preference	,792	1,263
Polarization	,976	1,025
Fragmentation	,932	1,073

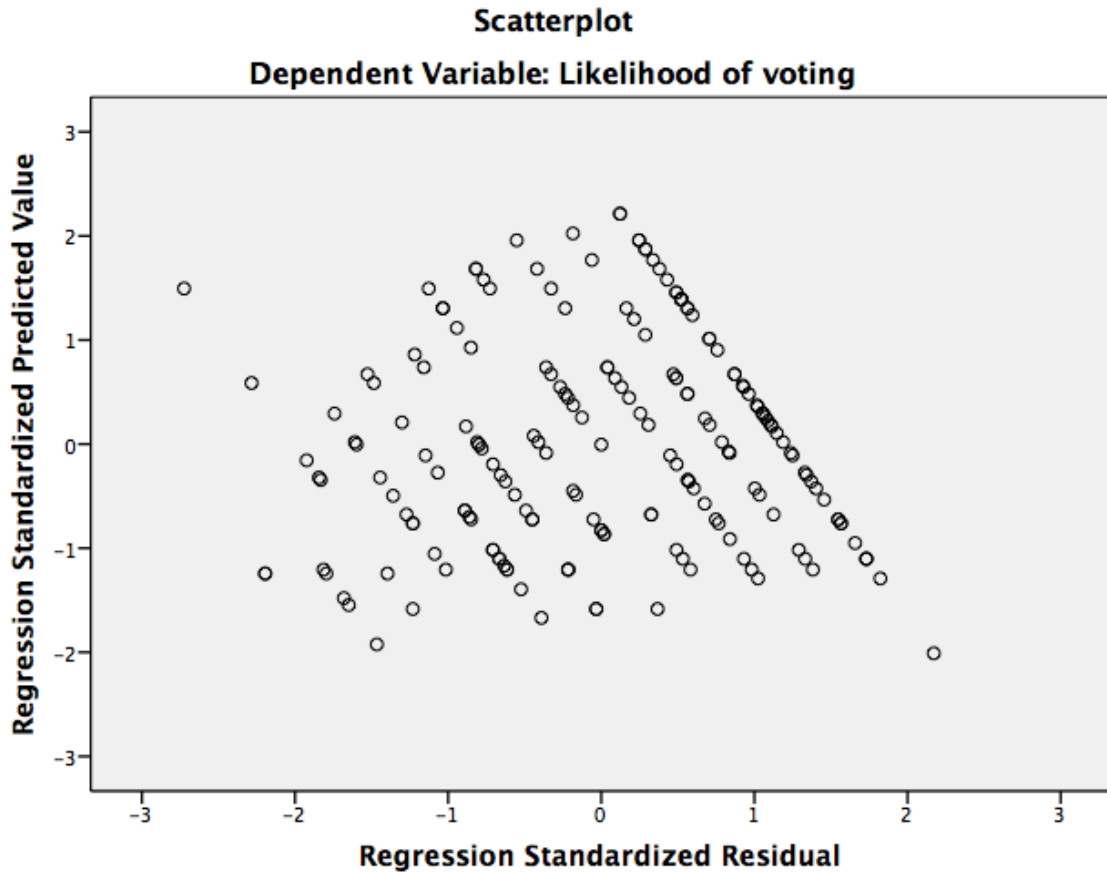
Dependent Variable: Likelihood of voting.

The average VIF is 1,17225. This value suggests that there is no evidence of multicollinearity, as it is close to 1. Evidence of multicollinearity exists only when the average VIF is substantially greater than 1 (Bowerman and O'Connell 1990).

Moreover, the lowest tolerance value is 0,753 (for difficulty of voting). This value also suggests that there is no evidence of multicollinearity, as serious multicollinearity issues arise only when there are tolerance values below 0,1 (Field 2009, 242) and potential issues arise when there are tolerance values below 0,2 (Menard 1995).

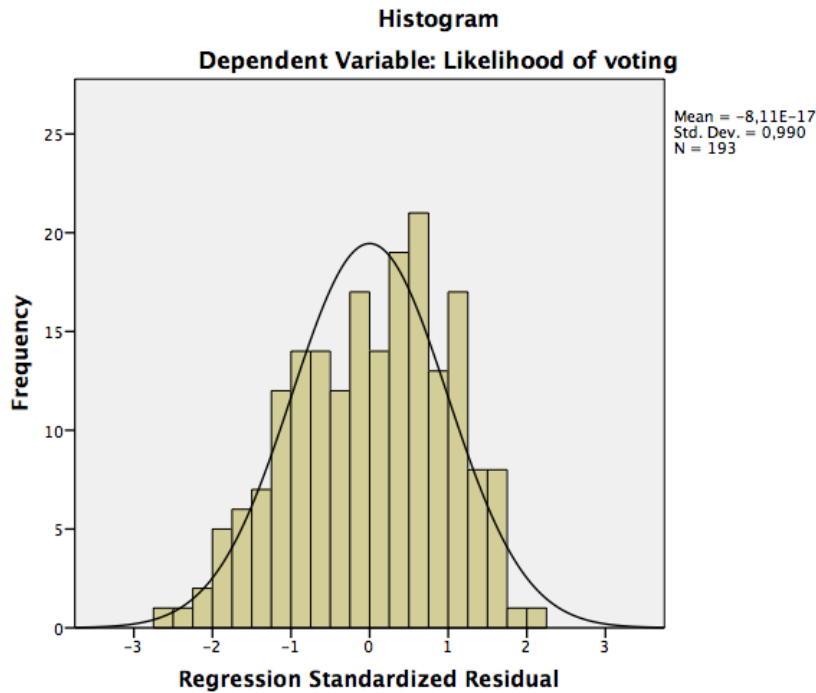
Thus, the analysis of VIF and tolerance values both suggest that there is no evidence of multicollinearity.

3. *Absence of outliers*: Outliers can be checked for using the residuals scatterplot (Marôco 2014, 695), which is shown below:



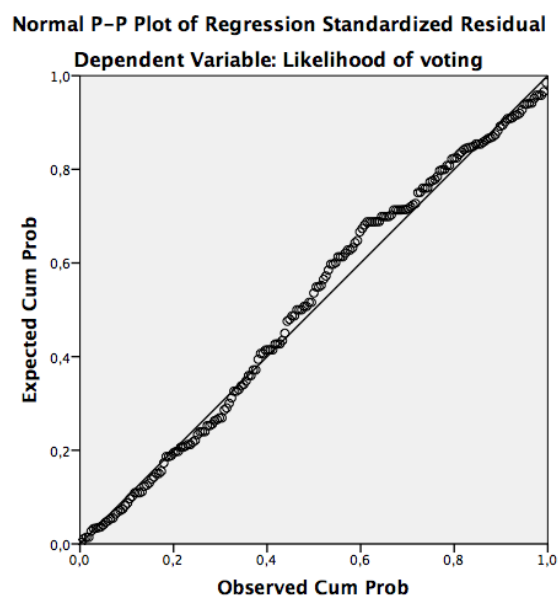
The analysis of this scatterplot suggests that there are no outliers in the sample. The assumption is thus met.

4. *Normality, linearity and homoscedasticity of residuals*:
  - a. *Normality of residuals*: This assumption is usually checked by analysing the histogram of residuals, which is displayed below:



The analysis of this histogram suggests that the distribution of residuals displays adherence to the normal distribution. This assumption is thus met.

- b. *Linearity*: For there to be linearity in the distribution of residuals, their scatterplot needs to display a rectangular shape, not a curvilinear one. By analysing again the scatterplot shown above, one can conclude that this assumption is also met.
- c. *Homoscedasticity*: This assumption is usually checked by analysing a Normal Probability Plot, which is shown below:



As the residuals do not deviate extremely from the line representing the normal distribution, this assumption is met.