

# 11º Encontro da ABCP

Universidade Federal do Paraná

31/7/2018 a 3/8/2018

AT - Comportamento Político

## **The Effects of Compulsory Voting on Heuristics Usage: A Comparative Study\***

Alessandro de Oliveira Gouveia Freire<sup>†</sup>

Universidade de Brasília

June 18, 2018

---

\*Do not cite without permission.

<sup>†</sup>alessandro.freire@gmail.com

# Abstract

This paper explores the issue of how compulsory voting could potentially moderate the effect of two largely explored variables in the literature of voter behavior: sociotropic and "pocketbook" evaluations on the intention to vote for incumbents. Sociotropic and "pocketbook" evaluations work as heuristics that aid voters to decide who to vote for with little information. Given that compulsory voting leads voters with lower levels of political sophistication to the polls, could it lead them give more weight to improvements in welfare, either general or personal, when deciding to vote for incumbents? I review the literature on the subject, describe the use of matching to preprocess data and to avoid potential biases in the estimates of compulsory voting effects and apply it to survey data from the Americas Barometer. I proceed with a preliminary analysis using a logistic regression model and conclude with a discussion on the subject and future plans for this research project.

**Keywords:** Compulsory voting, pocketbook voting, sociotropic voting, matching, electoral accountability

# Introduction

The question of electoral accountability has been largely explored by political science with considerably divergent conclusions (Achen & Bartels, 2004, 2016; Dancey & Sheagley, 2013; Lau et al., 2008; Lupia, 1994; Page & Shapiro, 1992; Popkin, 1991; Sniderman et al., 1991). While part of the literature emphasizes the capacity of voters to hold incumbents accountable for their actions (Key, 1966; Kramer, 1971; Page & Shapiro, 1992), another part is concerned with voters' lack of political information and its effects on their electoral choices (ACHEN & BARTELS, 2017; CONVERSE, 1964).

The contrast between these descriptions of voters, however, did not initially consider institutional sanctions forcing citizens to turnout to the polls. Indeed, the most important theories of voter behavior were developed by scholars in countries where voting is voluntary. More recently, though, scholars have been turning their attention to how compulsory voting (henceforth CV) interacts with voters' widely reported lack of interest and political knowledge and its consequences for electoral accountability (Dassonneville et al., 2017; Jensen & Spoon, 2011; Rosema, 2007; Selb & Lachat, 2009; Singh, 2016,

2017).

Despite the fact that the first experience with CV dates back to the nineteenth century, in Switzerland's canton of St. Gallen, the effects of this institution on a series of political outcomes remain unclear. To be sure, the literature has consistently found positive and strong effects of compulsory voting for electoral participation (Jackman, 1987; Figueiredo, 2008; Panagopoulos, 2008). Research on the relationship between CV and electoral accountability, however, are still incipient (Dassonneville et al., 2017; Rosema, 2007; Selb & Lachat, 2009).

While much progress has been made in the literature of electoral accountability, most of the research on the subject is based on voluntary voting contexts. Given that CV increases the number of unengaged and uninformed voters going to the polls (Rosema, 2007; Selb & Lachat, 2009; Singh, 2016), one can speculate that the mechanisms for electoral accountability under CV may differ from those found under voluntary voting.

Indeed, as Elkin's (2000) analysis suggests, CV may bring "flexible participants", that is, citizens who would otherwise abstain under voluntary voting rules, to the polls. This is important because "flexible participants" not only turnout to the polls, but also cast a valid vote, which may have consequences for elections in countries with CV.

For instance, the 2014 *Estudo Eleitoral Brasileiro* (ESEB) contains a question about whether respondents would have voted in the 2014 election if voting was no longer compulsory in Brazil. Descriptive analysis suggests that nearly half of voters (47%) would not vote if CV was repealed. In contrast, 92% of respondents said they voted in the first round of the 2014 elections. The official records of the *Tribunal Superior Eleitoral (TSE)*\* registered that, in the 2014 elections, the sum of blank and null votes and abstention has been of about 29% from more than 140 million Brazilian voters. This suggests that many voters who are unwilling to go to the polls may nonetheless cast valid ballots.

The issue of the quality of citizens' choices in the ballots under CV laws perhaps wouldn't deserve as much attention from political science if all unengaged voters simply casted null or blank votes (or even abstained), thereby letting informed and interested citizens define the course of electoral outcomes. The discipline could then simply study vote choices under CV rules using the same hypotheses construed

---

\*<http://agenciabrasil.ebc.com.br/politica/noticia/2014-10/abstencao-brancos-nulos-sao-29-dos-votos-eleitores>

under voluntary voting. However, the number of unengaged voters casting valid ballots under CV appears to be substantial.

In this paper I explore the issue of how CV could potentially moderate the effect of two largely explored variables in the literature of voter behavior: sociotropic and "pocketbook" evaluations on the intention to vote for incumbents. More specifically, I seek to answer the following question: does CV lead voters to give more weight to improvements in welfare, either general or personal, when deciding to vote for incumbents?

My hypothesis is that CV increases the effects of both sociotropic and "pocketbook" evaluations on the likelihood to vote for incumbents. Given that voters rely on cues to make their voting decisions (Downs, 1957, Sniderman et al., 1991) and that economic performance is an intuitive shortcut for the evaluation of incumbents (Duch & Stevenson, 2008), sociotropic and "pocketbook" evaluations could play a more important role in the contexts of mandatory voting. This is because unsophisticated voters could find it easier to rely on widely available information on economic performance to decide who to vote for.

The first section of the paper reviews the literatures on compulsory voting and electoral accountability. Next, I present my hypotheses as well as the data and methods used. I describe the method of matching as a preprocessing data technique and show its potential for causal inference using data from the 2014 Americas Barometer for Chile and Argentina. Next, I proceed with a preliminary analysis of the effect of compulsory voting for sociotropic and "pocketbook" evaluations. I end with a discussion on the study of CV and electoral accountability and describe my plans for future versions of this paper.

## **Compulsory Voting and Electoral Accountability**

How does compulsory voter participation affect the quality of representative democracy? Part of the literature extolls the effects of mandatory voting for the improvement of representative democracy (BECHTEL et al., 2016; BUGARIN & PORTUGAL, 2015; FOWLER, 2013; HOOGHE & PELLERIAUX, 1998; LIJPHART, 1997). The seminal study by Lijphart (1997) suggests that compulsion reduces representative inequalities, which are especially evident in relation 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.

Lijphart's arguments have found support from a series of empirical studies. Hooghe and Pelleriaux (1998) use data from the Belgian election study and conclude that ending compulsory voting could increase inequality in electoral representation. Fowler (2013) finds that CV not only boosts votes for the left-leaning Labor Party in Australia by impressive 7 to 10 percentage points, but also increases pension spending. Bechtel and colleagues (2016) have found evidence that compulsory voting in Switzerland's cantons referendums leads to an increase in the support for left-wing policies. Using a formal model, Bugarin & 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.

Another part of the literature, nonetheless, has pointed out that the massive participation of voters through compulsory voting can have negative impacts on the quality of political representation (Dassonneville et al., 2017; Jensen & Spoon, 2011; Rosema, 2007; Selb & Lachat, 2009; Singh, 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; Selb & Lachat, 2009). Blank and null ballots are more likely where voting is mandatory, since politically unengaged and distrusting citizens are much more likely to turn out (Singh, 2017). Jensen and Spoon (2011) describe an illustrative example of the potentially damaging effect of CV in the case of the Australian Senate elections, in which researchers found that, under the STV<sup>†</sup> 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 & Spoon, 2011, p. 702).

Considering the findings suggesting that most voters cannot effectively use cues (Lau & Redlwask, 2001), would probably vote differently and have different attitudes if they were more informed (Althaus, 1998; Bartels, 1996; Luskin et al., 2002; Turgeon & Rennó 2010), incorrectly attribute responsibility to their representatives for essentially random events, such as shark attacks (Achen & Bartels, 2017;

---

<sup>†</sup>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.

Healy & Malhotra, 2010) and rely on short term economic growth to evaluate presidential performance (Alesina et al., 1993; Healy & Lenz, 2014, Huber et al., 2012), the question of whether compulsory voting leads to normatively undesired electoral outcomes is central in this debate.

To be sure, several scholars question whether voters' lack of information is a serious issue to begin with. Sniderman, Brody and Tetlock (1991) argue that voters may make reasonable political choices without knowing a lot about politics. This assertion has found empirical support in Lupia's (1994) findings, which suggest that poorly informed citizens may vote in accordance with their best interests by relying on simple cues of interest groups. Others argue that, although individual voters know little about politics, public opinion responds rationally to the performance of representatives (Page & Shapiro, 1992). Furthermore, the finding that voters hold political elites accountable for events that are out of their control, such as shark attacks, has been empirically contested (Fowler & Hall, 2016). Finally, the theory that voters incur in "blind retrospection" has found no empirical support in a recent study that used both survey and household income growth data to assess the effect of recent economic conditions on vote choice (Healy et al., 2017).

A recurrent debate in the literature of electoral accountability is centered around the ways voters assess presidential performance. The contrasts between sociotropic and "pocketbook" evaluations of incumbents by voters has been extensively explored by the political science literature (Gomez & Wilson, 2001; Godbout & Bel anger, 2007; Healy et al., 2017).

Research on political sophistication and economic voting underscores the existence of cognitive heterogeneity in economic assessments of governments. Gomez and Wilson's (2001) study of economic voting in the United States, for example, suggests that unsophisticated voters are more likely to rely on sociotropic assessments, that is, to respond to general welfare (Kramer, 1983), while sophisticated voters tend to rely on both sociotropic and "pocketbook" (egocentric) assessments of the economy. Godbout and Bel anger (2007), however, find that Gomez and Wilson's (2001) results do not hold when using postelectoral vote choice as the dependent variable (Godbout & Bel anger, 2007).

One of the most debated issues in the literature of sociotropic and "pocketbook" voting is that of endogeneity. That is, these evaluations may be a byproduct of party identification, since voters' perceptions of the economy are likely to be affected by their partisan preferences. In other words, voters

may see economic performance in the last year as better if the incumbent is a member of his preferred party. Wlezien and colleagues (1997) found that these evaluations are structured by voters' choices.

Using a survey matched with respondents' household income data, Healy and colleagues (2017) found that Swedish voters respond positively to improvements in personal welfare originated from tax cuts at the beginning of an incumbent's government term. The authors' findings are interesting because they rely on objective measures of changes in economic welfare and suggest that voters do respond to them, but such response is not indicative of "voter myopia" (ACHEN & BARTELS, 2016). That is, voters do not appear to be more likely to vote for an incumbent as a function of changes in welfare in the electoral year.

Pereira (2014) studied the Brazilian case on the relationship between sociotropic and pocketbook evaluations and the presidential vote. The author finds that sociotropic voting is conditioned by voters' political sophistication. In other words, the effect of improvements in general welfare for the presidential vote appears to be restricted to politically sophisticated voters. However, Pereira's study is based on a subnational sample of voters from the cities of Caxias do Sul and Juiz de Fora and, thus, its findings cannot be generalized to the whole population of voters. Furthermore, the author recognizes that recent changes in less sophisticated voters' welfare could have affected his results, although he was not able to test this hypothesis.

The relationship between CV and electoral accountability has yet to be explored. Given that CV increases the number of unengaged and uninformed voters going to the polls, could it also increase voters' reliance on an easily accessible heuristic? As Duch and Stevenson (2008) argue, information on economic growth are widely available in media outlets and punishing presidents for poor economic performance appears to "demand little of the average voter" (DUCH & STEVENSON, 2008). For example, their six-country analysis of voters' perceptions of variations in economic growth stability and actual economic volatility suggests that voters are, in general, attentive to economic issues. However, Duch and Stevenson's analysis is based on European countries with voluntary voting.

Indeed, the consistency of the findings showing that voters replace presidents as a function of economic performance (Duch & Stevenson, 2008) has been regarded as evidence that one of the main purposes of democracy, the control from the people over political leaderships, is not jeopardized by the

lack of sophistication from voters. The standards from which voters assess the performance of incumbents is a normative question that is out of the scope of this paper, however. My objective is to assess the extent to which compulsory voting moderates the effect of economic performance on the intention to vote for incumbent presidents.

Few studies have specifically addressed the conditional effect of economic growth for the vote on incumbents comparing countries with CV with those with voluntary voting. One such study is Dassonneville and colleagues' (2017) article. Using data from the Comparative Study of Electoral Systems (CSES), the authors find no moderating effect of CV on the effect of economic performance for the vote on incumbents. The authors carefully control for the strictness of CV rules and still conclude that "the extent to which voters hold incumbents accountable for the state of the economy does not vary significantly with different compulsory voting rules" (DASSONNEVILLE et al., 2017, p. 15). Their findings are indeed interesting, since the authors use an objective measure of economic growth, the variation in GDP. Dassonneville and colleagues (2017) do find, however, a negative effect of CV on proximity voting. That is, on average, voters in countries with CV are less likely to vote for an incumbent whose ideology is similar to theirs.

Although the findings of Dassonneville and colleagues are suggestive of a null effect of CV on electoral accountability, the authors' study is subject to methodological issues that are worth noting. First, one may question whether pooling data from considerably different countries could affect inferences about the effects of economic growth in the electoral year. Dassonneville and colleagues' (2017) include both established and young democracies in their analyses, but the former are considerably more represented. For instance, for their accountability model, the authors analyze data from 41 countries, with 32 of them having no CV and only 9 having it. Also, among these 9 countries, two of them, Mexico and Greece, have weakly enforced CV.

## Hypotheses

My hypotheses are that, on average, the effect of "pocketbook" and sociotropic evaluations of the economy on the probability of voting for incumbents should be *stronger* under CV as compared to voluntary voting. The hypotheses can be summarized as follows:



- **H1: Compulsory voting should *increase* the effect of "pocketbook" evaluation for the voting intentions on the incumbent president in comparison to voluntary voting.**
- **H2: Compulsory voting should *increase* the effect of "sociotropic" evaluation for the voting intentions on the incumbent president in comparison to voluntary voting.**

The tendency of voters to evaluate presidential performance based on the state of the economy in the year of election is widely documented by empirical research (Achen & Bartels, 2017; Alesina et al., 1993; Healy & Lenz, 2014). However, to my knowledge, few studies investigated the moderating effects of CV on electoral accountability (Dassonneville et al., 2017). To be clear, my hypothesis differs from Dassonneville and colleagues' (2017) in that I expect CV to *increase* electoral accountability based on the economic performance of the electoral year. This is because presidential evaluations based on widely reported economic information are likely simpler and more intuitive for uninformed and disinterested voters.

## Data and Method

Compulsory voting is a widespread institution in Latin America, with thirteen countries in the region adopting it. The actual enforcement of turnout, however, is less common. Several countries in Latin America do not actually enforce voter turnout, but only formally define the act of voting on national elections as compulsory on their constitutions. Bolivia and Paraguay figure among some of the Latin American countries which only have *de jure* but not *de facto* CV.

Since 1912, Argentinian citizens from 18 to 70 years old are obliged to vote and are subject to sanctions by law if they abstain, including in primary elections. Although its CV law sanctions are considered high, enforcement is rather weak (PANAGOPOULOS, 2008). However, turnout in recent presidential elections has remained relatively high when compared to countries with voluntary voting, reaching up to 80% of eligible voters. In 2012, the country approved voluntary voting for 16 and 17 year old citizens, thereby increasing the size of its electorate. In contrast, in that same year, Chile abandoned compulsory voting for citizens of 18 years old or more but adopted automatic voter registration. Turnout, which was already in decline before the end of compulsory voting in Chile, plummeted after the adoption

of voluntary voting (Barnes & Rangel, 2014).

It is important to note that both countries share a series of similarities in sociodemographics, history, politics, economics, and culture. Both countries are composed of European descendent citizens, were freed from spanish domain in the first half of the nineteenth century, have the highest human development indexes (HDI) in Latin America<sup>‡</sup>, were governed by military rule in the second half of the 20th century and have experienced considerable economic growth for several decades of that same century. In the last 20 years, however, the Chilean economy has surpassed the Argentinean one in several aspects. Chile has experienced stable rates of growth with low inflation, while Argentina has gone through considerable economic and political turmoil after declaring a moratorium in 2001. Inflation rates have sky-rocketed in the years of the Kirchner administration and the Macri government has been facing serious difficulties in bringing economic stability.

The choice of Argentina and Chile for analysis is based on the admonitions of King, Keohane and Verba (1994) for the selection of cases in comparative analyses. The independent variable, CV, corresponds to the treatment of interest, while controlling for other variables that may affect the outcome variable (vote for incumbent president, or incumbent's candidate). Since the use of matching methods does not preclude the use of control variables, selecting countries with similar background characteristics is useful to increase the validity of causal inferences from observational methods.

In this paper, I seek to estimate the effect of CV, *ceteris paribus*, on the effect of the state of the economy in the electoral year for the vote on incumbents. Given the impossibility of randomization of treatment (compulsory voting) and control (voluntary voting) in the population of interest in most cases, scholars have resorted to various methods that can isolate the effect of mandatory voting. Regression discontinuity designs, natural experiments, and quasi-experiments are just a few examples of methods that researchers in political science have been using (Cepaluni & Hidalgo, 2016, Ferwerda 2014, Singh, 2017).

To test my hypothesis I use data from the 2014 America's Barometer (the Latin American Public Opinion Project (LAPOP)) for Argentina and Chile. I compare the voting intentions in Argentina and Chile, countries with considerable socio-demographic, economic, political and cultural similarities. In

---

<sup>‡</sup>[https://en.wikipedia.org/wiki/List\\_of\\_Latin\\_American\\_countries\\_by\\_Human\\_Development\\_Index](https://en.wikipedia.org/wiki/List_of_Latin_American_countries_by_Human_Development_Index)

order to minimize the problem of omitted variable bias commonly present in observational studies, I use sample matching methods, which I briefly describe next.

## Matching for Causal Inference

Matching is a non-parametric preprocessing technique used for eliminating or minimizing the relationship between an independent variable  $X_i$  and a treatment variable  $T_i$ , making the treatment and control groups essentially identical with respect to  $X_i$  (HO et al., 2007). That is, the pairing of samples deals with the omitted variable bias commonly present in observational studies. For this to be possible, one must ensure that the treatment and control groups are essentially identical in their characteristics. As Ho and colleagues (2007) point out, the following relationship must be satisfied:

$$\tilde{\rho}(X|T = 1) = \tilde{\rho}(X|T = 0)$$

Where  $\tilde{\rho}(\cdot)$  is the sample density (probability) of the data. It should be noted that matching does not require that individual observations be paired, but only that the treatment and control groups have similar distributions regarding  $X_i$ . The exact pairing of observations would entail substantial loss of observations, especially in the case of data with continuous variables (HO et al., 2007, p. 212).

As Ho and colleagues (2007) point out, many of the causal estimates present in political science suffer from the problem of model dependence. That is, most of the estimators used by the discipline are based on the hypothesis that researchers know the correct model of a given phenomenon of interest (HO et al., 2007, p.200). However, researchers often test different models before determining which results will be reported in their work. Such practice gives rise to problems of inductive model fitting (i.e. "p-hacking"). Matching methods are able to reduce model dependence and provide more consistent causal estimates (HO et al., 2007; IMAI et al., 2008).

Of course, one should be aware that matching is no panacea for the problems of model dependence and omitted variable bias. Although several studies use a simple difference of means to assess the effect of a given treatment variable after matching is performed, just as in a randomized experiment, Ho and colleagues (2007) warn against the potential problems of such practice. The difference in means is only adequate when exact matching, the pairing of identical individual observations with regards to the control variables  $X_i$ , is performed. Considering that researchers are rarely able to perform exact matching

without losing a substantial amount of their data, using a parametric model, such as logit, probit or whichever appropriate for the analysis of interest, is still necessary to make reliable causal inferences after matching a data set. Furthermore, the choice of covariates for use in the matching procedure may also be arbitrary and subject to manipulation by researchers (Miller, 2013), which further cautions the dangers of treating matched data as experimental data.

As noted by Stuart (2010), matching involves four key steps:

- 1 The definition of the "closeness", that is, the distance measure to assess the quality of the match;
- 2 Implementation of the matching procedure;
- 3 Assessment of the quality of the matched samples (i.e. the sample size-closeness trade-off);
- 4 Analysis of outcomes and treatment effects.

The first step implies a choice of covariates to be included in the model and, subsequently, choosing a distance measure (Stuart, 2010). Since matching relies on the ignorability assumption, which states that no unobservable differences exist between treatment and control groups, all variables that are related to the treatment and the outcome must be included in the procedure. Although the increase in variables to be matched may lead to increased variance, it also reduces the chances of biased results and, thus, researchers should include as much variables related to the outcome variable as possible when performing matching (STUART, 2010, p. 6). Variables that are potentially affected by the treatment of interest, however, should not be included (STUART, 2010, idem). For instance, in the case of compulsory voting effects for sociotropic and "pocketbook" voting, one must not include voter turnout in previous elections in the matching procedure, since turnout is strongly affected by compulsory voting.

After the choice of covariates, one must choose a distance measure. Some of the most common measures are exact matching, Mahalanobis distance and propensity scores<sup>§</sup>. The simplest distance measure is given by exact matching, in which observations are matched according to a set of covariates (except the treatment variable) and each observation in the treatment group has an identical pair in the control group. Exact matching is given by:

---

<sup>§</sup>Although propensity scores remain one of the most popular matching methods, recent research suggest that it could increase covariate imbalance as well as bias (King & Nielsen, 2016).

$$D_{ij} = \begin{cases} 0 & \text{if } X_i = X_j; \\ \infty & \text{if } X_i \neq X_j. \end{cases}$$

Mahalanobis distance is calculated as:

$$D_{ij} = \sqrt{(X_i - X_j)'S^{-1}(X_i - X_j)}$$

Where S is the sample covariance of matrix X (King et al., 2011, p. 4).

Despite its limitations, matching methods are able to reduce imbalance in the "distribution of pre-treatment confounders between the treatment and control groups" (King & Nielsen, 2016, p. 1). Thus, after preprocessing their observational data, researchers become *closer* to an experimental setting with observational data. The outcome variable  $Y_i$  is the reported vote intention if the election were to be held in the week of the survey.  $Y_i = 1$  if a respondent  $i$  declares having the intention to vote for the incumbent and  $Y_i = 0$  if he or she declares being inclined to vote for another candidate. Those who said they would not vote or would cast a blank/null ballot were dropped from the analysis.

The treatment variable,  $T_i$  is the institution of CV, with  $T_i = 1$  when compulsory voting is present and  $T_i = 0$  when it is absent. Sociotropic evaluation is coded as -1 if the respondent reports that the economic welfare of the country has worsened in the last 12 months, 0 if it remained the same and 1 if she considers that it improved. "Pocketbook" evaluation is coded identically, referring to the personal welfare of the respondent. Interaction variables are included by multiplying the treatment variable, CV, with sociotropic and "pocketbook" variables.

A set of control covariates is included in the model. Age is measured in years and is rescaled so as to range from 0 to 1, gender is coded as 1 for women and 0 for men. Political knowledge is composed by four factual questions<sup>¶</sup>, in which correct responses were coded as 1, while incorrect, "Don't know" and "Not answered" were coded as 0. Family income and education are both categorical, with 16 and 18 categories, respectively. Identification with the incumbent's party is coded as 1 if the respondent identifies with the party and 0 otherwise, while ideology is measured in a scale ranging from 1 (left-

---

<sup>¶</sup>Questions include the correct identification of: the president of the United States, the continent where Nigeria is located, the length of a presidential term and the number of representatives in the *Câmara de Deputados* (Chamber of Deputies) of the respective country.

wing) to 10 (right-wing). Employment status is coded as 1 for those who reported being employed and 0 otherwise and region is coded as 1 if the respondent lives either on the national capital or in a large city and 0 otherwise. Religion is coded as 1 if the respondent is catholic and 0 otherwise.

After dropping respondents who would not vote or would cast blank or null votes, the data set ended with 1,753 observations. Since matching algorithms do not allow the inclusion of variables with missing data, I performed multiple imputation with this data set. I performed matching on the set of model covariates, *excluding* both the outcome variable  $Y_i$  and the treatment variable  $T_i$ . I use the "nearest neighbor" algorithm, which "selects for each treated individual  $i$  the control individual with the smallest distance from individual  $i$ " (STUART, 2010, p. 10). That is, for each argentinian respondent, a chilean one is chosen having the smallest distance regarding the covariates. I combine exact matching and mahalanobis distance measures, performing exact matching on political knowledge and identification with the incumbent's party, since political knowledge (Gomez & Wilson, 2001; Godbout & Bel anger, 2007; Pereira, 2014) and party identification (Wlezien et al., 1999) are both known to affect sociotropic and pocketbook voting. I also performed exact matching on income, since the respondent's family income is likely to affect the weight of personal welfare on voting. The final dataset is comprised of 730 observations, divided equally in treatment and control groups.

Table 1 displays the summary statistics for the final dataset. Table 2 displays the covariate means before and after matching. Since I performed exact matching on income, knowledge and identification with the incumbent's political party, the differences in means between treated and control groups disappear after matching. However, not all covariates show a decrease in the difference of means, as is clear in the cases of education and pocketbook voting, in which there are actually increases in these differences. Despite these increases, other covariates, such as age, interest and region also showed a decrease in differences of means.

## Results

Table 3 displays the results of a logistic regression model on the dependent variable of voting intention for the incumbent. For purposes of visualization, I only display the main variables of interest and the

control variables that reached statistical significance at  $p < .05$ <sup>||</sup>. The coefficients for sociotropic and "pocketbook" evaluations correspond to the unconditional (or "main") effects of these variables. In other words, they correspond to the effects when the other variable involved in the interactions (CV) is equal to 0 (BRAMBOR et al., 2005), that is, voluntary voting. Sociotropic voting reaches statistical significance at  $p < .01$ , suggesting that these evaluations affected Chilean respondents' propensity to vote for the incumbent, Michelle Bachelet, if the election were to be held in that week. Of course, it should be noted that the Americas Barometer is not an electoral study, and, thus, one should be cautious when interpreting results, since they don't reflect a real election scenario. Furthermore, the Kirchner government was near its end, while the Bachelet government was in its "honeymoon" period.

The coefficient for compulsory voting reaches statistical significance at  $p < .01$ , suggesting that when compelled voters consider that their economic welfare and the economic welfare of the nation remained the same in the last 12 months (sociotropic and "pocketbook" evaluations equaling 0), they are less likely to vote for the incumbent. Again, this result must be interpreted with the previously mentioned caveats.

In order to get a full grasp of interaction effects, one must estimate the marginal effects of changes in the variables of interest, however\*\*.

## Discussion and Next Steps

In this paper, I addressed the relationship between compulsory voting and economic evaluations for the vote on presidential incumbents. The question of electoral accountability under compulsory voting remains relatively unexplored by the literature, although the subject appears to be gaining attention in recent years (Dassonneville et al., 2017; Singh, 2017). Given that CV not only attracts unsophisticated voters to the polls (Singh, 2016), but also that many of them appear to be willing to cast a valid vote despite not having the intention to vote under voluntary voting (Elkins, 2000), political behavior research should explore how these voters define their electoral choices.

In order to reduce potential omitted variable biases, I used matching algorithms. Preliminary findings

---

<sup>||</sup>Full results are available upon request.

<sup>\*\*</sup>The current version of this paper does not contain these estimates, but they will be added in a future version.

Table 1: Summary Statistics

Statistic	N	Mean	St. Dev.	Min	Max
CV	730	0.500	0.500	0	1
Woman	730	0.579	0.494	0	1
Age	729	0.339	0.205	0.0	1.0
Education	730	10.608	3.918	0.0	18.0
Pocketbook	730	-0.168	0.695	-1	1
Sociotropic	730	-0.323	0.687	-1	1
Knowledge	730	2.192	0.839	0	4
Interest	730	2.145	0.997	1	4
Incumbent Party	730	0.068	0.253	0	1
Vote for Incumbent	730	0.503	0.500	0	1
Income	730	9.775	4.328	0	16
White	730	0.547	0.498	0	1
Ideology	719	5.198	2.349	1.0	10.0
Employed	730	0.505	0.500	0	1
Catholic	730	0.745	0.436	0	1
Region	730	0.381	0.486	0	1

Table 2: Covariate Means (Before Matching x After Matching)

Variable	Before Matching			After Matching		
	Mean Treated	Mean Control	Mean Diff.	Mean Treated	Mean Control	Mean Diff.
Age	0.2954	0.4218	-0.1264	0.2850	0.3913	-0.1063
Woman	0.5154	0.6573	-0.1419	0.5014	0.6575	-0.1562
Education	10.4858	10.3326	0.1531	10.4863	10.7301	-0.2438
Income	10.6142	8.7693	1.8449	9.7753	9.7753	0.0000
Ideology	5.7334	4.6338	1.0996	5.7696	4.6770	1.0926
Knowledge	2.0595	2.2312	-0.1717	2.1918	2.1918	0.0000
Interest	2.2161	2.0793	0.1368	2.1616	2.1288	0.0329
Sociotropic	-0.6006	0.0013	-0.6019	-0.6411	-0.0055	-0.6356
Pocketbook	-0.3112	0.0282	-0.3394	-0.3726	0.0356	-0.4082
Incumbent Party	0.1625	0.0578	0.1047	0.0685	0.0685	0.0000
White	0.6710	0.4839	0.1871	0.5808	0.5123	0.0685
Employed	0.5610	0.4086	0.1523	0.5781	0.4329	0.1452
Catholic	0.7334	0.7204	0.0130	0.7616	0.7288	0.0329
Region	0.1764	0.6290	-0.4526	0.1644	0.5973	-0.4329



Table 3: Logistic Regression on Reported Voting Intention

	<i>Vote for Incumbent</i>
	b(s.e)
CV	-1.219*** (0.257)
Education	-0.067** (0.032)
Income	-0.053** (0.025)
Ideology	-0.170*** (0.041)
Knowledge	-0.330** (0.137)
Sociotropic	0.780*** (0.238)
Pocketbook	0.325 (0.233)
CV*Pocket	-0.423 (0.302)
CV*Sociotropic	0.015 (0.324)
Incumbent Party	3.838*** (0.764)
Constant	4.059*** (0.550)
Observations	718
Log Likelihood	-365.861
Akaike Inf. Crit.	767.722
<i>Note:</i>	**p<0.05; ***p<0.01

suggest that sociotropic voting has a positive effect on the voting intentions for the incumbent in contexts of voluntary voting. However, in order to get a full grasp of the interaction between CV and sociotropic and economic voting, marginal effects must be estimated, since table coefficients from models including interactions are not informative enough (Brambor et al., 2005). The current version of this paper does not contain these estimates, but they will be added in a future version. "Pocketbook" voting, however, failed to exhibit an unconditional effect, as the estimated coefficient for this variable indicated. It should be noted that the data used in this paper come from a non-electoral survey, which means that any estimates based on respondents' voting intentions should be taken with caution.

Other next steps for this project include the addition of analysis for the Netherlands and Belgium, as well as the inclusion of objective measures of economic performance (e.g. GDP growth and others) for voting intentions.

## References

- Althaus, S. L. 1998. "Information effects in collective preferences". *American Political Science Review*, 92(3), 545-558.
- Barnes, T. D., & Rangel, G. 2014. Election Law Reform in Chile: The Implementation of Automatic Registration and Voluntary Voting. *Election Law Journal*, 13(4), 570-582.
- Bartels, L. M. 1996. "Uninformed votes: Information effects in presidential elections". *American Journal of Political Science*, 194-230.
- Bechtel, M. M., Hangartner, D., & Schmid, L. 2016. "Does compulsory voting increase support for leftist policy?". *American Journal of Political Science*, 60(3), 752-767.
- Brambor, T., Clark, W. R., & Golder, M. (2005). Understanding interaction models: Improving empirical analyses. *Political analysis*, 14(1), 63-82.
- Bugarin, Mauricio, & Portugal, A. 2015. "Should Voting be Mandatory? The Effect of Compulsory Voting Rules on Candidates' Political Plataforms". *Journal of Applied Economics*, 18(1), 1-19.
- Cepaluni, G., & Hidalgo, F. D. 2016. "Compulsory voting can increase political inequality: Evidence from Brazil". *Political Analysis*, 24(2), 273-280.
- Converse, Phillip E. 1964. "The Nature of Belief Systems in Mass Publics." In *Ideology and Discontent*,

ed. David Apter. New York: Basic Books.

Dassonneville, R., Hooghe, M., & Miller, P. 2017. "The impact of compulsory voting on inequality and the quality of the vote". *West European Politics*, 40(3), 621-644.

Dancey, L., & Sheagley, G. 2013. "Heuristics behaving badly: Party cues and voter knowledge". *American Journal of Political Science*, 57(2), 312-325.

Downs, A. 1957. "An economic theory of political action in a democracy". *Journal of political economy*, 65(2), 135-150.

Duch, R. M., & Stevenson, R. T. 2008. *The economic vote: How political and economic institutions condition election results*. Cambridge University Press.

Elkins, Z. 2000. "Quem iria votar? Conhecendo as conseqüências do voto obrigatório no Brasil". *Opinião Pública*, 6(1), 109-136.

Figueiredo, M.F., 2008. *A decisão do voto-democracia e racionalidade*. Editora UFMG.

Fowler, A. 2013. "Electoral and policy consequences of voter turnout: Evidence from compulsory voting in Australia." *Quarterly Journal of Political Science*, 8: 159–182.

Fowler, A., & Hall, A. B. 2016. "Do shark attacks influence presidential elections? Reassessing a prominent finding on voter competence". Forthcoming in *The Journal of Politics*.

Godbout, J. F., & Bélanger, É. 2007. "Economic voting and political sophistication in the United States: A reassessment". *Political Research Quarterly*, 60(3), 541-554.

Gomez, B. T., & Wilson, J. M. 2001. "Political sophistication and economic voting in the American electorate: A theory of heterogeneous attribution". *American Journal of Political Science*, 899-914.

Healy, A., & Lenz, G. S. 2014. "Substituting the end for the whole: why voters respond primarily to the election-year economy". *American Journal of Political Science*, 58(1), 31-47.

Healy, A. J., Persson, M., & Snowberg, E. (2017). Digging into the Pocketbook: Evidence on Economic Voting from Income Registry Data Matched to a Voter Survey. *American Political Science Review*, 111(4), 771-785.

Ho, D.E., Imai, K., King, G. and Stuart, E.A., 2007. "Matching as nonparametric preprocessing for reducing model dependence in parametric causal inference". *Political analysis*, 15(3), pp.199-236.

Hooghe, M., & Pelleriaux, K. 1998. "Compulsory voting in Belgium: An application of the Lijphart

thesis". *Electoral studies*, 17(4), 419-424.

Huber, G. A., Hill, S. J., & Lenz, G. S. 2012. "Sources of bias in retrospective decision making: Experimental evidence on voters' limitations in controlling incumbents". *American Political Science Review*, 106(4), 720-741.

Imai, K., King, G. and Stuart, E.A., 2008. "Misunderstandings between experimentalists and observationalists about causal inference". *Journal of the royal statistical society: series A (statistics in society)*, 171(2), pp.481-502.

Jackman, R.W., 1987. "Political institutions and voter turnout in the industrial democracies". *American Political Science Review*, 81(2), pp.405-423.

Jensen, C. B., & Spoon, J. J. 2011. "Compelled without direction: Compulsory voting and party system spreading". *Electoral Studies*, 30(4), 700-711.

Key, Valdimer Orlando. *The responsible electorate*. Belknap Press of Harvard University Press, 1966.

King, G. & Nielsen, R., 2016. "Why propensity scores should not be used for matching". Unpublished manuscript.

King, G., Nielsen, R., Coberley, C., Pope, J.E. & Wells, A., 2011. Comparative effectiveness of matching methods for causal inference. Unpublished manuscript, 15.

Kramer, G. H. (1971). "Short-term fluctuations in US voting behavior, 1896–1964". *American Political Science Review*, 65(1), 131-143.

Kramer, Gerald H. 1983. "The Ecological Fallacy Revisited: Aggregate-Versus Individual-Level Findings on Economics and Elections, and Sociotropic Voting." *American Political Science Review* 77: 92–111.

Lau, R. R., & Redlawsk, D. P. 2001. "Advantages and disadvantages of cognitive heuristics in political decision making". *American Journal of Political Science*, 951-971.

Lau, R. R., Andersen, D. J., & Redlawsk, D. P. 2008. "An exploration of correct voting in recent US presidential elections". *American Journal of Political Science*, 52(2), 395-411.

Lewis-Beck, M. S., & Stegmaier, M. 2000. "Economic determinants of electoral outcomes". *Annual Review of Political Science*, 3(1), 183-219.

Lijphart, A. 1997. "Unequal participation: Democracy's unresolved dilemma presidential address", *American political science review*, 91(1), 1-14.

- Lupia, Arthur. "Shortcuts versus encyclopedias: Information and voting behavior in California insurance reform elections." 1994. *American Political Science Review* 88.1: 63-76.
- Luskin, R. C., Fishkin, J. S., & Jowell, R. 2002. "Considered opinions: Deliberative polling in Britain". *British Journal of Political Science*, 32(3), 455-487.
- Miller, M.K., 2013. "The case against matching". In *PolMeth XXX, the 30 th Annual Meeting of the Society for Political Methodology*, University of Virginia, July (pp. 18-20).
- Page, B. I., & Shapiro, R. Y. 1992. *The rational public*. University of Chicago Press.
- Panagopoulos, C. 2008. "The calculus of voting in compulsory voting systems". *Political Behavior*, 30(4), 455-467.
- Pereira, F. B. 2014. "Voto econômico retrospectivo e sofisticação política na eleição presidencial de 2002". *Revista de Sociologia e Política*, 22(50), 149-174.
- Popkin, S. 1991. *The reasoning voter*. University of Chicago Press.
- Rosema, M. 2007. "Low turnout: Threat to democracy or blessing in disguise? Consequences of citizens' varying tendencies to vote." *Electoral Studies*, 26(3), 612-623.
- Selb, P., & Lachat, R. 2009. "The more, the better? Counterfactual evidence on the effect of compulsory voting on the consistency of party choice". *European Journal of Political Research*, 48(5), 573-597.
- Singh, Shane. P. 2016. "Elections as poorer reflections of preferences under compulsory voting". *Electoral Studies*, 44, 56-65.
- Singh, Shane P. 2017. "Politically Unengaged, Distrusting, and Disaffected Individuals Drive the Link Between Compulsory Voting and Invalid Balloting". *Political Science Research and Methods*.
- Sniderman, P. M., Brody, R. A., & Tetlock, P. E. (1991). *Reasoning and choice: Explorations in political psychology*. Cambridge University Press.
- Stuart, E.A., 2010. "Matching methods for causal inference: A review and a look forward". *Statistical science: a review journal of the Institute of Mathematical Statistics*, 25(1), p.1.
- Turgeon, M., & Rennó, L. 2010. "Informação política e atitudes sobre gastos governamentais e impostos no Brasil: evidências a partir de um experimento de opinião pública". *Opinião Pública*, 16(1), 143-159.
- Wlezien, C., Franklin, M., & Twiggs, D. (1997). Economic perceptions and vote choice: Disentangling the endogeneity. *Political Behavior*, 19(1), 7-17.