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Voter Behavior Under Compulsory Voting: The Case of Brazil

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"If you vote, you have no right to complain."

George Carlin

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RESUMO

Esta tese examina o comportamento do eleitor em contexto de voto obrigatório usando o caso brasileiro. Os artigos de cada capítulo se concentram em como os cidadãos votam e se envolvem com a política quando são obrigados a participar de eleições. O principal argumento desta tese é que o voto obrigatório pode ser insuficiente para aprimorar a democracia representativa. Isso ocorre porque os eleitores que prefeririam não votar caso o voto fosse voluntário podem simplesmente se recusar a se envolver com a política. Ou seja, o voto obrigatório pode ter efeitos não intencionais que comprometem sua capacidade de aprimorar a representacão política. Entre esses efeitos estão votos aleatórios e votos inválidos, os quais são o foco dos Capítulos 2 e 3, e a incapacidade de envolver os eleitores com a política, que é o foco do Capítulo 4. A partir de uma pesquisa de opinião original sobre o voto obrigatório no Brasil, com uma amostra nacional, utilizo experimentos de lista para estimar a proporção de votos aleatórios no eleitorado brasileiro, bem como os seus determinantes. Os resultados do Capítulo 2 mostram que uma parcela significativa dos eleitores brasileiros admite abertamente votar aleatoriamente apenas para cumprir a lei. Além disso, os votos aleatórios são significativamente mais comuns em eleições pouco salientes (por exemplo, eleições para deputados estaduais e federais) e entre eleitores desinteressados e menos educados. Surpreendentemente, contudo, os votos aleatórios não são afetados pelo viés de desejabilidade social em *surveys*. No Capítulo 3, encontro evidências de que os eleitores subdeclaram significativamente os votos em branco e os votos nulos em perguntas de *survey*. Além disso, a subdeclaração de votos em branco e nulos é especialmente comum entre os eleitores "relutantes", ou seja, eleitores que se absteriam de votar se o voto não fosse mais obrigatório. No Capítulo 4, uso dados do Estudo Eleitoral Brasileiro para testar se o voto obrigatório aumenta o conhecimento dos eleitores sobre os partidos e a identificação partidária, a partir de um desenho de regressão descontínua. Os achados do Capitulo 4 sugerem que os cidadãos sob voto obrigatório não são mais propensos a se identificar com um partido político nem a aprender mais sobre política. Os formuladores de políticas e políticos devem ponderar esses achados ao desenharem instituições eleitorais destinadas a aumentar a participação dos eleitores.

Palavras-chave: voto obrigatório, votos aleatórios, votos inválidos, viés de desejabilidade social, engajamento político.

ABSTRACT

This dissertation examines voter behavior under compulsory voting by using the Brazilian case. The papers in each chapter focus on how citizens cast votes and engage with politics when compelled to turn out to the polls. The main argument of this dissertation is that compulsory voting may be insufficient to improve representative democracy. This is because voters who would rather not vote under voluntary voting rules may simply refuse to meaningfully engage in politics. That is, compulsory voting may have unintended effects that compromise its ability to significantly improve political representation. Among these effects are random and spoiled votes, which are the focus of Chapters 2 and 3, and the inability to make voters more engaged with politics, which is the focus of Chapter 4. Using an original survey on compulsory voting in Brazil, I use list experiments to estimate the proportion of voters who vote randomly or spoil their votes simply because voting is compulsory, as well as its determinants. The findings from Chapter 2 show that a significant share of Brazilian voters openly admit to cast random votes only to comply with the law. Furthermore, random votes are significantly more common in low-salience elections (e.g. elections for state and federal representatives) and among disinterested and low education voters. Surprisingly, however, random votes are not affected by social desirability bias in surveys. In Chapter 4, I find evidence that voters significantly misreport casting blank and spoiled votes in survey questions. Furthermore, the misreporting of blank and spoiled votes is specially common among "reluctant"voters, that is, voters who would otherwise abstain if voting was no longer mandatory. In Chapter 4, I use data from the Estudo Eleitoral Brasileiro (ESEB) to test whether compulsory voting increases voters knowledge of parties and party identification by using a regression discontinuity design. The findings from Chapter 4 suggest that citizens under compulsory voting are no more likely to identify with a political party neither to learn more about politics. Policy makers and politicians should weigh these findings when designing electoral institutions aimed at increasing voter turnout.

Keywords: compulsory voting, random votes, spoiled votes, social desirability bias, political engagement.

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Sumário

1 Introduction

How does compulsory voting affect voter behavior? In this dissertation, I address this question in three empirical papers that investigate voter behavior under compulsory voting laws. The papers are focused on the case of Brazil, the largest democracy currently adopting mandatory voting. Interestingly, there are very few studies from Brazilian scholars on compulsory voting and voter behavior (Aguiar, 2018; Figueiredo, 2008; Ribeiro, 2013). In this dissertation, I aim to contribute to a growing literature on compulsory voting.

Mandatory voting is frequently associated to a trade-off between democratic representativeness and the quality of political participation, but the attention given to this subject in the political science literature is still relatively small. The paucity of studies on the subject of voter behavior under compulsory voting is not surprising, however, given that the most important theories of voter behavior were developed by scholars in countries where voting is voluntary.

Part of the literature extolls the effects of mandatory voting for the improvement of representative democracy (M.M. Bechtel, 2016; Bugarin and Portugal, 2015; Fowler, 2013; Lijphart, 1997; Singh, 2019). The seminal study by Lijphart (1997) suggests that compulsion reduces representative inequalities, which are especially evident with regards to the levels of income and education of voters. Lijphart (1997) lists some reasons why low electoral participation could be considered harmful for democracy, among which the inequality of influence on the decision-making processes of politics is highlighted.

Indeed, empirical studies on compulsory voting have provided evidence that compelling citizens to vote may increase political representation from disenfranchised groups. For instance, Jaitman (2013) used data from Argentina and found that lower skill workers are significantly more likely to turn out in response to penalties for electoral abstention than higher skill workers. Fowler (2013) finds that the Australian Labor Party's vote share was significantly increased after the adoption of compulsory voting, thereby suggesting that voluntary voting does not adequately represent the preferences of all citizens. Using a formal model, Bugarin and Portugal (2015) conclude that the higher levels of turnout provided by CV may reduce the bias of more affluent citizens in political representation, since classes with lower turnout rates are more likely to be ignored by political representatives. Schneider et al. (2019) find that, after the adoption of electronic voting in Brazil, blank and spoiled votes (one of the problems of compulsory voting, as I shall argue next) were significantly decreased, leading to an increase in the representation of poorer voters and to more welfare spending. Finally, compulsory voting appears to reduce vote buying and make political parties more programmatic, since parties no longer have to worry about

mobilizing voters and can focus on building their electoral programs (Singh, 2019).

Another part of the literature, however, has pointed out that the massive participation of voters through compulsory voting could be detrimental to the quality of political representation (Dassonneville et al., 2019, 2017; Jensen and Spoon, 2011; Selb and Lachat, 2009; Singh, 2016a, 2017). Proximity voting, the extent to which a voter chooses representatives in accordance with his own political preferences (Downs, 1957), appears to be less common in the presence of CV (Dassonneville et al., 2017, 2019; Selb and Lachat, 2009). Blank and null ballots are also more likely where voting is mandatory (Katz and Levin, 2016; Power and Roberts, 1995), since politically unengaged and distrusting citizens are much more likely to turn out (Singh, 2017). Finally, compulsory voting does not appear to make citizens more knowledgeable of politics (de Leon et al., 2014; Loewen et al., 2008; Birch, 2016).

Despite the growing interest in the effects of compulsory voting for electoral outcomes, we still know little about how citizens go about choosing their candidates when forced to turn out to the polls. This is particularly true with regards to "reluctant"voters (Elkins, 2000), that is, voters who would otherwise abstain if voting was voluntary. Indeed, the studies that have explored the relationship between compulsory voting and proximity voting have not yet uncovered the precise mechanisms by which mandatory voting laws reduce the chances that voters will choose a candidate most ideologically close to them.

The negative relationship between compulsory voting and proximity voting could possibly be attributed to the increase in disinterested voters going to the polls and casting random votes, as noted by Selb and Lachat (2009). Jakee and Sun (2006) developed a formal model in which the authors demonstrate that random votes are unlikely to cancel each other out when voters are forced to turn out to the polls. Jakee and Sun's (2006) model suggests that, as the number of disinterested voters turning out to the polls and casting random votes increases, the probability of choosing the candidate preferred by the majority of voters *decreases*. Their model thus suggests that compulsory voting is detrimental to the collective decision-making rationale proposed by Condorcet's Jury Theorem. In the authors' words: "The higher the percentage of random voters, the more significant the distortion effect is."(Jakee and Sun, 2006, . p. 68)

Jensen and Spoon (2011) describe an illustrative example of random votes under compulsory voting in the case of the Australian Senate elections, in which researchers found that, under the STV[1] system, voters tended to mark their ballots in accordance with the order in which candidates were listed, thereby giving an advantage to those listed up on the ballots (Jensen and Spoon, 2011,   p. 702). Other studies have found the same

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[1]   The single transferable vote (STV) is a voting system in which voters choose their candidates according to a rank order. Voters cast a single vote for their preferred candidate and rank their choices for other candidates. As candidates are elected or eliminated, the remaining votes are transferred to those who rank higher up on the order of voters' preferences.

evidence in voluntary voting systems, like in the case of the UK (Kelley and McAllister, 1984) and in the United States (Imai, 2005).

Despite recent developments in the study of random votes under compulsory voting, previous studies have only provided indirect evidence that voters are choosing their candidates haphazardly. In Chapter 2 of this dissertation, I find direct evidence of random votes by using novel data from an online national survey conducted during the week before the 2018 elections in Brazil. In order to circumvent potential social desirability issues in survey reports of random votes, I use list experiments (Blair and Imai, 2012; Corstange, 2009) that provide respondents more privacy when answering sensitive questions.

Based on previous findings from research on low and high profile elections (Kahn, 1995; Squire and Fastnow, 1994), I also assess how random votes are distributed across different elected offices in Brazil. My hypothesis are that random votes should be significantly more common in low-profile elections, given that media outlets tend to focus on presidential and gubernatorial elections, thus providing voters with little information on candidates' and parties' positions in elections for local and federal deputies. This is specially true in the Brazilian case due to the extremely fragmented party system in which electoral coalitions include hundreds of candidates from multiple parties for elections of the Federal Chamber of Deputies and State Assemblies. Furthermore, these coalitions are often ideologically inconsistent and mainly built with the goal of maximizing votes (Borges and Turgeon, 2019).

My findings suggest that, surprisingly, random votes are not affected by social desirability bias. As expected, however, uninterested voters, the less educated and those who would rather abstain if voting was no longer compulsory are significantly more likely to cast random votes. Furthermore, random votes appear to be more likely in low salience elections (i.e. state and federal representatives) when compared to high salience elections (gubernatorial and presidential).

To be sure, compulsory voting does not force citizens to cast a valid vote, but merely to turn out to the polls on election day. A wealth of evidence has consistently proven the relationship between compulsory voting and invalid votes (Cohen, 2018; Hirczy, 1994; Katz and Levin, 2016; Power and Roberts, 1995; Reynolds and Steenbergen, 2006; Singh, 2017; Uggla, 2008). Why would "reluctant"voters, then, cast valid votes? In Chapter 3, I explore this question by focusing on blank and null votes.

Invalid ballots are often considered as signs of dissatisfaction with democracy or alienation from politics Singh (2017); Katz and Levin (2016). As a result, the recent literature has questioned whether the reporting of invalid voting is a sensitive question for voters (Driscoll and Nelson, 2014; Singh, 2017). This is because voters may not want to look as alienated in the eyes of survey interviewers or may not want to declare a protest

vote.

Considering the above questions from the literature, I explore the question of sensitivity in survey reports of invalid votes. Based on the theory of social comparison posed by Festinger (Festinger, 1954), I test the hypothesis of sensitivity in the questions of blank and spoiled votes. Using the same experimental design as in Chapter 2, I find that the reporting of invalid ballots is affected by social desirability bias, leading voters to misreport invalid votes as a response to compulsory voting. That is, when voters are given more privacy, the reporting of blank and null votes is significantly increased.

Furthermore, my findings show that "reluctant"voters are much more likely to misreport invalid votes. I also assess the determinants of blank and spoiled votes and find that both "reluctant"voters and those who distrust political parties are significantly more likely to cast an invalid ballot. These findings suggest that voters feel social pressure to report voting for a candidate and could thus explain why some voters are inclined to vote haphazardly despite being able to vote blank or null.

In Chapter 4, I examine the relationship between compulsory voting, political knowledge and party identification (Singh and Thornton, 2013; Birch, 2016; de Leon et al., 2014; Bruce and Lima, 2019; Loewen et al., 2008; Sheppard, 2015). The existence of "second order effects"would presumably lend support to the hypothesis that political engagement is endogenous to democratic processes (Shineman, 2018). That is, even voters who are apathetic and disinterested would become, on average, more informed and more engaged in politics when forced to be involved in electoral processes.

Previous research have provided inconclusive evidence on this subject, however. For instance, de Leon et al. (2014) use a natural experiment with high school and college students from the state of São Paulo in Brazil and find that compulsory voting does not increase political learning. Reaching similar null findings, Birch (2016) uses cross-national survey data measuring political knowledge and Loewen et al. (2008) uses a laboratory experimental design of compulsory voting penalties with college students. Sheppard (2015), however, provides some evidence of political learning effects from compulsory voting using data from the Comparative Study of Electoral Systems. Bruce and Lima (2019) find evidence that voters under compulsory voting laws in Brazil are more likely to watch TV news. Additionally, Dalton and Weldon (2007) and Singh and Thornton (2013) find evidence that compulsory voting increases voters' identification with parties, while Birch (2016) finds no such effects.

More specifically, I focus on whether compulsory voting increases voters' identification with parties and knowledge of parties' ideological placements. I use a regression discontinuity design with data from electoral surveys based on a natural experiment provided by the Brazilian electoral laws. My findings suggest that compulsory voting does

not increase neither party identification nor political learning. These findings are both convergent with previous ones in the literature (de Leon et al., 2014; Loewen et al., 2008; Birch, 2016) and possibly suggest that compulsory voting increases the number of voters who are "compelled without direction"(Jensen and Spoon, 2011) to turn out to the polls.

In the conclusion of this dissertation, I discuss my findings in light of the past twenty years of political science studies on compulsory voting. I also highlight the limitations of my findings and how future studies may replicate and extend my work on other contexts. Finally, I argue that, while the decision to adopt or repeal compulsory voting is a normative one and not the focus of this dissertation, politicians and policymakers alike should weigh the findings from this dissertation and many other previous studies when making this decision. I believe my findings suggest that compulsory voting, while not necessarily harmful, is not a panacea for democracy's shortcomings.

2 Compulsory Voting and Random Votes

Abstract

Compulsory voting is known for boosting electoral turnout, even when sanctions for abstaining are small or loosely enforced. Much less is known, however, about the consequences of compulsory voting on vote choice, and, in particular, about the quality of electoral decisions. In this chapter, I explore the extent to which voters meaningfully engage in the electoral process or simply vote randomly (i.e., vote for any candidate whatsoever) because voting is required by law. I adopt a list experiment from a large online survey conducted in Brazil during the 2018 national elections to assess if voters engage in random voting. I evaluate random voting for low-profile, low-information elected offices (state and federal legislators) and others that receive greater media coverage (governor and president) and evaluate the determinants of random voting for each of them. I find that : 1) random voting does not appear to be affected by social desirability bias; 2) there is substantial random voting under compulsory voting; 3) more voters tend to engage in random voting in low-profile, low-information elections, as compared to elections that receive greater media coverage; and, 4) interest in politics, education, and disposition to vote if voting were to be voluntary reduce random voting. My findings carry important implications for the study of citizen participation and civic competence under compulsory voting and for democratic representation, more broadly.

Introduction

A wealth of empirical evidence finds that compulsory voting significantly increases electoral turnout and reduces inequality in political participation (Birch, 2016; Figueiredo, 2008; Jackman, 1987; Jaitman, 2013; Panagopoulos, 2008).[1] We know much less, however, about the second-order effects of compulsory voting. Proponents of compulsory voting have praised its virtues, claiming that it stimulates political learning (Sheppard, 2015; Shineman, 2018) and induces news consumption (Bruce and Lima, 2019). Some of the recent empirical work in the area, however, is much less optimistic about these said virtues of compulsory voting. Specifically, compulsory voting is found to undermine proximity voting—a criterion for vote decision quality (Dassonneville et al., 2017, 2019; Selb and Lachat, 2009; Singh, 2016b), and increases dissatisfaction with democracy because of its coercive nature (Singh, 2016a).

The question of whether or not compulsory voting improves representative democracy is related to debates about collective decision-making. Condorcet's Jury Theorem suggests that decisions from majorities are more likely to produce better outcomes than those made by any individual. Thus, based on Condorcet's Jury Theorem about collective decision-making and the ability of compulsory voting to increase voter turnout, one could conclude that compulsory voting also contributes to improve electoral results. Theoretical and empirical research on voter behavior and compulsory voting, however, suggest that forcing citizens to vote may have unintended, negative consequences, including random voting (Selb and Lachat, 2009).

Compulsory voting is also strongly associated with invalid balloting (Katz and Levin, 2016). By forcing the politically unengaged, uninterested, and distrusting voters to the polls, compulsory voting prompts many voters to cast blank or spoiled ballots (Singh, 2017). But what about random voting? Is random voting, the act of voters to choose haphazardly candidates and parties, also common under compulsory voting? In other words, how prevalent is random voting among voters who wish only to fulfill the requirement to vote under compulsory voting? If random voting is a relatively common behavior among voters then the looser connection between voters' preferences and vote choices—proximity voting—would seem like a natural consequence. To my knowledge, there is no empirical work that has evaluated empirically Jakee and Sun's (2006) theoretical argument that random voting can be a serious problem under compulsory voting. I hope to fill that gap.

In this chapter, I explore the extent to which voters meaningfully engage in the electoral process or simply vote randomly (i.e., vote for any candidate whatsoever) only to

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[1] See Cepaluni and Hidalgo (2016), however, for a different perspective on compulsory voting's ability to reduce inequality in participation.

comply with the law and avoid (possible) penalties. Specifically, I seek to estimate the occurrence of random voting under compulsory voting and identify who is most susceptible to practice it. Moreover, I examine random voting across a variety of elected offices, evaluating if it is more prevalent in lower-profile, low-information elections, presumably because they receive significantly less media coverage and are frequently perceived as being less important.

To address these questions, I use data from a large online survey conducted during the 2018 Brazilian national elections with over 8,000 participants. I find that, on average, about 10% of the Brazilian electorate vote randomly and that the prevalence of such behavior decreases with the importance of the elected office. Assuredly, my estimate of random voting under compulsory voting is much larger than similar—although more indirect—estimates of random voting found in voluntary voting systems. I also find that the less educated, disinterested voters, and those that would prefer not to vote if voting were to be voluntary are more likely to vote randomly. Overall, my findings suggest, like others before us, that compulsory voting produces undesirable second-order effects on the quality of vote decisions and, by the same token, electoral outcomes. Hence, the positive effects of increased turnout and lower inequality in participation attributed to compulsory voting may well be offset by lower quality voter engagement.

In what follows, I review the recent literature about the second-order effects of compulsory voting and, in particular, its effect on the quality of vote choice. I conclude this section with a discussion about voter engagement and random voting and present some empirical questions and hypotheses. The following section presents my case study, followed by a description of the data and methodology. Next, I present empirical evidence about random voting in Brazil: its prevalence and the extent to which it is perceived as a socially sensitive behavior; whether it varies by elected offices; and, the individual-level determinants of random voting. I conclude with a brief summary of my findings and their implications for the study of citizen participation and civic competence under compulsory voting and for democratic representation, more broadly.

Compulsory voting, voter engagement, and random voting

Given the widespread low rates of voter turnout in advanced industrial democracies (Gray and Caul, 2000), politicians and policymakers alike are frequently inclined to recommend compulsory voting laws as a means to increase electoral participation. Indeed, the effect of compulsory voting on turnout is undeniable (Birch, 2016; Jackman, 1987; Panagopoulos, 2008), but the empirical evidence on the second-order effects of CV, and in particular on the quality of vote decisions, remains relatively scant despite recent advances (Bruce and Lima, 2019; Dassonneville et al., 2017, 2019; Hooghe and Stiers, 2017; Rosema,

2007; Selb and Lachat, 2009; Sheppard, 2015; Singh, 2016b).

Decades of research have shown that most electorates are generally poorly informed and uninterested about politics (Converse, 1964; Delli Carpini and Keeter, 1996; Luskin and Bullock, 2011) and that such civic competence limitations carry important consequences for the electoral process (Achen and Bartels, 2017; Althaus, 2003; Bartels, 1996). Specifically, numerous voters would vote differently and hold different attitudes if they were more informed (Althaus, 1998; Bartels, 1996; Luskin et al., 2002; Turgeon and Rennó, 2010), incorrectly attribute responsibility to their representatives for random or irrelevant events like shark attacks and sports results (Achen and Bartels, 2017; Healy et al., 2010), rely nearly exclusively on short term economic growth to evaluate government performance (Healy and Lenz, 2014; Huber et al., 2012), and are unable to effectively use simple cues (Lau and Redlawsk, 2001). Under voluntary electoral rules, disinterested and ill-informed voters are free to sit out and let other fellow citizens decide who gets elected. And, many voters decide to do so. Under compulsory voting, however, voters are legally compelled to vote and may suffer penalties for not showing up to the polls. Thus, compulsory voting, by forcing citizens—who would rather stay put—to turn out and vote, may have even greater unintended, negative consequences on the electoral process. In particular, the overall competence and engagement of the electorate in choosing elected officials may well be lowered by another notch when coercing uninterested and uninformed citizens to vote. More importantly, the number of random votes cast by unwilling, uninformed and disinterested voters is increased as a result of CV's sanctions and these votes are unlikely to cancel each other out by the "miracle of aggregation"(Bartels, 1996; Jakee and Sun, 2006). Consequently, the choices of electorates under CV rules may be distorted by the increased randomness of ballots cast by reluctant voters. The multiplication of parties is another likely consequence of CV rules, since the random votes of reluctant and disinterested voters may favor any political party and stimulate fragmentation, as suggested by Jensen and Spoon (2011)'s findings.

The available empirical evidence suggests that compulsory voting may well undermine the quality of electoral decisions. One important area of inquiry about the second-order effects of compulsory voting concerns the criteria by which voters choose candidates and parties. Notably, scholars have examined how CV conditions proximity voting, that is, voters' ability to choose candidates and parties closer to their own policy preferences (Downs, 1957). Using survey data from Belgium, Selb and Lachat (2009) find that voters who report *not* being inclined to vote if compulsory voting were to be repealed are more likely to vote for candidates and parties that are less ideologically close to them. The authors conclude that "unwilling or ignorant voters forced to the polls by compulsory voting tend to make choices that are considerably less consistent with their policy preferences than voluntary voters (p. 587)."The same dampening effect of

compulsory voting on proximity voting has also been found by Dassonneville et al. (2017), using data from the Comparative Study of Electoral Systems (CSES) and controlling for numerous determinants, including education, political knowledge, ideology, number of effective parties, and strictness of compulsory voting laws.[2]

In contrast to Selb and Lachat (2009) and Dassonneville et al. (2017), Singh (2010) finds that the conditioning effect of compulsory voting on proximity voting is somewhat inconclusive because it depends on how party placement is measured. On the one hand, when using voters' average placements of parties, the model suggests that compulsory voting reduces proximity voting. When using experts' party placements, on the other hand, this effect fails to reach conventional levels of statistical significance. In contrast, Singh (2016b) provides evidence that the relationship between party identification, ideology, and party affect is much weaker under compulsory voting, as compared to voluntary voting systems.

Much less is known, however, about random voting *per se*, that is, the tendency of voters to choose haphazardly candidates and parties in elections only to fulfill their duty or obligation to vote. One indirect manifestation of random voting comes from the literature on ballot order effects that shows that voters are influenced by the order in which candidates and parties are presented to them on ballots (Barker and Lijphart, 1980; Kelley and McAllister, 1984; Miller and Krosnick, 1998). Recent estimates from the United States show that in nearly 5% of local elections for city councils and school boards winning candidates were chosen based on their mere position on the ballots (Meredith and Salant, 2013). In addition, in 7 out of 59 primary races in California, ballot order has also been found to change electoral outcomes substantially (Ho and Imai, 2008). Interestingly, Kelley and McAllister (1984) find a ballot order effect on election outcomes in Australia—where voting is compulsory—and not in the UK—where voting is voluntary. As noted by Kelley and McAllister (1984), the ballot order effect found in Australia (affecting close to 3% of voters) is presumably attributable to the increased share of disinterested voters compelled to participate in the electoral process.

Other aspects of the ballot structure can also exert influence on voters' choice and can be equally interpreted as manifestations of random voting. Banducci et al. (2008), for example, find that voters in the UK use candidate attractiveness in low-profile, low-information elections when photographs of candidates are presented on ballots. Similarly, Johns and Shephard (2011) find that about 1.5% of voters are affected by candidate attractiveness when photographs also appear on the ballots. The effect is strongest among those least interested in politics and least likely to vote and benefit mostly young candidates

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[2]   Interestingly, Dassonneville et al. (2017) find that compulsory voting does not appear to undermine economic voting. That is, voters under compulsory voting laws are no less likely to vote for (against) incumbents as a result of good (poor) economic performance.

over older ones. Admittedly, voters may think of attractiveness and age as proxy for other more "noble"candidates' traits and characteristics but such inferences are dubious.

The work on ballot structure (candidate and party ordering and the presence of candidates' photographs) comes mainly from studies examining voluntary electoral systems. Their findings suggest that even voters who go willingly to the polls are likely to cast a random vote. Random voting under compulsory voting is most likely higher—as evidenced by Kelley and McAllister (1984)—because it brings to the polls increased numbers of uninformed and disinterested voters (that wish to avoid the penalties for not voting). There is also other empirical evidence of lower voter engagement under compulsory voting, as compared to voluntary voting systems. Singh and Roy (2018), for example, show that voters who do not turn out to vote voluntarily in Australia (where voting is compulsory) generally spend less time seeking information on candidates than voters who would either way, be it compulsory or not. Moreover, compulsory voting—contrary to common wisdom—does not increase overall political knowledge (de Leon et al., 2014; Loewen et al., 2008).[3] In sum, the few empirical evidence we have at hand tends to support the idea that voter engagement is, on the whole, lower under compulsory voting. Consequently, the prevalence of random voting should be higher than what we find for voluntary electoral systems.

Admittedly, many compelled disinterested and uninformed voters may simply choose to vote blank or spoil their ballot (Katz and Levin, 2016; Martinez i Coma and Werner, 2019; Singh, 2017)[4], but some do indeed cast valid votes (Elkins, 2000). It is not clear how voters go about choosing randomly candidates and parties in an election. As discussed earlier, some may be influenced by the order of candidates and parties on the ballot or the appearance of candidates (when their photographs are on the ballots), but others may also simply emulate the choices of other voters like friends and family, as suggested by Jakee and Sun (2006). According to the authors, such phenomenon, labeled "information cascades,"is more likely to occur under compulsory voting rules because of the increased number of uninformed and disinterested voters and can lead to sub-optimal electoral outcomes. Still others may simply use the information they have readily available when voting (e.g., campaign leaflet, campaign slogan they heard on the radio or TV, etc).

Now, no matter what the mechanism behind random voting, little do we know about its prevalence in compulsory electoral systems, whether it varies by elected offices, and who is most likely to vote randomly. I hypothesize that random voting is not uncommon under compulsory voting because it compels a large share of low knowledge and disinterested voters to the polls. Many unengaged voters will vote blank or spoil their ballot, but many others will also cast a valid ballot. Measuring random voting, however, is not an easy task

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[3]   Sheppard (2015) finds a positive effect for compulsory voting on political knowledge but only when strong penalties for not voting are enforced.

[4]   In Brazil, voting machines include a button for blank votes and voters may also cast a null vote by typing in an invalid candidate or party number.

given that many voters may prefer not to acknowledge practicing it for social desirability reasons (Gerber et al., 2008; Holbrook and Krosnick, 2009). Hence, an adequate measure of its prevalence should also account for this possibility.

Hypotheses

I expect random voting to be more prevalent in low-profile, low-information elections because voters in such races have less opportunity to learn about the candidates due to their generally low media coverage. On the other hand, elections for higher profile offices like the presidency tend to receive the lion share of media coverage (Kahn, 1995; Squire and Fastnow, 1994). The unequal media coverage and attention create two classes of information environments, one where voters have low-cost and easily accessible information about candidates and parties and another one where access to such information is fairly limited and requires greater efforts. Moreover, lower-profile elections like local and legislative elections are generally perceived to be less important than elections for more prominent offices like the presidency, as indicated by their generally lower turnout rates (Morlan, 1984). Together, the perceived lower importance of low-profile elections and their reduced media coverage and attention combine to create a scenario propitious to random voting.

The first hypothesis is summarized as follows:

- H1: *Random voting should be more prevalent in low-profile, low-information elections, as compared to high-profile, high-information elections.*

Finally, I expect that random voting, just like invalid balloting (Katz and Levin, 2016; Martinez i Coma and Werner, 2019; Singh, 2017), should be more prevalent among less engaged voters. Political engagement can manifest itself in many different ways. Here, I consider voters that would prefer not to vote if elections were to be voluntary as less engaged voters. Such voters are frequently referred to as reluctant voters in the literature on compulsory voting and tend to use less proximity considerations in their vote decisions (e.g., Dassonneville et al., 2019; Hooghe and Stiers, 2017). I also consider political interest as a measure of political engagement because political interest indicates motivation to learn and interact with politics (Luskin, 1990). Finally, I consider political knowledge and education as two other measures close to political engagement. The first is an indication of engagement because to learn about politics one needs to minimally expose him or herself to politics. The second because it is frequently associated with democratic citizenship and political engagement (Nie et al., 1996). Thus I expect the less educated and less informed voters, those that have low interest in politics, and those that would rather not vote if voting were voluntary to be more likely to vote randomly in elections.

These hypotheses are summarised as follows:

- *H2: Voters who would prefer not to vote if voting were to be voluntary should be more likely to vote randomly.*

- *H3: Less knowledgeable voters should be more likely to vote randomly.*

- *H4: Less interested voters should be more likely to vote randomly.*

- *H5: Less educated voters should be more likely to vote randomly.*

Random voting in Brazil

Brazil is the largest democracy in the world to adopt compulsory voting and compelling voters to vote works in Brazil (Katz and Levin, 2016). The official records from the *Tribunal Superior Eleitoral* (TSE) show that only 19.4% of the Brazilian electorate abstained in the first round of the 2014 elections and another 9.6% voted blank or spoiled their ballot.[5] By analysing the 2014 Brazilian Electoral Study (*Estudo Eleitoral Brasileiro–*ESEB), Elkins (2000) finds that nearly half of the Brazilian voters (47.0%) would not vote if compulsory voting were to be repealed. Thus nearly half of the Brazilian voters could be considered as reluctant voters. But, more importantly for present purposes, if we consider that all those reluctant voters either abstained, voted blank or spoiled their ballot, we find that some 20% of the Brazilian electorate ended up casting a valid ballot in 2014 despite their preference for not participating in the election. And this figure is certainly a conservative estimate because not *all* abstainers and those who cast invalid ballots in 2014 were reluctant voters. To be sure, many voters in Brazil cast valid ballots although their engagement with the electoral process is very low.

But there is more. Brazil's electoral and party systems have features that make voter indifference very likely. First, the party system is extremely fragmented (Calvo et al., 2015). In the 2014 elections, for example, 28 parties won seats in the Chamber of Deputies.[6] Second, Brazil's open-list proportional representation electoral system contributes to the multiplication of candidacies (Ames, 2002). Together, these features combine to create highly complex electoral environment (Renno, 2004) where the sheer number of candidates represents probably the biggest obstacle for voters. In the first round of the 2014 elections in the state of São Paulo, for instance, every voter had to pick one from 11 presidential candidates, 9 gubernatorial candidates, 10 senatorial candidates, 1,318 federal deputy candidates, and 1,878 state deputy candidates. Random voting under such circumstances appears almost like a reasonable option.

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[5]　<https://goo.gl/wXryKF>

[6]　The effective number of parties in Brazil's lower Chamber according to Melo (2015) was an astounding 10.8 in 2014.

The 2018 Brazilian general elections were particularly prone to increase voters' frustration with the political system. This is because the major parties that dominated presidential elections for more than 20 years in Brazil, the Partido dos Trabalhadores (PT) and the Partido da Social-Democracia Brasileira (PSDB), were both affected by the largest corruption scandal in the history of Brazilian politics. The investigations from the Operation Car Wash revealed a billionaire corruption scheme involving politicians and businessmen from private infrastructure companies and the state-owned oil giant Petrobras. Furthermore, the emergence of Jair Bolsonaro as a strong candidate that ended up winning the presidential election running against the PT and the PSDB caught most pundits and academics by surprise.

Finally, Brazil uses electronic voting. While compulsory voting has been consistently associated to higher rates of invalid ballots (Cohen, 2018; Hirczy, 1994; Katz and Levin, 2016; Power and Roberts, 1995; Reynolds and Steenbergen, 2006; Singh, 2017; Uggla, 2008), research on electronic voting has shown that invalid votes are substantially reduced with the use of voting machines (Fujiwara, 2015; Schneider et al., 2019). For instance, Schneider et al. (2019) find that the adoption of electronic voting by Brazilian municipalities in 1998 substantially decreased the proportion of blank and null votes. Schneider et al. (2019) also find that the increase in valid votes was especially noticeable among poorer municipalities and that it also increased social spending. As I shall argue in the following pages, however, a significant share of the valid votes cast by Brazilian voters is essentially random.

In general elections, voters have to choose among candidates for five different offices: president, governor, senator (sometimes up to two senators), lower-chamber federal representative, and state representative. To cast their ballots, voters have to pin, for each elected office, a number on the numeric pad to indicate their preferred candidate or party. Numbers range from two digits (president and governor) to five digits (state representative). It is not uncommon for voters to walk in the voting booth with a small leaflet (known as *santinhos* in Portuguese) to help them cast their ballots. The leaflet presents the name, number, and picture of the candidate, with a suggested slate of candidates (also with their respective numbers) on the reverse side. In fact, *santinhos* often carpet the ground outside polling stations on the day of the elections. This is done in the hope that some voters will pick up the advertisement on the way to the poll and decide to (randomly) vote for the candidate. It is sometimes done to such a degree that it can cause injury, with the elderly at particular risk of slipping on the slick surface (G1, 2014).

Data and Method

My data comes from a large online survey conducted during the 2018 Brazilian general elections. 8,008 adult respondents were recruited between the first and second

round of the general elections (September 25–October 6, 2018) to participate in the study.[7] The sample is a nonrandom sample of the Brazilian population but follows quotas for gender, age, region, and social class. As can be seen in Table A1 of the Appendix, the online sample matches very closely the sociodemographic characteristics of the Brazilian population, with the online sample being slightly more educated and better off than the general population. Respondents were asked a series of questions about themselves, including a battery of demographic and socioeconomic items, questions about political knowledge, interest in politics, compulsory voting, and corruption in Brazil.

To date, all measures of random voting have been indirect, like those showing that voters are influenced by ballot order effects or candidates' appearance. To my knowledge, no study has asked voters whether they have ever chosen among candidates or parties randomly in an election. Asking voters to admit to random voting, however, can induce some to under-represent practicing it because such behavior may be perceived as socially undesirable (Gerber et al., 2008; Holbrook and Krosnick, 2009). To circumvent this possibility, I also embedded a list experiment in the survey to provide respondents with greater anonymity in their responses (Corstange, 2009; Glynn, 2013; Blair and Imai, 2012). List experiments have been increasingly popular in public opinion and electoral behavior research, covering a series of different sensitive issues, from racial and gender prejudice (Eady, 2017; Kuklinski et al., 1997) to electoral fraud and voter turnout (Ahlquist et al., 2014; Holbrook and Krosnick, 2009). Given the social pressure for meaningful engagement in elections, voters may have incentives to misreport the quality of their electoral choices when answering survey questions. Precisely, voters could be unwilling to report a random vote when asked directly, justifying the use of the list experiment to better estimate such behavior.

In list experiments, participants are asked to indicate how many items from a list of behaviors or opinions they have performed or agree with *without* indicating which specific behaviors or opinions. The list experiment design entails two lists: a control list with J items and a treatment list with $J + 1$ items. The additional item in the treatment list corresponds to the sensitive behavior or opinion of interest. Assignment to the control and treatment lists is random and any difference between the average number of items selected from both lists can be attributed to the addition of the sensitive item in the treatment list. The difference between the treatment and control group average number of items corresponds to the proportion of respondents selecting the sensitive item in the treatment group. This difference is an unbiased estimate of the proportion of respondents agreeing with the sensitive opinion or having performed the sensitive behavior (Blair and Imai, 2012).

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[7]   Data were collected by Netquest, the largest online survey firm in Brazil with nearly half a million panelists <https://www.netquest.com/pt-br/home/paineis-online-pesquisas>. Netquest is also the only firm to possess the ISO 26363 certification for online panels in Brazil.

Respondents from the online sample were randomly assigned to one of five groups, each numbering about 1,100 respondents.[8] The control group respondents were presented with the following question[9] containing four control items (all randomly ordered each time):

> The list below presents some of the things people do during
> elections. Please indicate how many of them you usually perform.
> We do not need to know which of these things you usually do. We
> are merely interested in the number of things from that list
> that you usually perform. Would you say that you do one, two,
> three, four, or none of these things?
>
> - Change TV channel to avoid watching publicly-paid electoral
>   propaganda
> - Wear a candidate's or party's button or sticker
> - Watch a debate between candidates on TV
> - Avoid talking about politics with friends or family

Respondents in the four treatment groups were presented with the same question and list of control items as control group respondents, but with the addition of the following sensitive item about random voting:

> - Vote for any candidate whatsoever for [state representative,
>   federal representative, governor, president] only because
>   voting is compulsory

Each treatment group list presented respondents with one of the following four elected offices: state representative, federal representative, governor, or president. The items from the control list were selected to avoid ceiling and floor effects, that is, the situation when respondents select either all or no items, thereby losing the added anonymity provided for by the list experiment. Moreover, a security question[10] was also added to the survey to ensure that respondents did not rush through the questionnaire because respondent attention may affect floor and ceiling effects in list experiments (Ahlquist, 2018).[11] Finally,

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[8] Other recruited participants (about 2,200) were also assigned to two additional groups that are not considered in this chapter because they focus on other behaviors not related to random voting.

[9] See Appendix I for the question wording in Portuguese.

[10] The questions asked respondents about topics unrelated to the survey to ensure that they were paying attention (e.g. "In what year are we?", "How much is $3 + 1$?"). Respondents who failed to answer the questions correctly were dropped from the survey.

[11] I also evaluated the *no design effect* assumption for the list experiment (Blair and Imai, 2012). This assumption stipulates that the addition of the sensitive item in the treatment list does not affect the probability of control, non-sensitive items being selected. I failed to reject the null hypothesis of *no design effect*, suggesting that the list was not affected by design effects.

control group subjects were also asked directly in a conventional way the sensitive item about random voting for each of the four elected offices after they have answered the list question. By comparing the estimated proportions from the direct questions and the list experiment, I can evaluate the extent of social desirability bias associated with random voting.

Results

Figure 1 displays the estimated proportions of respondents voting randomly using the direct questions and list experiment for each of the four elected offices (state and federal representatives, governor, and president) and the differences between the estimates from the direct questions and list experiment, also for each elected office.[12] Estimates are accompanied by their 95% bootstrapped confidence intervals.

The estimates from both the direct questions and list experiment suggest that the proportion of random voting hovers around 10%, with some differences between the elected offices. These estimates are substantially large and indicate that a significant share of the Brazilian electorate votes on the basis of a coin toss.

Interestingly, the estimated proportions from the direct question and the list experiment are very similar, suggesting random voting is not a socially sensitive behavior among Brazilian voters. In other words, many voters in Brazil do not appear to feel like voting randomly for any elected office runs counter to norms of civic duty. Precisely, none of the differences between the estimates reach conventional level of statistical significance. In what follows, I limit my analyses to the direct questions because the differences in the estimates from the direct questions and list experiment are negligible to nonexistent and the estimates from the direct question are much more precise than those obtained from the list experiment (as can be seen from the much larger confidence intervals around the list experiment estimated proportions[13] Blair et al. (2019).).

Figure 2 displays the estimated proportions of random voting from the direct questions, for all four elected offices, as shown in 1, and the differences between them. Again, the estimates are accompanied by their 95% bootstrapped confidence intervals. As expected, random voting is more common in low-profile, low-information elections. Estimates from Figure 2 show that as the importance of the elected office increases, random voting decreases. Specifically, I find that 13.4% of Brazilian voters admit to voting randomly for state representatives (SR). A slightly smaller proportion of voters (12.2%) also do so for federal representatives (FR), but much smaller proportions of voters (9.6% and 8.2%)

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[12] The proportions from the list experiment were obtained using the difference-in-means estimator.

[13] The increased variance that stems from indirect questioning is the main factor behind the larger confidence intervals in list experiments. For more details on this matter, see

Figura 1 – Estimated proportions of random voting from the direct questions and list experiment by elected office and the differences between these estimates (95% bootstrapped confidence intervals).

admit to voting randomly for governors (Gov) and presidents (Pres), respectively. The differences between the lower profile and lower information races for state and federal representatives and those for the governorship and the presidency all reach statistical significance at .05 (two-tailed). Some of the differences are also quite large. For example, many more voters admit to voting randomly in state representative races, as compared to the presidential elections, a difference of 5.2 percentage points.

The remaining question is who is most likely to vote randomly under compulsory voting and do these determinants vary by elected office. I proceed next with a multivariate analysis of random voting, adopting a single model to explaining random voting for all four elected offices. The dependent variable takes the value of 1 if the respondent indicated voting randomly for a given elected office and 0 otherwise. My independent variables of interest are political knowledge, interest in politics, education, and the willingness to vote if compulsory voting were to be repealed. These measures, as discussed above, are all related to political engagement. The regression equation is estimated by maximum likelihood, adopting the logit model.

The *political knowledge* variable is measured from a battery of eight questions (Cronbach's $\alpha = 0.743$), including the ability to identify the parties of some of the most
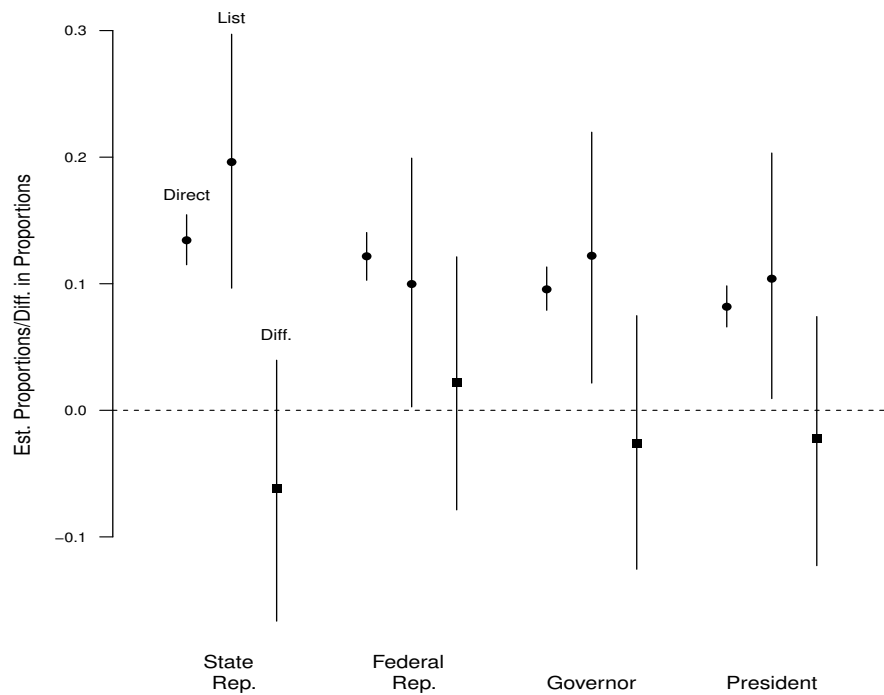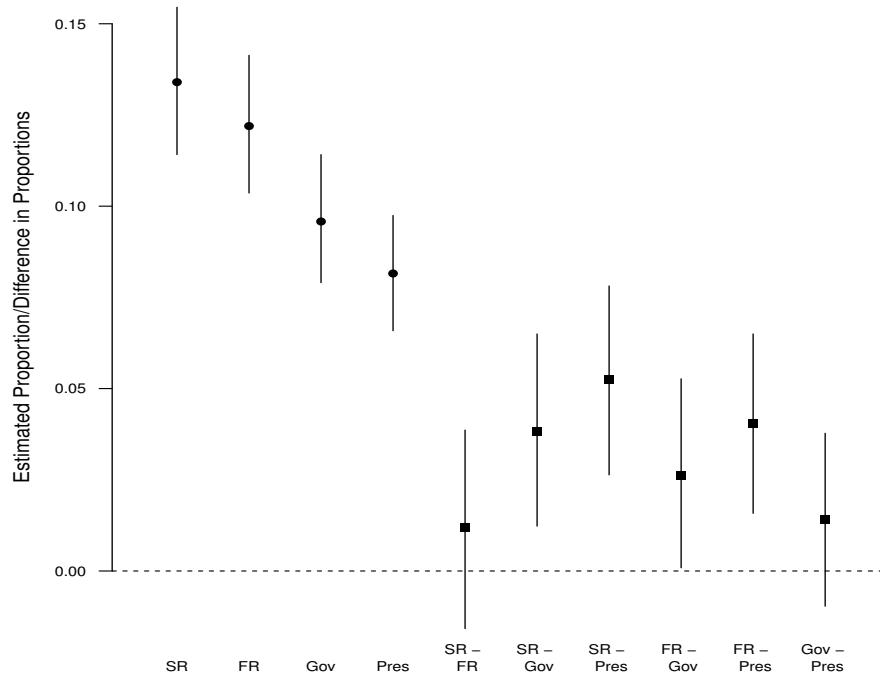
Figura 2 – Estimated proportions of random voting from the direct questions by elected office and the differences between these estimates (95% bootstrapped confidence intervals)

voted and known presidential candidates in the first round of the 2018 election (Jair Bolsonaro–PSL, Fernando Haddad–PT, Marina Silva–Rede, Geraldo Alckmin–PSDB, and Ciro Gomes–PDT), the duration of Senate terms (8 years), the main attribution of the Brazilian Supreme Court (decide on the constitutionality of laws), and the area in which the federal government spends the largest part of its budget (social security). I followed the advice from Clifford and Jeritt (2016) and included in the survey a commitment term question where respondents are asked to agree to not looking for answers to the knowledge questions. The inclusion of such question reduces cheating, a common behavior of respondents answering online surveys.

The *political interest* variable, for its part, is measured on a four-point scale from "no interest at all"to "a lot of interest"in politics. The *education* measure is a dichotomous variable indicating respondents who hold at least a college degree (coded 1) or less (coded 0). And, the *voluntary voting* variable measures the respondents' willingness to vote if compulsory voting were to be repealed. It is measured on a six-point scale ranging from "would definitely not vote"to "would definitely vote."

Finally, the regression equations also include the following control variables: age and its square (because I assume that the relationship between age and random voting

is non-linear as young and old voters are less likely to spend time processing political information (Lau and Redlawsk, 2008; Riggle and Johnson, 1996)), marital status (1 for married and stable union couples and 0 otherwise), gender (coded as 1 for female and 0 for male respondents), race (coded as 1 for white respondents and 0 otherwise), and income. All variables were recoded to span from 0 to 1 and missing data (mostly all from the income variable) were imputed using Amelia (Honaker et al., 2011). The model estimates are presented in Table A2 in the Appendix I.

Figure 3 presents the estimated proportions and differences in proportions when changing the values of the four independent variables of interest and holding the other variables at their mean value. Both the estimated proportions and differences in proportions are presented with their 95% confidence intervals.[14]

The upper left panel of Figure 3 shows the effect of education on random voting. It indicates that education, as expected, reduces random voting. Specifically, the estimated proportion of voters who admit to having voted randomly is significantly lower among voters who hold a college degree, as compared to those who do not. The average difference in proportions is large, at 4.3 percentage points, and reaches statistical significance at .05 (two-tailed) for state representative and presidential elections (and fails very shortly for both federal representative and gubernatorial elections). The effect of education on random voting is highest on state representative elections (a difference of 5.7 p.p. between those holding a college education and those who do not) and lowest in gubernatorial elections (at 3.0 p.p.).

The effect for political interest, presented in the upper right panel of Figure 3, is remarkable. Precisely, for all four elected offices, voters who have no interest at all in politics are very much more likely to vote randomly, as compared to those who have a lot of interest in politics. The mean difference in proportions attributed to political interest is a sizable 13.4 percentage points, more than 3 times as large as the effect of education, with a particularly strong effect on the low-profile, low-information elections of state and federal representatives (at 18.6 p.p. and 16.5 p.p., respectively). The smallest effect, although still very large, is that for presidential elections at 8.7 percentage points. To give an idea of the magnitude of this effect, the estimated proportion of voters who have a lot of interest in politics that admit to voting randomly in state representative elections is 7.1%. That proportion is nearly four times higher (at 25.7%) among voters who declare having no interest at all in politics.

The willingness to vote in elections if Brazil were to make electoral participation voluntary also exerts a strong effect on random voting. As the lower left panel of Figure 3 indicates, reluctant voters are, as expected, more likely to vote randomly than those who

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[14] Proportions and differences in proportions were estimated using Zelig (Choirat et al., 2018; Imai et al., 2008).
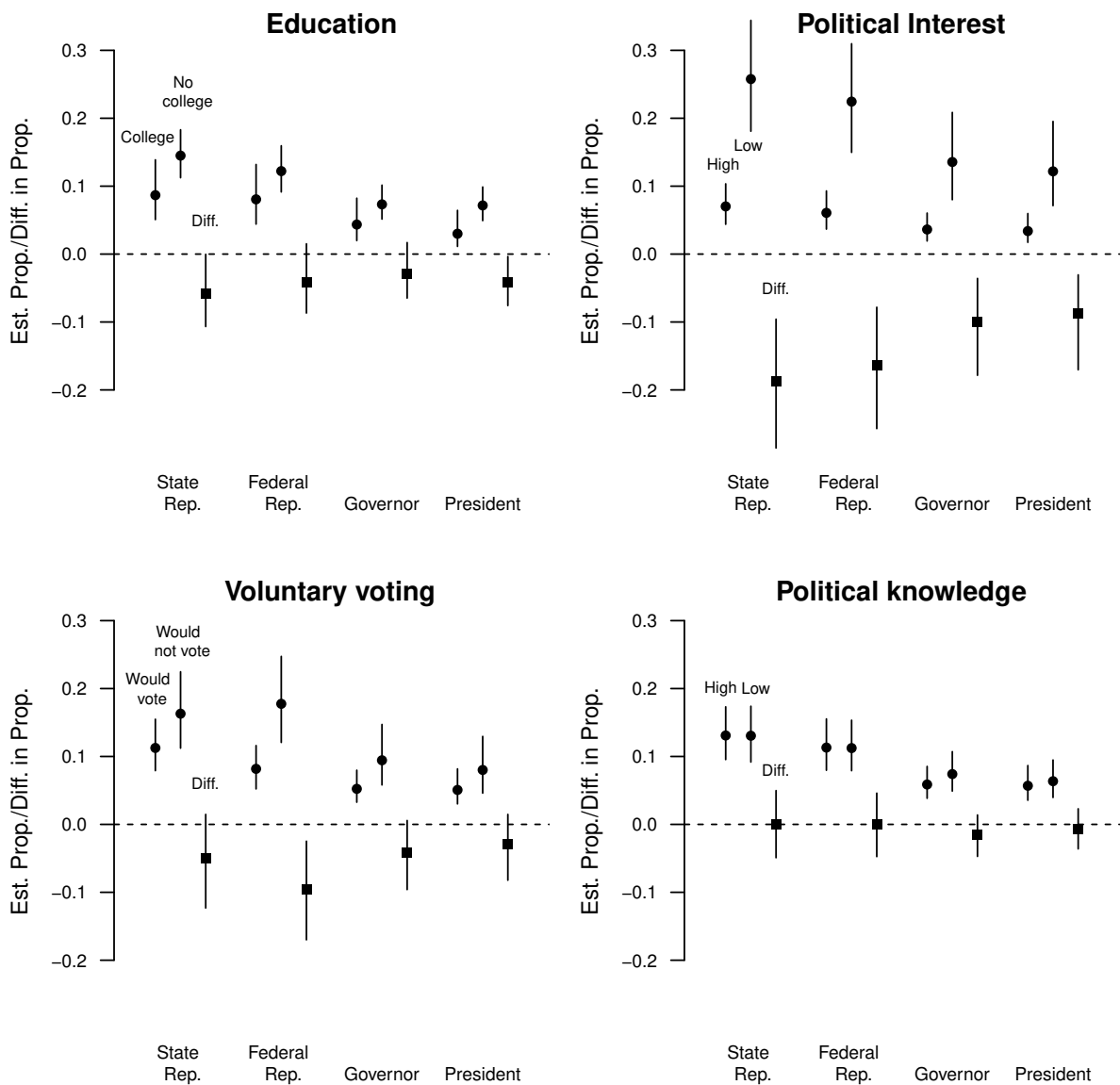
Figura 3 – Estimated proportions of random voting by elected office and political engagement (95% confidence intervals)

would vote independently of elections being voluntary or mandatory. The average effect for the *voluntary voting* variable is 5.5 percentage points, but only reaches the conventional .05 (two-tailed) level of statistical significance for federal representative elections (and very closely for gubernatorial elections). Precisely, the increase in random voting among reluctant voters is a substantial 9.5 percentage points for federal representative elections.

Finally, and contrary to expectations, political knowledge exerts no effect on random voting. As shown in the lower right panel of Figure 3, highly and poorly knowledgeable voters do not differ much. This last result is somewhat surprising, but suggests that political knowledge is weakly related to voter engagement, at least in Brazil. It may also

be an indication that my measure of political knowledge failed to appropriately measure the construct of interest.

Overall, these results indicate a very strong effect for political interest and reasonably strong effects for both education and the willingness to vote if voting were to be voluntary on random voting. Specifically, there are significantly larger proportions of low educated, disinterested voters, and people not inclined to vote under voluntary voting that admit to voting randomly (and in many different electoral races), as compared to more educated and interested voters and those disposed to vote under any rule. In sum, my findings are supportive of the idea that the less politically engaged citizens are more likely to vote randomly.

Discussion

In this chapter, I adopted a new approach to the study of random voting under compulsory voting by taking advantage of the list experiment design to estimate the proportions of Brazilian voters who admit to voting randomly in elections for state and federal representatives, governors, and presidents. By comparing these estimates with those obtained from asking respondents directly about practicing random voting, I found that such behavior is not affected by social desirability bias, at least not in Brazil. I opted to move forward with the estimates from the direct question and show that a substantial proportion of voters (about 10%) admit to voting randomly. I also demonstrated that random voting is more prevalent in low-profile, low-information races (state and federal representatives) when compared to gubernatorial and presidential elections, both of which receive much more media coverage. Finally, the multivariate analysis indicates that random voting is much more frequent among less educated, disinterested, and reluctant voters, that is, voters who would otherwise not vote if voting were voluntary. In sum, random voting is associated with low political engagement.

I am quite confident in my estimates of random voting for at least four reasons. First, this is the first study (to my knowledge) that has ever asked voters whether or not they have ever chosen candidates or parties haphazardly in an election. My measure, therefore, is a direct measure of the concept of random voting—not an approximation. Second, and relatedly, my estimates of random voting come from both conventional questioning and a list experiment (allowing for greater privacy in responses). Both approaches provide for two different means to measure the same quantity of interest and resulted in very similar estimates. Third, my estimates of random voting might actually represent a conservative estimate because the question (both direct and list) mentioned the act of choosing randomly candidates and parties "only because voting is compulsory."Indeed, it may well be the case that some voters choose to vote randomly for reasons other than that being legally

compelled to vote. Fourth, as mentioned in the *Data and Method* section, respondents from online sample are slightly more educated than the general population and, from the analysis presented in Figure 3, we know that more educated Brazilians are less likely to vote randomly. Thus ,y estimates are a conservative estimates of true random voting in Brazil.

Now, that about 10% of the Brazilian electorate admit to random voting appears like a high figure, at least as compared to estimates of voters being influenced by ballot ordering (Kelley and McAllister, 1984) or candidate photographs (Banducci et al., 2008) in other countries. But maybe not so much. The Brazilian electoral context is very complex— with weak parties and countless candidacies—making it difficult for voters to decide how to vote. The actual task of casting one's ballots is also very demanding on voters by requiring them to recall multi-digit numbers and pin them on a numeric pad once in the voting booth. Moreover, voting is compulsory in Brazil, bringing to the polls a large share of disengaged voters. These features are strikingly different from those found in the U.S., the UK, and Australia (although it has compulsory voting) where most estimates of random voting—all, again, indirectly attributed to ballot structure—have been uncovered. Not so surprisingly, my estimates of random voting are significantly larger than what others have found previously and may not be representative of what is to be found in other parts of the world, including countries with compulsory voting. To be sure, more research is needed to measure and explain random voting elsewhere.

Finally, my results carry important implications and, in particular, about compulsory voting. It confirms, like other studies have, that compulsory voting produces electorates that are, on average, less engaged with the electoral process than under voluntary voting. Many of these compelled and less engaged voters express their dissatisfaction by voting blank or spoiling their ballots, but by also choosing haphazardly among candidates and parties. Random voting, contrary to blank and spoiled ballots, can exert undesirable effects on electoral outcomes because, as demonstrated theoretically by Jakee and Sun (2006), it is very unlikely that these random votes cancel each other out in the aggregate. In close races, random votes can potentially change electoral outcomes and put in power officials that would not be elected otherwise, affecting, in turn, the kinds of laws and public policies that are enacted. Furthermore, such misguided votes by compelled and less engaged voters can also affect the levels of party fragmentation, as has been shown by Jensen and Spoon (2011).

To be sure, these results should be considered seriously by countries contemplating adopting compulsory voting to increase electoral turnout. Low turnout represents a serious problem for electoral democracies as it weakens the legitimacy of elected officials, but coercing voters to the polls may not be an ideal solution either if it fails to also engage the new voters. In other words, an increase in the sheer amount of voters is not a guarantee of

more representative electoral outcomes if it is accompanied by a non-negligible number of voters that decide their vote on the basis of a coin toss. In sum, electoral outcomes under compulsory voting may be no more representative than those found under voluntary voting.

Appendix I

Online survey sample characteristics

Table A1 below presents sociodemographic characteristics of the online survey sample and compare them with the Brazilian National Household Survey Sample (*Pesquisa Nacional por Amostra de Domicílios*, PNAD), fielded at about the same time (3rd quarter of 2018). The Brazilian National Household Survey Sample is a quarterly study conducted by the *Instituto Brasileiro de Geografia e Estatística* (IBGE), the Brazilian census agency. As Table A1 demonstrates, the online sample matches very closely the sociodemographic characteristics of the Brazilian population. I encounter small differences for education and social class, with the online sample being slightly more educated and better off than the general population.

Tabela A1 – Sociodemographic characteristics of the online sample as compared to those by the Brazilian National Household Survey Sample

	Online survey	Brazilian National Household Survey
Men	49.5	48.3
Women	50.5	51.7
Age	36.7	35.6
High school degree	37.6	23.8
College degree	15.7	12.1
North	7.8	8.6
Northeast	27.9	27.5
Southeast	42.4	41.9
South	14.5	14.3
Midwest	7.4	7.7
White	44.5	43.2
Brown (*pardo*)	41.2	46.9
Black (*preto*)	11.3	8.8
Asian (*amarelo*)	2.2	0.7
Indigenous	0.7	0.4
Social class†		
A	2.6	2.8
B1	7.6	4.6
B2	14.8	16.4
C1	29.5	21.6
C2	17.6	26.1
DE	27.9	28.5

Note: All entries are percentages except for age.

†Data for social class at the national level come from the *Associação brasileira de empressas de pesquisa*. Their classification is based on data also collected from the IBGE, through the Family Budget Study (*Pesquisa de Orçamento Familiar*).

Tabela A2 – Explaining random voting by elected office

	State Representative	Federal Representative	Governor	President
Age	1.470	1.495	-.815	.538
	(1.261)	(1.331)	(1.455)	(1.558)
Age^2	-1.871	-1.903	.688	-.364
	(1.398)	(1.476)	(1.619)	(1.722)
Women	-.088	-.294	-.308	-.384
	(.186)	(.197)	(.218)	(.232)
Married	-.216	-.086	.316	.240
	(.194)	(.205)	(.228)	(.242)
White	-.300	-.324	-.392	-.323
	(.191)	(.202)	(.229)	(.242)
Income	.977	.498	-2.011	-2.469
	(.816)	(.937)	(1.219)	(1.291)
Education	-.601*	-.494	-.608	-.992*
	(.303)	(.321)	(.405)	(.491)
Political interest	-1.533**	-1.512**	-1.435**	-1.402**
	(.376)	(.396)	(.440)	(.464)
Voluntary voting	-.421	-.876**	-.643	-.505
	(.309)	(.326)	(.360)	(.381)
Political knowledge	.003	.021	-.436	-.226
	(.387)	(.406)	(.448)	(.473)
Constant	-.817	-.661	-.504	-.994
	(.302)	(.314)	(.337)	(.363)

Note: Entries are logit coefficient estimates with standard errors in parentheses from the combined imputations. Zelig created 5 imputed datasets, each with 1139 observations.
* $p < .05$; ** $p < .01$ (two-tailed)

List Experiment Questions in Portuguese

Below I present the original question wording of the list experiment questions, in Portuguese. The item order from both control and treatment lists was randomized to reduce response order effects.

Control list

A lista abaixo contém algumas coisas que as pessoas fazem durante as eleições. Por favor, indique quantas delas você costuma fazer. O objetivo não é saber quais, mas sim a quantidade de coisas dessa lista que você costuma fazer. Você diria que costuma fazer nenhuma, uma, duas, três ou quatro dessas coisas?

- Mudar de canal para não ver a propaganda eleitoral gratuita.

- Usar broche ou adesivo de algum(a) candidato(a) ou partido.

- Assistir a um debate entre candidatos(as) pela televisão.

- Evitar falar sobre política com amigos ou familiares.

Treatment list

A lista abaixo contém algumas coisas que as pessoas fazem durante as eleições. Por favor, indique quantas delas você costuma fazer. O objetivo não é saber quais, mas sim a quantidade de coisas dessa lista que você costuma fazer. Você diria que costuma fazer nenhuma, uma, duas, três, quatro ou cinco dessas coisas?

- Mudar de canal para não ver a propaganda eleitoral gratuita.

- Usar broche ou adesivo de algum(a) candidato(a) ou partido.

- Assistir a um debate entre candidatos(as) pela televisão.

- Evitar falar sobre política com amigos ou familiares.

- Votar em qualquer candidato(a) a [CARGO] só porque o voto é obrigatório.

3 Compulsory Voting, Spoiled Votes and Social Desirability Bias

Abstract

Blank and null votes are often seen as signs of dissatisfaction with democracy or as a form of electoral abstention in systems with compulsory voting laws. Despite the mounting evidence on the relationship between compulsory voting and invalid ballots, recent research has questioned whether survey measures of invalid ballots under mandatory voting laws are valid. In this chapter I examine spoiled votes under compulsory voting focusing on two important variables: 1) the extent to which spoiled votes reported in surveys are affected by social desirability bias; 2) the determinants of spoiled votes under compulsory voting. My hypotheses sustain that spoiled votes are affected by social desirability bias in surveys and that citizens who are politically unengaged and distrustful of parties are more likely to cast a spoiled vote. Using a list experiment from a large online survey in Brazil, I find that: 1) survey reports of blank and spoiled votes under compulsory voting are affected by social desirability bias; 2) "reluctant" voters and voters who distrust political parties are more likely to cast blank and spoiled votes. My findings suggest that social pressure for valid votes is specially strong among those who would rather not vote if voting was no longer mandatory. I conclude with a discussion on the consequences of social desirability bias for voter behavior under compulsory voting laws.

Introduction

Blank and null votes are often seen as signs of dissatisfaction with democracy or as a form of electoral abstention in systems with compulsory voting laws (Katz and Levin, 2016; Singh, 2016a). Given that compulsory voting forces citizens who would likely not vote if voting was voluntary, many of these citizens prefer not to choose any candidates and just leave their voting ballots blank or spoiled. This is reason for concern for policymakers desiging electoral institutions because, by stimulating blank and spoiled votes, compulsory voting may increase electoral turnout rates without increasing electoral representativeness.

Indeed, the relationship between compulsory voting and spoiled ballots has been well documented by a series of empirical studies using different methods and data from several democracies around the world (Cohen, 2018; Hirczy, 1994; Katz and Levin, 2016; Power and Roberts, 1995; Reynolds and Steenbergen, 2006; Singh, 2017; Uggla, 2008). Despite the wealth of evidence on this relationship, a question that remains unanswered is whether survey reports of vote spoiling are valid measures. This is because blank or null ballots may be considered undesirable behavior that reflects political ignorance or undemocratic values (Katz and Levin, 2016; Driscoll and Nelson, 2014). Consequently, voters may feel uncomfortable revealing that they spoiled their votes, which may affect estimates in models explaining invalid ballots. Conversely, voters could also feel pressured to report invalid votes in survey interviews despite having cast valid votes because the vast majority of politicians are perceived as corrupt by most people in Brazil. Casting invalid votes could thus be seen as a socially desirable behavior.

Some of the empirical work on compulsory voting and spoiled votes has considered the possibility that voters may feel uneasy to reveal that they voted null or blank (Cohen, 2018; Driscoll and Nelson, 2014; Singh, 2017). So far, however, no study has adopted a strategy to investigate social desirability bias in survey reports of blank and null votes. In this chapter I use a list experiment (Blair and Imai, 2012; Corstange, 2009) to fill this gap in the literature.

Using data from a large online survey conducted in Brazil, the largest democracy in the world using compulsory voting, I ask whether Brazilian voters cast invalid ballots simply because the law requires them to vote. I use both direct and indirect questions to measure sensitivity bias in survey reports of blank and spoiled votes. My aim is to, first, test whether survey reports of invalid ballots under compulsory voting are affected by social desirability bias. Next, I build a model to explain blank and null voting under compulsory voting laws. My findings suggest that "reluctant"voters, that is, voters who would prefer not to vote if voting was no longer compulsory, and voters who distrust political parties are significantly more likely to cast blank and null votes.

It should be noted, however, that my approach obviously does not allow me to

isolate the causal effect of CV on spoiled ballots. Other studies have provided stronger evidence on the effect of compulsory voting laws for spoiled ballots (Katz and Levin, 2016; Singh, 2016a). My main goal is to estimate the extent to which spoiled votes are a sensitive question.

The first section of the chapter reviews the literature on the relationship between compulsory voting and invalid ballots as well as social desirability bias in survey research. The second section presents the hypotheses. In the third section I present my data and methods, while the fourth section presents the results. The final section of the chapter ends with a discussion of the importance of social desirability bias for research on voter behavior under mandatory voting.

Compulsory Voting and Invalid Ballots

One of the main concerns among social science scholars and policymakers alike is the decrease in electoral participation in both new and old democracies. The solution proposed by many for the declining rates in voter turnout and an arguable lack of representativeness of democratic institutions is the adoption of compulsory voting (Lijphart, 1997). Scholars have long documented how compulsory voting increases the number of blank and null votes (Cohen, 2018; Hirczy, 1994; Katz and Levin, 2016; Power and Roberts, 1995; Reynolds and Steenbergen, 2006; Singh, 2017; Uggla, 2008), however. Such findings run counter to the idea that meaningful citizen engagement in electoral processes can be fostered by means of legal sanctions, as invalid votes may be considered a form of electoral abstention (Katz and Levin, 2016).

The rationale for the significantly higher rates of blank and spoiled votes under compulsory voting may lie in how most voters react to the sanctions imposed to them for not voting. If voters perceive authorities as less legitimate due to compulsory voting sanctions, then higher rates of blank and spoiled ballots may be a form of manifesting opposition to being forced to vote.

For instance, recent experimental research shows that the sanctions imposed by mandatory voting may make voters angry (Miles and Mullinix, 2019). Furthermore, studies on compliance with laws show that citizens are less willing to cooperate with mild laws that are exogenously imposed, but considerably more willing to cooperate when the same laws are endogenously instituted, as by means of a referendum (Tyran and Feld, 2006).

Blank and spoiled votes could mean that citizens are distrustful of democratic institutions and prefer not to take part in the process of choosing political leaders. In the context of compulsory voting rules, where citizens are forced by law to turn out to the polls, the incentives for casting invalid ballots are likely higher among those who would

prefer not to vote if voting was voluntary. This is because those who are uninterested in politics may not want to seek information on candidates (Singh and Roy, 2018) and prefer to simply manifest their indifference to politics in general while simultaneously avoiding the costs of compulsory voting sanctions (Katz and Levin, 2016).

It should be noted, however, that compulsory voting is not the only institution that has been found to increase invalid ballots. For instance, Power and Roberts (1995) found that the complexity of the Brazilian electoral system, with its extremely fragmented parties and complex proportional voting rules, increases the number of invalid ballots. The authors note, however, that their study is subject to ecological fallacies, since it relies on aggregate data, and therefore cannot provide insights on voters' motivations for invalidating their votes. Power and Roberts (1995) suggest the use of survey data as a means of collecting individual-level evidence on the determinants of spoiled votes.

Several empirical studies using both national and cross-national survey data have, indeed, found a substantial effect of compulsory voting on spoiled ballots (McAllister and Makkai, 1993; Singh, 2017; Katz and Levin, 2016). McAllister's (1993) study on the Australian 1987 and 1990 federal elections suggests that compulsory voting increased the number of spoiled votes, as did the complexity of the Australian electoral system and the large presence of immigrants in the country.

Katz and Levin (2016) use both aggregate and individual-level data from Brazil to model the causes of spoiled ballots and electoral absenteeism. The authors use hierarchical models with official data from elections and data from the *Estudo Eleitoral Brasileiro* survey and find that, at the individual level, lower political knowledge and higher dissatisfaction with democracy both increase spoiled ballots. Given that CV laws are likely to increase the number of less knowledgeable and democratically disaffected individuals turning out to vote, their findings provide further evidence that CV may be ineffective in making democracy more representative.

Using a regression discontinuity design with survey data from several Latin American countries in which citizens from certain ages are no longer obliged to vote, Singh (2017) finds that compulsory voting increases invalid votes among citizens who are politically distrusting and negatively oriented towards democracy. Similarly, Uggla (2008) uses data from 200 elections in Western Europe and finds that compulsory voting is associated with a substantial increase in invalid ballots.[1]

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[1]　See Cohen (2018) for a different view.

Invalid Ballots and Social Desirability Bias

Despite the mounting evidence on the effect of compulsory voting on invalid ballots, a question that remains unanswered by the literature is the validity of conventional survey data for the measurement of spoiled votes. Since spoiled votes could be considered a form of electoral abstention (Katz and Levin, 2016), protest (da Silva et al., 2014) or political alienation (Cohen, 2018), voters could have incentives to misreport spoiled votes in survey interviews. In other words, survey questions on invalid votes could be affected by social desirability bias, which can be defined as "the tendency of individuals to underestimate (overestimate) the likelihood they would perform an undesirable (desirable) action" (Chung and Monroe, 2003, p. 291).

For example, Driscoll and Nelson (2014) consider the possibility that their results on the determinants of spoiled votes are affected by social desirability bias, since voters could feel uneasy about reporting a protest vote (Driscoll and Nelson, 2014, pp. 553, 555). In an attempt to circumvent such problem, the authors use aggregate data to validate the results of their tests.

Similarly, Singh (2017) considers the hypothesis of social desirability bias in the measurement of spoiled votes[2]. Using official data from national elections across Latin America and comparing them to the estimates from the *Americas Barometer* surveys, the author concludes that voters *overreport* spoiled votes. Singh (2017) notes, however, that the *Americas Barometer* is not an electoral study and uses questions about voting intentions, which may provide unreliable voting behavior measures. Cohen (2018) also uses data from the *Americas Barometer* and finds that voters in Latin America tend to *underreport* spoiled ballots, but only by a slight margin. These results suggest that the direction of the bias in survey reports of spoiled ballots is unclear.

Social desirability bias or, more broadly, sensitivity bias, may be manifested in two forms: misreport and nonresponse (Blair et al., 2019). Either of these forms can have consequences for the description of a given phenomenon, in that they can misrepresent the number of respondents agreeing (disagreeing) with a certain attitude or reporting to have (or have not) engaged in certain types of behavior.

I believe that the question of whether conventional survey estimates of spoiled ballots under compulsory voting are valid remains unsettled. This question is not merely a methodological quirk, since social desirability bias is a widespread concern among social scientists (Blair et al., 2019) and it can affect the extent to which certain opinions and behaviors are prevalent. In other words, the validity of spoiled vote measures can have substantial consequences for compulsory voting studies. Indeed, as Cohen (2018) notes, compulsory voting may reduce inequality in electoral *participation* without reducing

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[2] See Section 6 of the Appendix in Singh (2017).

inequality in vote *choice.*

Considering the issue of validity in measures of spoiled votes, I compare the direct question estimates to the list experiment estimates and show that spoiled votes under compulsory voting laws are significantly affected by social desirability bias. I also propose a model for the determinants of spoiled votes under mandatory voting. My findings suggest that "reluctant"voters and voters who distrust political parties are significantly more likely to cast blank or spoiled votes.

Hypotheses

Festinger's (1954) social comparison theory poses that individuals constantly assess their own behaviors and that, when doing so, they tend to rely on individuals similar to them as standards for comparison. As summarised by Cialdini and Trost (1998): "(...) when people are unsure, they are most likely to look and accept the beliefs and behaviors of similar others as valid indicators of what they themselves should believe and do."(Cialdini and Trost, 1998, p. 172) This is precisely the case of valid voting under compulsory voting. That is, even though many voters go unwillingly to the polls under mandatory voting and feel the urge to cast an invalid vote, they also may use others as references for their own behavior and feel like they ought to cast a valid vote in order to act as the majority of others similar to them. Given this contrast between one's desire to cast an invalid vote and the need to act as others who are similar, I expect that blank and spoiled votes are subject to social desirability bias.

H1. *Questions on blank and spoiled votes are affected by social desirability bias.*

Studies on the relationship between compulsory voting and invalid ballots have found that distrusting, unengaged and protesting voters are more likely to cast blank and spoiled votes (Cohen, 2018; Singh, 2017). Indeed, if compulsory voting increases the chances that uninterested voters turn out to vote, one can expect that many such voters will cast invalid ballots, since invalid balloting may also be considered a form of electoral abstention (Katz and Levin, 2016). Invalid ballots may further reflect distrust in political institutions, mainly political parties, or simply a rejection of the obligation to vote.

Sanctions aimed at inducing certain kinds of behaviors may actually backfire under given circumstances. For instance, recent findings suggest that sanctions for not voting may not only induce higher rates of blank and spoiled votes, but also decrease voters' satisfaction with democracy (Singh, 2016a) and induce anger (Miles and Mullinix, 2019). As a result, punishment may harm the legitimacy of authorities and lead citizens to act in protest, specially when it comes to penalizing behaviors that are not considered criminal

by most citizens, such as electoral abstention. Since sanctions for electoral abstention may increase voters' dissatisfaction with democracy and anger, I expect those who are distrustful of democratic institutions, such as political parties, those who would rather abstain if voting was no longer compulsory and those who are not interested in politics to be more likely to cast invalid ballots as a response to compulsory voting laws.

H2. *Voters who believe corruption is widespread among political parties should be more likely to cast blank or null votes*

H3. *Uninterested and reluctant voters should be more likely to cast blank or null votes*

Data and Methods

Participants were recruited from the online survey mentioned in Chapter 2, which was conducted in the week preceding the 2018 Brazilian general elections. 8,008 adult respondents were recruited before the first round of the general elections (September 25–October 6, 2018) to participate in the study. my sample is comprised of 3,418 respondents. I use a list experiment with the same control items mentioned in Chapter 2 and add two different treatment groups with sensitive items for blank and null votes.

The treatment list for blank votes read as follows[3]

> ```
> The list below presents some of the things people do during
> elections. Please indicate HOW MANY of them you usually perform.
> I do not need to know which of these things you usually do. I
> am merely interested in the number of things from that list that
> you usually perform. Would you say that you do one, two, three,
> four, five or none of these things?
> ```
>
> - `Change the TV channel to avoid watching publicly-paid`
>   `electoral propaganda`
> - `Wear a candidate's or party's button or sticker`
> - `Watch a debate between candidates on TV`
> - `Avoid talking about politics with friends or family`
> - *`Vote blank just because voting is mandatory`*

The treatment list for null votes was identical, with the exception of the sensitive item, which read as follows:

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[3] I randomized the item order in all lists to avoid recency or primacy effects (Blair and Imai, 2012).

- *Vote null just because voting is mandatory*

The number of observations for each group was 1,139 for the control list, 1,121 for the blank vote list and 1,158 for the null vote list. The direct questions read just as the ones used in Chapter 2, except that they referred to blank and null votes. Following recent recommendations on the analysis of list experiments (Ahlquist, 2018; Blair et al., 2018), I use the difference-in-means estimator to measure the proportion of respondents choosing the sensitive items in the treatment lists. Below I describe the variables used in my model.

Interest in politics: Originally measured as a four-point scale. I recoded it so that voters who reported that they were either "interested"or "very interested"were coded as 1 (interested) and those who said they were "not interested"or "not interested at all"were coded as 0 (not interested).

Political knowledge: Originally measured as a battery of eight questions including the correct identification of the parties of presidential candidates, the area in which the federal government spends most of its budget, the number of years of a senator's mandate and the name of the appointed minister of the economy. I created a three-category variable coded as 1 if the respondent is 1 standard deviation above the mean of political knowledge (high knowledge), 0 if she is between one standard deviation above or below the mean (mean knowledge) and -1 if she is one standard deviation below the mean (low knowledge).

College: Coded as 1 for respondents who hold a college degree and 0 otherwise.

Willingness to vote: Originally measured as a six-point scale ranging from "Would definitely vote"to "Would definitely not vote". Respondents were coded as 1 (non-reluctant) if they reported that they would either "Likely vote", "Very likely vote"or "Definitely vote"if CV were repelled and 0 otherwise.

Trust in parties: Originally measured as a five-point scale. Respondents were asked how much they agreed with the following statement: "Corruption is widespread among all political parties in Brazil". Respondents were coded as 1 if they were 1 standard deviation above the mean, 0 if they were between 1 standard deviation above or below the mean, and -1 if they were 1 standard deviation below the mean.

Age: Measured in years.

Income: Categorical variable ranging from less than 1 monthly minimum wage to 21 or more monthly minimum wages measured in Reais.

Results

Figure A1 displays the difference between the direct question and list estimates of blank and null votes due to compulsory voting rules with 90% bootstrapped[4] confidence intervals.[5] As the figure clearly shows, the reporting of blank and null votes due to compulsory voting laws is affected by social desirability bias. While 15% and 21% of respondents admit to cast blank and null votes as a response to compulsory voting rules in the direct question, respectively, the list experiment estimates show that 24% and 30% of respondents admit to cast blank and null votes due to compulsory voting laws, respectively. As Driscoll and Nelson (2014) note, indeed, voters appear to feel uneasy to declare to have spoiled their votes just because the law requires them to turn out to the polls.

Although the results shown in Figure 1 are already telling, a more detailed view of social desirability bias in survey reports of blank and spoiled votes is shown in Figure 2. In Figure 2, I analyse subsets of respondents according to their willingness to vote if voting was no longer mandatory. I define voters who responded to be more inclined to vote as "non-reluctant"while those who are more inclined not to vote are defined as "reluctant".

The subset analysis of the list experiments exhibited in Figure 2 clearly shows that reluctant voters are much more affected by social desirability bias when answering the sensitive question of interest (i.e. vote blank/null simply because voting is compulsory). Indeed, while no statistically significant differences are found in the reporting of invalid ballots for non-reluctant voters, the differences found for reluctant voters are astoundingly large.

About 10% and 14% of non-reluctant voters say they usually vote blank or null simply because voting is compulsory when asked directly and the list estimates are not significantly different, 10% and 21%, respectively. Reluctant voters, however, significantly misreport invalid ballots as a response to mandatory voting. While the direct estimates of blank and null votes for reluctant voters are 25% and 34%, respectively, these estimates reach 47% and 52% when the questions are asked indirectly in a list, which correspond to increases of 88% and 52% in reports of blank and spoiled votes, respectively.

Given the social desirability bias regarding blank and null votes under compulsory voting shown in Figure A1 and A2, I conduct multivariate analyses of blank and spoiled votes under compulsory voting using the list experiment estimates. The model includes

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[4] Even though 90% confidence intervals may be considered a less stringent test as a general rule of thumb, it should be noted that list experiments usually require considerably large samples for the detection of sensitivity biases. For instance, Blair et al. (2019) show that list experiments with samples smaller than 3,000 subjects may fail to detect moderate, albeit significant, sensitivity biases within the range of 10 to 15 percentage points.

[5] Just as in Chapter 2, I also conducted tests for the "no design effect"assumption and, as expected, I failed to reject the null hypothesis ($p = 1$) in both list experiments. This result strongly suggests that the addition of the sensitive item in the treatment list did not affect the probability of control items being chosen.
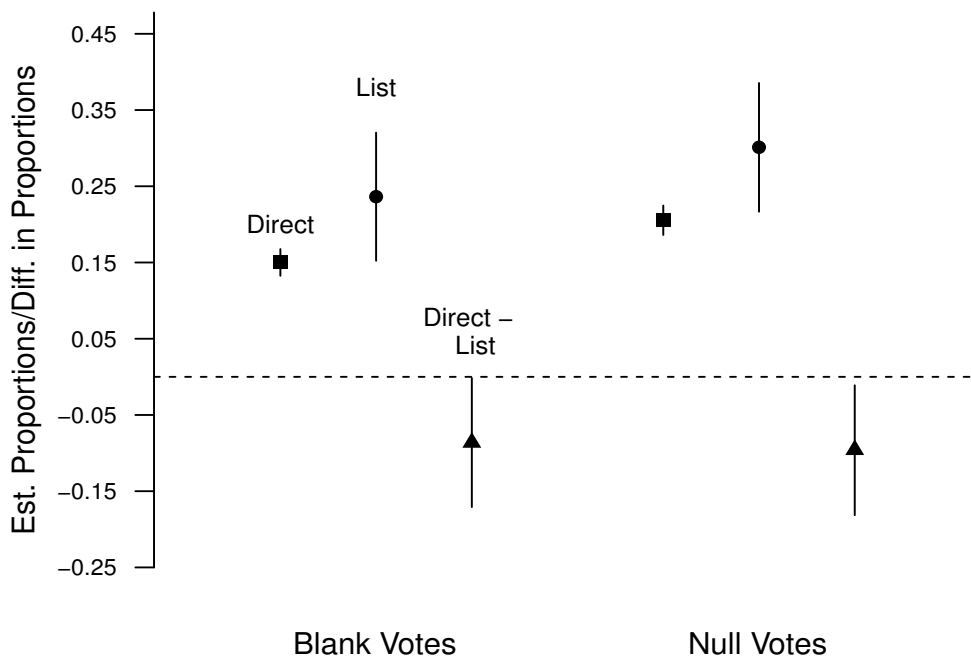
Figura A1 – Estimated proportions of blank and null votes from the direct questions and
list experiment and the differences between these estimates (90% bootstrapped
confidence intervals)

the main variables of interest, namely, interest in politics, willingness to vote if CV were
repelled and trust in political parties[6]. I also include controls for age, education and
income.

I use the maximum likelihood estimator developed by Blair and Imai (2012) for the
multivariate analysis of list experiments. Since the interpretation of regression coefficients
in this type of model is not straightforward, in Figures A3 and A4, I present the changes in
the estimated proportions of respondents affirming to vote blank and null simply because
voting is mandatory, respectively, for my main variables of interest.[7]

Among the four main variables, willingness to vote if CV were repelled and trust in
political parties reach statistical significance at $p < .10$. As expected, "reluctant" voters are
more likely to cast blank[8] votes and voters distrusting of political parties are more likely

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[6] Measured as a five-point scale. Respondents were asked how much they agreed with the following
     statement: "Corruption is widespread among all political parties in Brazil".
[7] The regression coefficients are displayed in Table A3 in the Appendix II.
[8] The effect for null votes nearly reaches statistical significance at $p < .10$.
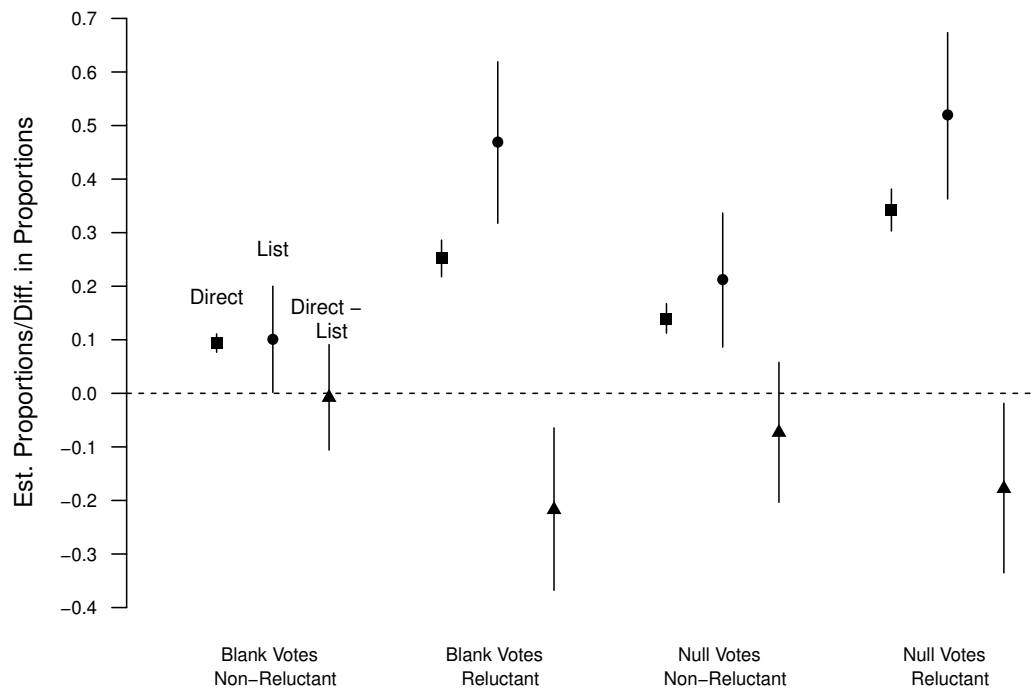
Figura A2 – Estimated proportions of blank and null votes from the direct questions and list experiment and the differences between these estimates for "reluctant"and "non-reluctant"voters (90% bootstrapped confidence intervals)

to cast null votes. More precisely, while 39% of reluctant voters, on average, report to cast null votes simply because voting is compulsory, only 28% of "willing"voters do so. As for voters who distrust political parties, 29% of them report voting null just because voting is mandatory, while only 17% of voters who trust parties do so. This finding is in line with previous research on the effects of CV on unengaged and distrustful voters (Singh, 2017).

Political knowledge did not exhibit an effect on blank or spoiled votes. This finding is in line with previous research conducted in Brazil by da Silva et al. (2014), who also don't find an effect of political sophistication on blank and spoiled ballots. This means that spoiled votes under compulsory voting are less likely to be a product of the increase in less knowledgeable citizens turning out to vote.

Similarly, interest in politics failed to reach statistically significant effects in both blank and null votes. This finding suggests that citizens uninterested in politics may nonetheless be just as likely to cast valid votes under compulsory voting laws as their interested counterparts. Given the previous findings showing a negative relationship between compulsory voting and proximity voting (Dassonneville et al., 2017, 2019; Selb and Lachat, 2009), this finding further sheds light on the quality of vote choice under compulsory voting.

The finding that "reluctant"voters are considerably more likely to cast blank or spoiled votes calls into question the capacity of compulsory voting to make citizens more politically engaged. This is worrisome because nearly 50% of the respondents in the survey said they were inclined not to vote if voting was no longer compulsory in Brazil.

Figura A3 – Estimated proportions of null votes for variables of interest with 90% confidence intervals.
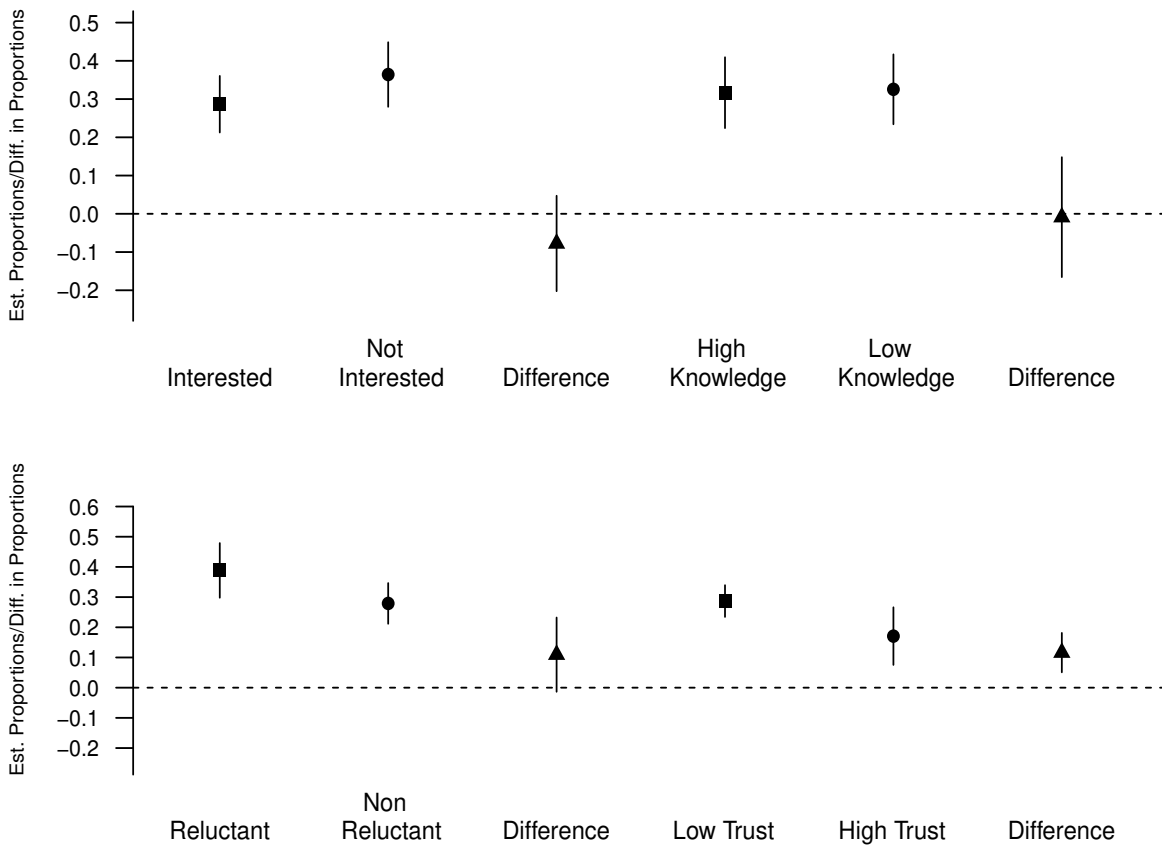
Discussion

In this chapter I used an innovative approach to measure social desirability bias in survey reports of blank and spoiled votes under compulsory voting. I also used multivariate analyses to test whether unengaged and distrustful voters are more likely to vote blank or null simply because voting is mandatory in Brazil. My findings suggest that blank and null votes are significantly affected by social desirability bias, given that the list experiment prevalence rates were about 10 percentage points higher than those measured by direct questions and nearly 20 percentage points higher among "reluctant"voters. This result is

Figura A4 – Estimated proportions of blank votes for variables of interest with 90% confidence intervals.
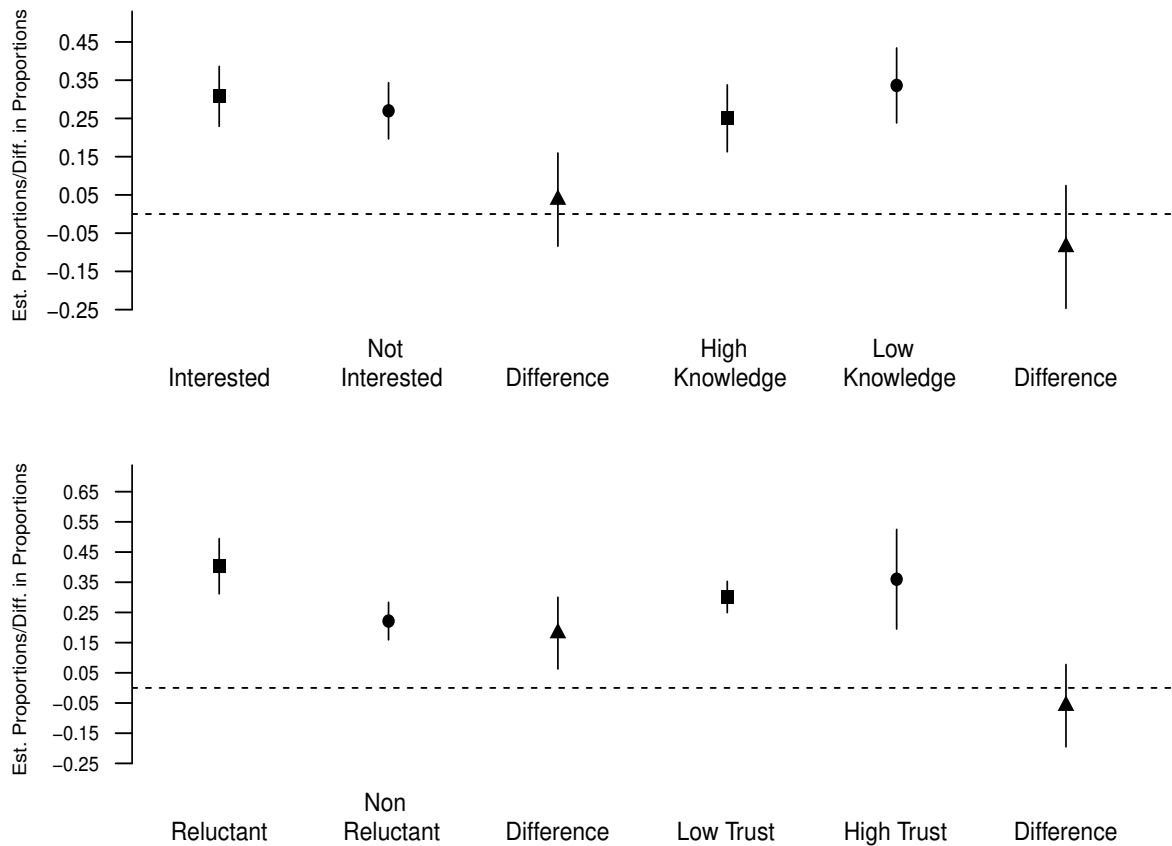
indicative that voters may feel pressured to report casting valid votes in order not to look ignorant or politically alienated in the eyes of survey interviewers.

I should also note that my results are very likely conservative estimates of the social desirability bias of blank and spoiled votes under compulsory voting. This is because the survey was conducted online and we know from previous research that survey modes may moderate social desirability bias. For instance, Holbrook and Krosnick (2009) found that list experiment estimates of voter turnout were significantly lower in face-to-face surveys, but not in telephone surveys. Furthermore, my sample is slightly more well-off and educated than the average Brazilian voter, further suggesting that I am *underestimating* the sensitivity bias of blank and spoiled votes under mandatory voting.

What are the consequences of sensitivity bias regarding blank and spoiled votes under CV laws? If many voters feel uneasy to admit that they voted blank or null, could the social pressure for meaningful engagement in elections affect their behavior when voting? In other words, are some "reluctant"voters casting valid votes just to conform with social

norms of engagement in elections? If this is the case, then perhaps some of the random votes reported in the previous chapter could be explained by the social desirability bias of valid votes. That is, even though voting is secret, some voters could still feel compelled to cast a valid, random vote due to social pressure. Future research should explore the behavioral consequences of sensitivity bias of blank and spoiled votes.

Appendix II

Tabela A3 – Estimated coefficients from logistic regression

	Blank Votes	Spoiled Votes
Age	-.000	-.002
	(.010)	(.009)
Income	.036	-.004
	(.030)	(.029)
Education	.328	-.292
	(.365)	(.392)
Political interest	.194	-.363
	(.385)	(.354)
Voluntary voting	.877	.538
	(.350)	(.345)
Political knowledge	-.217	-.021
	(.247)	(.229)
Trust in parties	.279	-0.243
	(.370)	(.136)
Constant	-1.491	.391
	(0.517)	(.694)

Note: Entries are logit coefficient estimates with standard errors in parentheses from the multivariate analyses of list experiments. The outcome variable is whether or not a respondent chooses the sensitive item in the treatment list (i.e. vote blank/null just because voting is compulsory). Tests are two-tailed.

4 Compulsory Voting, Political Knowledge and Partisanship

Abstract

Compulsory voting rules' "second order effects", that is, effects that go beyond boosting electoral turnout, have been recently studied by political science. Among such effects are the development and strengthening of partisan identification and increases in political knowledge. In this chapter, I examine the relationship between compulsory voting, partisanship and political knowledge by using natural experiments. The analyses are based on electoral surveys conducted in Brazil. The results revealed no effects of compulsory voting laws on either party identification or political knowledge and thus call into question the capacity of compulsory voting in making citizens more engaged with politics.

Introduction

Can compulsory voting have other effects besides increasing electoral turnout? For instance, could compelling citizens to vote make them more engaged in politics in general, by increasing their knowledge of politics or making them closer to political parties? The "compelled engagement"(Sheppard, 2015) hypothesis has been tested in a few empirical studies, but results remain inconclusive (Carreras, 2016; de Leon et al., 2014; Bruce and Lima, 2019; Sheppard, 2015; Birch, 2016; Singh and Thornton, 2013).

In this chapter, I examine two important possible "second order effects"of compulsory voting: the development of party identification (Birch, 2016; Singh and Thornton, 2013; Dalton and Weldon, 2007) and political knowledge (Sheppard, 2015; de Leon et al., 2014; Loewen et al., 2008). By increasing the number of less informed voters turning out to vote, compulsory voting may foster partisan identification because voters rely on party or group labels as cues when they lack information on issues (Downs, 1957; Lupia, 1994). Consequently, "compelled"voters could have incentives to look for parties that are more likely to represent their interests and to work as cues for their voting decisions.

Similarly, compulsory voting could increase knowledge of politics by making citizens more attentive to political campaigns and debates during election times. The concept of "rational ignorance"developed by Downs (1957), however, suggests that voters have little incentives to increase their knowledge of the political world, given the infinitesimal weight of their votes in electoral results. Empirical studies on the relationship between compulsory voting and political learning are mixed, with some suggesting that penalties for electoral abstention can increase knowledge (Sheppard, 2015) or news consumption (Bruce and Lima, 2019) and others suggesting no such effects (de Leon et al., 2014; Loewen et al., 2008)

Mandatory voting's capacity to make citizens more engaged with politics is a central question in the debates regarding its desirability. If engagement in politics is endogenous to democratic processes, such as voting, then compelling citizens to vote could, indeed, increase levels of party identification or political knowledge. Evidence on compulsory voting's relationship with spoiled ballots (Katz and Levin, 2016; Singh, 2017; Uggla, 2008), however, suggests that penalties for voter abstention may backfire. In other words, compelling citizens to vote could have no effect on reducing alienation from politics and could increase instead dissatisfaction with democracy (Singh, 2016a).

The few empirical studies on the relationship between compulsory voting and party identification provide inconclusive evidence. While Singh and Thornton (2013) and Dalton and Weldon (2007) find that compelling citizens to vote increases the number of voters who identify with a political party as well as the strength of such identity among partisans, Birch (2016) finds no such effect.

Common to the previous studies of the relationship between party identification and compulsory voting is the use of observational methods that have high external validity but lack internal validity. In other words, while previous works have certainly contributed to the study of compulsory voting and partisanship, a methodological approach that isolates the causal effect of compulsory voting on individual-level partisanship remains lacking. One such approach is the use of natural experiments (Dunning, 2008), which have been explored in studies on the relationship between compulsory voting and political knowledge (de Leon et al., 2014) and news consumption (Bruce and Lima, 2019).

In this chapter, I take advantage of natural experiments in Brazil where voting is voluntary for citizens of certain age groups and compulsory for others. My data comes from surveys conducted in Brazil, the largest democracy in the world adopting compulsory voting. Using a regression discontinuity design (Imbens and Lemieux, 2008), I estimate the local average treatment effect of compulsory voting on party identification and political knowledge. My findings suggest that compulsory voting does not increase neither party identification nor foster political learning.

This chapter is divided as follows. In the first section I review the comparative literature on partisanship and compulsory voting. The second section reviews the literature on compulsory voting and political knowledge. The third section describes the electoral rules and the enforcement of compulsory voting in Brazil. The fourth section presents my hypotheses, while the fourth section presents the data and methods. In the fifth section, I present my results. The chapter ends with a discussion of my findings for the study of compulsory voting and representative democracy.

Compulsory Voting and Partisanship

Partisanship is perhaps the most studied variable in the field of political behavior (Green et al., 2004). The scholarly interest in partisanship is well justified, since partisan attachments appear to have pervasive and strong effects in politics, shaping political attitudes (Gerber et al., 2010; Samuels and Zucco, 2018), conditioning assessments of government performance (Bartels, 2002) and even predicting non-political events, such as the choice of candidates for scholarships (Iyengar and Westwood, 2015).

The strength of partisanship has also been found in countries with relatively young and poorly established party systems (Samuels and Zucco, 2018; Lupu, 2013; Baker et al., 2016). Regardless of one's take on partisanship, either as an "unmoved mover"or as a sum of policy preferences (Johnston, 2006) or even as neither of these (Baker et al., 2016), voters' partisan identities remain central to political science.

Yet, most studies on partisanship assume that most voters are willing to vote and

have incentives to use parties as a reference for their voting decisions. This may be true for voluntary voters, but the same may not hold for "reluctant"voters, that is, those who only turn out to vote because the law requires them to do so. This is important because if "voluntary"and "reluctant"voters have different incentives to look for parties that represent their interests, then compulsory voting may (or may not) fail to make elections more representative.

As noted in previous chapters, recent theoretical and empirical studies in political science call into question compulsory voting's capacity of improving electoral representativeness (Dassonneville et al., 2017, 2019; Selb and Lachat, 2009; Jakee and Sun, 2006). The role of partisanship for proximity voting, however, is somewhat unclear. That is, while some studies suggest that partisanship *strengthens* proximity voting (Joesten and Stone, 2014), others suggest that it *undermines* it (Jessee, 2010; Simas, 2013).

Although my concern is not the relationship between partisanship and proximity voting per se, it is important to note that partisanship may affect electoral representativeness, which further justifies the importance of understanding the link between partisanship and compulsory voting.

Political socialization could play a role in fostering party identification in electoral systems with compulsory voting. According to the "Michigan Model"(Campbell et al., 1960), party identification is a stable trait in public opinion that is transmitted between family members. Under compulsory voting, citizens are more likely to interact with politics and, consequently, to develop partisan attachments.

Partisanship is a strong predictor of voter turnout (Green et al., 2004). Therefore, if compulsory voting can increase levels of partisanship among voters, its effects on voter turnout may be further strengthened. In other words, part of the impact of CV on voter participation could possibly be indirect.

According to Singh and Thornton (2013), however, "reluctant"voters are *more* likely to use parties as cues, since many such voters are less sophisticated than their "voluntary"counterparts. In their study, Singh and Thornton (2013) conjecture that partisanship under compulsory voting acts as a convenient cue for less sophisticated voters who only turn out to the polls because the law requires them to.

In their cross-country analyses, only four countries have compulsory voting: Brazil, Belgium, Argentina and Chile.[1] Their descriptive analyses, however, did not suggest any relationship between compulsory voting and partisanship. In Singh and Thornton's (2013) words: "A preliminary examination revealed no clear relationship between compulsory rules and the existence of partisanship. Further, there is almost no difference in the mean

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[1]   Chile abolished compulsory voting in 2012. Also, the Chilean compulsory voting law was only valid for citizens who decided to enroll as voters, which was voluntary.

strength of attachments across compulsory and voluntary systems."(Singh and Thornton, 2013, p. 196)

Singh and Thornton (2013) argue that confounding factors such as multipartism and the electoral system as well as the selection process may explain the apparent null findings on the relationship between compulsory voting and partisanship. The authors use a hierarchical model to account for such confounders and find that compulsory voting increases both the incidence and the strength of partisanship among citizens with lower levels of formal education.

Using a similar hierarchical model to that of Singh and Thornton (2013), Birch (2016) finds no effect of compulsory voting laws on voters' levels of party identification. Actually, in a first glimpse, Birch (2016) notes that compulsory voting appears to *reduce* party identification. In the author's words: "(...) contrary to expectations, the citizens of mandatory voting states have if anything lower levels of party identification than those in states where voting is voluntary"(Birch, 2016, p.). Birch (2016) notes, however, that the negative relationship between CV and party identification does not reach statistical significance in multivariate models.

Even if confounding factors could explain the (lack of) differences in the incidence and strength of partisanship between countries with and without mandatory voting laws, as Singh and Thornton (2013) argue, it should be noted that hierarchical models may prove inappropriate for causal inference (Gelman, 2006). This is because these models are subject to ecological fallacies, that is, associations found at the aggregate-level that are not found at the individual-level, even when individual-level data are available (Gelman, 2006, p. 434).

Considering the methodological limitations of previous studies on the relationship between compulsory voting and partisanship, I use regression discontinuity designs (Imbens and Lemieux, 2008) to test the causal effect of compulsory voting on individual-level partisanship. As I shall argue further, even though the method proposed here lacks external validity, much like laboratory experiments, it gains on internal validity.

Compulsory Voting and Political Knowledge

The literature on CV's effects for increasing citizens' political knowledge and interest has contrasting findings. On the one hand, researchers have found that compelling citizens to go to the polls increases voters' overall levels of political knowledge (Sheppard, 2015). On the other hand, studies using different approaches have found little evidence for the "compelled engagement"hypothesis (de Leon et al., 2014; Loewen et al., 2008) Such contrast is grounded in both theoretical and methodological issues.

On the theoretical side, the literature has still not addressed the precise reason why

voters would become more informed due to CV penalties. The most common hypothesis is that, by forcing citizens to go the polls, voters would have incentives to seek information and vote meaningfully. In other words, scholars have yet to uncover the precise mechanism by which "rational ignorance"(Downs, 1957) is, arguably, not the dominant behavior for the majority of voters under CV rules.

While CV has certainly proven to act as an effective institution for increasing voter turnout (Panagopoulos, 2008), its capacity to foster information seeking, one of the "second-order effects"(Loewen et al., 2008), is still unclear. Using questions of hypothetical behavior under voluntary voting rules, Engelen and Hooghe (2007) do not find evidence of knowledge gains from CV. Using an experimental design with sanctions for electoral abstention, Loewen et al. (2008) find no effects of CV on political knowledge and engagement. Similarly, de Leon et al. (2014) find no learning effects of compulsory voting. By applying a regression discontinuity design with data from Brazilian students in the ages of 16 up to 18 years old[2], the authors compare the knowledge gains from CV between voluntary and compulsory voters. Their findings support the "rational ignorance"theory (Downs, 1957). Finally, Singh and Roy (2018) simulate an election in a laboratory setting and find that "reluctant"voters spend less time seeking information on candidates.

Bruce and Lima (2019) use a regression discontinuity design to assess whether compulsory voting laws increase voters' information consumption. Using a large survey on media consumption in Brazil, the authors compare the number of voters under voluntary and compulsory voting rules who report watching the major Brazilian TV news program, *Jornal Nacional.* Bruce and Lima (2019) find that compulsory voting increases TV news consumption by about 16% among voters near the age thresholds from which voting becomes compulsory (and voluntary again) in Brazil.

Sheppard (2015) finds evidence for CV effects on knowledge gains. Using data from the Comparative Study of Electoral Systems (CSES), the author relies on multivariate analyses of survey data to study the effect of CV on political knowledge. Controlling for the strictness of penalties, the author finds evidence of second order effects. The author underscores, however, that CV effects are only found when penalties are strongly enforced (Sheppard, 2015,   p. 304). The most prominent effect of CV, according to Sheppard's findings, is reducing the effect of formal education on political knowledge. In other words, the increased overall engagement of citizens under CV rules reduces the importance of education for knowledge.

In this chapter, I follow de Leon et al. (2014) and Bruce and Lima (2019) and use a regression discontinuity design to test whether compulsory voting increases citizens' knowledge of politics. de Leon et al. (2014) used this approach with high school and college

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[2]   Voting is voluntary for citizens aged 16 and 17 in Brazil, while it is compulsory for citizens between 18 years old and 70 years old.

students in the state of São Paulo in Brazil and found no effects of compulsory voting on political knowledge. Similarly, Bruce and Lima (2019) use regression discontinuity design with a national sample of Brazilian citizens and found that compulsory voting increases TV news consumption. In this chapter, I use this same approach with a sample of senior citizens near the age threshold in which voting becomes no longer compulsory.

Hypotheses

The "compelled engagement"hypothesis sustains that, under compulsory voting, voters have incentives that go beyond simply showing up to the polling booths. Party identification and political knowledge could be forms of engaging in politics that stem from mandatory voting laws. In other words, according to the "compelled engagement"hypothesis the development of party identification and knowledge is endogenous to political processes. Therefore, the "compelled engagement"(CE) hypotheses can be summarized as follows:

H_{CE1}: Compulsory voting should have a positive and significant effect in fostering party identification among voters.

H_{CE2}: Compulsory voting should have a positive and significant effect in increasing political knowledge among voters.

In contrast, the rational choice theory predicts that rational voters will use party labels as convenient shortcuts in the face of low information (Downs, 1957; Lupia, 1994). Rational choice theorists, however, have not developed this theory with "reluctant"voters in mind. Indeed, much of what has been produced in the field of political behavior comes from countries with voluntary voting rules. Theories on voters' utility functions for turning out to vote under compulsory voting laws have already been developed (Panagopoulos, 2008; Singh, 2010), but little to none have been produced in terms of *how* voters should make their choices in these contexts.

While "voluntary"voters may derive utility from voting on the basis of party labels "reluctant"voters may only be interested in avoiding the sanctions of compulsory voting laws. That is, "reluctant"voters have strong incentives for turning out to the polls on election day (Panagopoulos, 2008), but may have little incentives to develop party attachments or to increase their knowledge of politics. This is because finding a political party that reflects one's attitudes requires information seeking, which has been found to be significantly less common among "reluctant"voters (Singh and Roy, 2018). Furthermore, voting is secret and "reluctant"voters are allowed to cast invalid ballots or simply to vote randomly. Finally, compulsory voting laws may increase dissatisfaction with democracy among those who are

politically disinterested (Singh, 2016a) and make voters angry (Miles and Mullinix, 2019).

The "reluctant voter"(RV) hypotheses are summarized as follows:

H_{RV1}: *Compulsory voting should have no significant effect in fostering party identification among voters.*

H_{RV2}: *Compulsory voting should have no significant effect in increasing political knowledge among voters.*

Data and Methods

The data come from the *Estudo Eleitoral Brasileiro* - ESEB (Brazilian Electoral Study). The ESEB is a post-election study designed by the *Centro de Estudos e Opinião Pública* from the University of Campinas (Unicamp). It is a nationally representative survey that covers a series of electoral issues, including partisanship and attitudes toward compulsory voting. I use the 2014 and 2018 ESEB editions to measure the impact of compulsory voting on partisanship. Since the two editions contain questions that are identically worded, I merge the two data sets and include a dummy variable for year.

Partisanship is measured by the following question:

```
Is there any political party that represents the way you think?

   1 Yes

   2 No

   3 Don't know (Spontaneous)

   4 Not answered (Spontaneous)
```

The descriptive data show that Brazilians' levels of partisanship are somewhat low when compared to those of more established democracies. In 2014 and 2018, the proportion of Brazilian voters reporting to identify with a party was 25.4% and 27.6%, respectively. The ESEB also includes a question on respondents' attitudes toward compulsory voting. The question asks whether respondents would have voted if CV were repelled that year. It is worded as follows:

```
In this year's election, if voting was not compulsory would you
have voted?
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```
    1 Yes

    2 No

    3 Maybe/Depends

    4 Don't know (Spontaneous)

    5 Not answered (Spontaneous)
```

As for political knowledge, I focus on voters' ability to correctly position the Brazilian parties in a left and right 10-point ideology scale. To be sure, the Brazilian party system is uncommonly fragmented, which further increases the difficulty in correctly identifying parties' ideological placements. Because of this feature of the Brazilian party system, I focus on the four parties that have had released candidates to the Presidency in the last six years[3]: the *Partido dos Trabalhadores* (PT), the *Partido da Social Democracia Brasileira* (PSDB), the *Democratas* (DEM) and the *Partido Socialismo e Liberdade* (PSOL).

The ideological placement of parties is important because it is a reference for voters to choose candidates that are closer to their preferences. The ESEB 2014 and 2018 measure voters' knowledge of parties' ideologies with the following question:

```
In politics people talk a lot about left-wing and right-wing. On
a scale where zero means left-wing and 10 means right-wing, for
each party that I cite, I would like you to use this scale to
say whether the party is left-wing or right-wing. If I say the
name of a party that you do not know, just say that it you do
not know it. How would you rate:
```

I use relative positioning as a measure of knowledge. That is, respondents who correctly place a party's ideology relative that of other party's are coded as 1 and 0 otherwise. For example, respondents who give the PT *a lower score* than the PSDB are coded as 1 and 0 otherwise. Likewise, voters who give the DEM *a higher score* than the PSOL are coded as 1 and 0 otherwise. Respondents who either reported not knowing what left and right ideologies mean or not knowing the party at question were also coded as 0. The knowledge scale is composed of four items measuring the relative ideological placement of the following parties: PT x PSDB, PSOL x DEM, PSDB x PSOL and PT x DEM.

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[3]   Jair Bolsonaro's former party, *Partido Social Liberal* (PSL) did not launch a candidate for the Brazilian Presidency back in 2014 and was not included in ESEB's 2014 questionnaire on parties' ideologies.

Regression Discontinuity Designs and Causal Inference

Regression discontinuity (RD) designs have become increasingly popular in political science, economics, and other fields. In the basic RD design units of observation have a score and treatment is assigned to units above (or below) a cutoff point, while units below (above) the same cutoff are not exposed to the treatment (Cattaneo et al., 2017). This design implies that the probability of receiving treatment changes substantially at the cutoff point and that units cannot manipulate their score in order to receive the treatment (Cattaneo et al., 2017).

In the RD design researchers have no control over treatment assignment, but since the distribution of units around the cutoff point occurs "as if"randomly (Dunning, 2008), the difference between treated and control groups around the cutoff point provides a local estimate of the causal effect of the variable of interest. The case of compulsory voting laws in Brazil perfectly fits this design. That is, while citizens aged 16 and 17 and those with 70 or more years of age are not required by law to vote, those aged between 18 and 69 years are subject to penalties if they abstain in national or local elections.

The RD has been used in a series of studies assessing the impact of various policies, including the minimum legal drinking age (MLDA) (Carpenter and Dobkin, 2009), the adoption of quotas in executive positions for members of castes in India (Chauchard, 2014), compulsory voting (Cepaluni and Hidalgo, 2016; Jaitman, 2013; Singh, 2016a), among many others. Its main advantage is that it is one of the observational research designs that most closely resemble a randomized experiment. It has high internal validity. Since compulsory voting laws obviously cannot be manipulated by researchers or the units, the RD comes as one of the most suitable methods to study the impact of CV on partisanship.

Much like laboratory experiments, however, the estimates provided by the RD lack external validity because they are local estimates of the effects of interest. Here, for example, they tell us about the effect of CV among young voters (around 18) and senior voters (around 70).

There are two types of RD designs: "sharp"and "fuzzy". The "sharp"design entails that all units with scores above (below) the cutoff actually receive the treatment and units below (above) the same cutoff do not receive it. That is, "sharp"RD designs imply assigned treatment conditions are identical to the received treatment conditions by units (Cattaneo et al., 2017). In contrast, "fuzzy"RD designs do not entail perfect compliance from units with scores above or below the cutoff. In a "sharp"RD design, by comparing the vertical distance between treated and control groups at a given value of the score X_i, one can obtain the average local treatment effect of interest.

The RD design, like in experimental designs, adopts a "potential outcomes"framework (Rubin, 2005). This means that, in a given point in time, one can only

observe units in *one* of two conditions: treatment or control. Since one never observes units simultaneously at treatment *and* control conditions, units have two potential outcomes, $Y_i(1)$ and $Y_i(0)$, each representing treatment and control groups outcomes, respectively (Cattaneo et al., 2017; Skovron and Titiunik, 2015). As a result, the observed outcome in the "sharp"RD design is given by:

$$Y_i = (1 - T_i).Y_i(0) + T_i.Y_i(1) = \begin{cases} Y_i(0) & \text{if } X_i < c \\ Y_i(1) & \text{if } X_i \geq c \end{cases}$$

Where T is a dichotomous treatment variable that is equal to 1 for treated units and 0 for control units, X is the "running variable"for which scores are measured, while c is the cutoff point. It should be noted, however, that treatment T may also be assigned to units below the cutoff c, while units above c may be assigned to the control condition. As I will explain further in this chapter, this is precisely the case of compulsory voting in Brazil, where voting is no longer compulsory for citizens above a given age threshold.

One of the most important differences between RD designs and randomized experiments is that, in the former, inferences about the causal effect of a given variable depend on assumptions regarding the functional form of the regression function (Skovron and Titiunik, 2015). This is due to the fact that units with different scores may differ dramatically from each other (Skovron and Titiunik, 2015), while treatment and control units in a randomized experiment are, on average, identical. Hence, the observed outcome for a given score in regression discontinuity designs is:

$$E[Y_i|X_i] = \begin{cases} E[Y_i(0)|X_i] & \text{if } X_i < c \\ E[Y_i(1)|X_i] & \text{if } X_i \geq c \end{cases}$$

In this chapter, I adopt a "sharp"RD design because, in Brazil, voting is voluntary for citizens of certain ages and compulsory for citizens of other ages. Brazilian voters aged 16 and 17, as well as those aged 70 and above are allowed to vote voluntarily, but not required by law to do so. In contrast, voters aged between 18 and 69 years old are obliged by law to vote. In other words, the probability that a voter will receive the treatment of interest (being subject to penalties for not voting) is zero at scores below the cutoff (among the 16 and 17 year-olds) and above the cutoff (among the 70 year-olds or older).

Results

Descriptive data from ESEB 2014 and 2018 show that, much like the data collected in the online survey described in the previous chapters, compulsory voting is very unpopular in Brazil. Actually, the ESEB estimates show that the majority of Brazilian voters would not have voted in the 2014 and 2018 general elections if voting was no longer compulsory. While 52.3% of those interviewed in 2014 said they would not have voted in that year's election in the absence of CV sanctions, this figure increased to a whopping 58.8% in 2018.

Furthermore, partisanship is conditioned by willingness to vote if compulsory voting were repelled. There are stark differences between "reluctant"and "voluntary"voters when it comes to party identification. As it can be seen from Tables 4 and 4, while, in 2014, 36.6% of "voluntary"voters report identifying with a political party, only 17.8% of "reluctant"voters do so ($\chi^2 = 124.03$, $p < .001$). In 2018 these figures are 37.8% and 21.0%, respectively ($\chi^2 = 82.52$, $p < .001$). These differences are much smaller when it comes to education: 11% and 9% of those with and those without a college degree, respectively, reported having a political party with which they identified ($\chi^2 = 3.61$, $p < .10$).

		Would vote if CV were repelled	
		Yes	No
Identifies with	Yes	260 (36.6%)	486 (17.8%)
a party	No	843 (63.4%)	1203 (82.2%)
	Total	100%	100%

Source: ESEB 2014

Tabela A4 – Party identification among reluctant and non-reluctant voters (2014)

		Would vote if CV were repelled	
		Yes	No
Identifies with	Yes	382 (37.8%)	304 (21.0%)
a party	No	628 (62.2%)	1142 (79.0%)
	Total	100%	100%

Source: ESEB 2018

Tabela A5 – Party identification among reluctant and non-reluctant voters (2018)

From Table A6, we see that very few respondents correctly placed all four political parties. Nearly 60% of respondents either incorrectly placed all four parties or simply did not know the meaning of left and right ideologies.

Correct Answers	Number of respondents	%
0	2849	58.0
1	656	13.0
2	718	15.0
3	195	4.0
4	524	11.0
Total	4,942	100.0

Tabela A6 – Respondents' knowledge of parties' relative ideological placements

I begin with the question of whether compulsory voting laws enhance party identification by using data from the ESEB 2014 and 2018 editions. Before conducting my analyses, I performed density tests of the running variable of interest (the distance in months from respondents' birth dates to the first round of the general elections) to check whether the assumption of no manipulation of the score is held (Cattaneo et al., 2017). I use data from respondents near the age threshold from which voting is no longer compulsory, 70 years old (i.e. 840 months).

As expected, the test fails to reject the null hypothesis of no manipulation of the score ($p = 0.342$), meaning that the first assumption for conducting RD analyses is held. Next, I performed balancing tests of covariates, including gender, income, education, race and election year around the cutoff point. Gender was coded as 1 for female respondents and 0 for male respondents, income was measured on a seven-point scale ranging from less than one monthly minimum wage up to more than 20 monthly minimum wages[4], education was coded as 1 if respondents had a college degree and 0 otherwise, and race was coded as 1 for white respondents and 0 otherwise.

Also as expected, as seen in Table A7, none of these variables presented statistically significant and consistent differences around the cutoff with different bandwidth choices[5], suggesting that the obligation to vote is distributed "as-if" randomly (Dunning, 2008).

Table A8 displays the treatment effect of compulsory voting law on party identification. I use different polynomial orders and bandwidths to test the robustness of the relationship between compulsory voting law and party identification. I follow the recommendations of Gelman and Imbens (2019) and use only polynomials of zero, first and second order. As it can be seen from Table A8, the results change significantly depending on the polynomial and bandwidth choice. In fact, only in the case of a zero order polynomial the treatment effect exhibits statistical significance at $p < .10$. The "reluctant voter" hypothesis, RV_1, is thus finds supported.

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[4] The values from 2014 were deflated using the *Índice Nacional de Preços ao Consumidor Amplo* (IPCA) deflator and November 2018 month as a reference, that is, the period in which the ESEB 2018 interviews were conducted.

[5] The optimal choice of the bandwidth was based on the method suggested by Cattaneo et al. (2017)

These results are in contrast with those found by Singh and Thornton (2013) and Dalton and Weldon (2007), but convergent with the findings from Birch (2016). Given the lack of robustness of the relationship between compulsory voting penalties and party identification, the Brazilian case appears to suggest that voters are unwilling to look for parties that reflect their preferences when forced to go to the polls.

Table A9 presents the results of the RD regression for the knowledge of parties' ideologies. Similarly to (de Leon et al., 2014) and (Loewen et al., 2008), I find no consistent effects of compulsory voting on increased political knowledge. Much like the results in Table A8, the treatment effects in Table A9 are sensitive to different bandwidth and polynomial specifications and nearly none of them reach statistical significance.

Of course, the results from Table A8 and A9 only correspond to a specific sub-population of the Brazilian electorate and thus results should be interpreted with care. In other words, the results from Table A8 only have internal validity and do not correspond to the Brazilian electorate as a whole. Furthermore, the samples are significantly small and thus replication with larger samples could yield different results.

My findings cast doubt on the capacity of compulsory voting laws to make citizens seek political parties that reflect their preferences or to increase their knowledge of politics. I discuss the implications of my findings in the next section.

Discussion

I this chapter, I examined the relationship between compulsory voting laws, party identification and political knowledge by using natural experiments. My findings cast doubt on the capacity of compulsory voting laws in making citizens more engaged with politics. Even though some may praise compulsory voting as a means to make elections more legitimate, my findings suggest that compelling citizens to vote may not make them more engaged with politics.

To be sure, party identification and political knowledge are not the only measurements of engagement with politics. Furthermore, my findings are limited to a subset of senior Brazilian citizens. It is intriguing, however, that compulsory voting may not reduce inequality in how much citizens know about political parties and how much they feel represented by them.

Considering the findings from the previous chapters on random and spoiled votes, the results shown in this chapter are not surprising. That is, if many "reluctant" voters under compulsory voting rules are willing to cast random or invalid votes, they should also be less likely to feel closer to political parties or to seek information on them, regardless of the sanctions for electoral abstention. Politicians and policy makers alike should weigh

these findings against the potential benefits of compulsory voting before recommending it as a means to fix democracy's shortcomings.

	Bandwidth Choice				
Variable	Optimal	8 months	12 months	18 months	24 months
College	0.147†	0.372	0.263	0.157	0.122
	(0.079)	(0.281)	(0.192)	(0.153)	(0.132)
White	-0.025	-0.585	-0.326	-0.175	-0.080
	(0.092)	(0.362)	(0.268)	(0.202)	(0.168)
Female	0.023	-0.322	-0.166	-0.133	-0.035
	(0.090)	(0.410)	(0.309)	(0.230)	(0.185)
Income	-0.140	-0.950†	-0.887	-0.661	-0.565
	(0.191)	(0.559)	(0.561)	(0.422)	(0.350)

Tabela A7 – Covariate balance around the cutoff point

† $p < .10$

	Bandwidth Choice				
Polynomial order	Optimal	8 months	12 months	18 months	24 months
Zero	-0.141*	-0.239†	-0.181†	-0.159†	-0.151*
	(0.066)	(0.140)	(0.105)	(0.083)	(0.072)
First	-0.226*	-0.405	-0.402	-0.283	-0.212
	(0.102)	(0.307)	(0.249)	(0.191)	(0.153)
Second	-0.272*	0.399	-0.351	-0.455	-0.375
	(0.118)	(0.460)	(0.376)	(0.306)	(0.261)
N	-	59	94	139	183

Tabela A8 – Treatment effect of compulsory voting law on partisanship

† $p < .10$
* $p < .05$

Polynomial order	Bandwidth Choice				
	Optimal	8 months	12 months	18 months	24 months
Zero	-0.325	-0.651	-0.535	-0.468†	-0.438*
	(0.199)	(0.459)	(0.354)	(0.280)	(0.240)
First	-0.559†	-0.832	-0.916	-0.783	-0.611
	(0.332)	(0.929)	(0.806)	(0.627)	(0.507)
Second	-0.623	-0.248	-0.892	-0.973	-0.907
	(0.421)	(1.609)	(1.123)	(0.971)	(0.845)
N	-	49	73	111	153

Tabela A9 – Treatment effect of compulsory voting law on political knowledge

† $p < .10$
* $p < .05$

5 Conclusion

In this dissertation, I have studied voter behavior under compulsory voting laws by examining the Brazilian case. My objective was to contribute to a growing literature concerned with whether and how compulsory voting laws affect the quality of vote choice, especially among those who would rather not vote, the "reluctant voters". The findings from the three chapters in this dissertation have shown that:

- A significant share of Brazilian voters report voting randomly simply because the law requires them to turn out to the polls;

- The proportion of random votes varies across elected offices. The more salient an election is, the less likely voters appear to cast random votes;

- The reporting of random votes does not appear to be affected by social desirability bias;

- Willingness to vote and education both appear to reduce random votes;

- The reporting of spoiled votes is affected by social desirability bias, especially among "relucant" voters;

- Willingness to vote and trust in political parties both appear to reduce spoiled ballots;

- Compulsory voting does not appear to enhance neither party identification nor political learning.

As seen in Chapter 2, political science has found indirect evidence that voters cast random votes (e.g. alphabetic voting and ballot order effects) in countries with voluntary voting laws. This dissertation has contributed to the study of the quality of vote choice under compulsory voting laws by providing direct evidence of voters choosing candidates haphazardly while controlling for social desirability bias.

Furthermore, previous research on the negative relationship between compulsory voting and proximity voting have had not yet addressed whether "reluctant" voters were actually *trying* to cast a meaningful vote. The evidence from Chapter 2 suggests that a significant share of voters under compulsory voting in Brazil may cast random votes simply to comply with the law, despite being allowed to vote blank or null. What is more, random votes appear to be more common in less salient elections. This could partially explain the

detrimental effect of compulsory voting for proximity voting and the association between mandatory voting and party fragmentation found in previous research.

The evidence from Chapter 3 suggests that casting invalid votes is a sensitive issue. The list experiments showed that voters, especially those who would rather not vote if voting was no longer mandatory, tend to misreport invalid votes when asked directly. This is evidence that voters feel like the "correct"or "desirable"thing to do is to cast a vote for a candidate or political party. The social pressure felt by voters, especially the "reluctant"ones, could possibly be the driving force behind random votes. Further research on this subject is necessary to understand whether and how social pressure conditions voters' choices under compulsory voting.

Finally, Chapter 4 presented evidence, or, rather, no evidence of compulsory voting's educative effects. Voters under compulsory voting in Brazil appear no more likely to identify with a party or to understand how they are distributed across the ideological spectrum than voters under voluntary voting. The findings from Chapter 4 thus lend support to the idea that political engagement cannot be imposed by means of legal sanctions.

I should also note the limitations of my work. First, the findings on random and spoiled votes were both obtained from a non-representative sample of the Brazilian electorate. As noted in Chapter 2, the respondents from the survey experiments are slightly more well-off and educated than the Brazilian population and thus my results should be interpreted with this caveat in mind. Furthermore, my analyses did not provide evidence of a *causal* effect of compulsory voting on random votes neither on how social desirability bias leads voters to cast random votes. Future research should thus seek methods that allow for causal inference on these questions. Finally, I did not explore the extent to which random votes or the social desirability of valid votes affects actual electoral results. These are promising agendas for future research.

With regards to Chapter 4, while the analyses were conducted with representative samples of the Brazilian electorate, the number of valid observations was substantially small. This means that future studies should seek replication with larger and representative samples of the Brazilian electorate. Additionally, my measure of political knowledge was limited to the placement of political parties in the ideological spectrum. Measuring political knowledge is a complex task, as decades of research on the subject have proven, and therefore my findings are limited to a very specific (albeit useful) kind of knowledge.

Despite the above caveats, this dissertation has provided evidence that voters under compulsory voting may vote haphazardly to comply with the law and feel pressured to cast a valid vote, while not feeling closer to political parties neither learning more about them. To be sure, these findings must be replicated and extended elsewhere before we can reach the conclusion that compulsory voting *causes* random votes. Future research

should explore methods that help isolate the effect of compulsory voting on random votes. The inclusion of questions on random votes in surveys is also a promising agenda for comparative research.

Perhaps the most important consequence of these findings is that compulsory voting may not be sufficient to increase political representation. To be sure, the empirical literature on compulsory voting has been finding important positive effects of sanctions for electoral abstention. These effects, however, must be weighed against the random and spoiled votes stemming from reluctant voters going to the polls. That is, after discounting the votes that go to waste, does compulsory voting do enough to increase political representation? Do random votes cancel each other out or do they skew electoral results in unexpected directions? These questions have not been explored in this dissertation and deserve the attention from scholars in the fields of political behavior and political institutions. Furthermore, the Brazilian elections represent a significant cost. The 2020 local elections have costed nearly R$ 1 billion in electronic voting machines alone.[1] Future research should also consider the financial costs of compulsory voting.

Another important issue in debates regarding compulsory voting is the comparison of the effects of institutions aimed at increasing voter turnout. Compulsory voting has consistently been proved to increase voter participation, but other institutions also play an important role in voter mobilization. District magnitude, proportionality in vote distributions and the number of parties are only a few of them. If policymakers intend to increase voter representation, these institutions must also be considered as options. Compulsory voting has been in decline among democracies[2] in the last three decades and thus policymakers and politicians should also think of other strategies to lead voters to the polls on election day.

I should also stress that the most prominent theories on political behavior were developed in countries with voluntary voting laws and therefore political science has much to explore on how compulsory voting conditions the choices of "reluctant"voters. That is, we know very little on how voters make their choices when faced with penalties for electoral abstention. This is particularly true with regards to the Brazilian political science literature. The study of compulsory voting has also been growing in the field of political institutions and attracted the attention of scholars focused on political parties and economic development.

The findings from this dissertation, along with many others in the literature, caution against the unintended effects of compulsory voting laws. Policy makers and politicians should weigh these findings when designing electoral institutions aimed at increasing voter turnout. The question of whether or not compulsory voting should be adopted is, of course,

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[1] <https://tinyurl.com/ycdtdfxb>
[2] Austria, Chile and Cyprus, for instance, have abandoned it in 2003, 2012 and 2017, respectively.

a normative one and was not the focus of this dissertation. Future research from both empirical and normative scholars should explore whether the shortcomings of compulsory voting outweigh its benefits. Only then we will know if compulsory voting is destined to end or to continue its longer than century-old story.

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