The Consequences of Being Forced to Vote: Evidence from Brazil's Dual Voting System*

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August 29, 2011

Abstract

This study empirically identifies the trade-offs of compulsory and voluntary voting systems and sheds new light on causal effects of voting on individuals' political engagement, knowledge and decisions to acquire information. It explores a particular feature of Brazilian legislation: citizens between sixteen and eighteen years old are entitled, but not required to vote, while those older than eighteen are required to vote. The data comes from a self-collected survey conducted in Brazil during the 2010 election. The effects are identified based on respondents' exogenous exposure to different voting systems according to their date of birth. We find that the requirement to vote has a significant positive effect on turnout and in making citizens more likely to acquire political information. In addition, we find that the act of voting changes people's preferences and attitudes making them more politically engaged and less averse to voting.

*Preliminary version. We thank CPP/Insper for their financial support. We are very gratful to Ernesto Birner and many other teachers at Anglo Vestibulares, Escola Estadual Professor Ascendino Reis, Escola Estadual Rui Bloem, Escola Estadual Professor Leopoldo Santana and Universidade de São Paulo for their support and help in the application of our survey. We thank Dan Benjamin, Carlos Eduardo Goncalves, Chris Hanretty, Naercio Menezes and Jeffrey Prince for helpful comments.

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1 Introduction

Economists and political scientists have long been interested in understanding the determinants of voters' turnout decisions in large elections. One of the leading explanations is based on expressive voting.[1] Those more informed and interested in politics are more likely to turnout at the polls on Election Day (Degan and Merlo 2011; Lacirnese 2007). On the other hand, the causal effect of voting on information is less established. Does voting affect information acquisition and attitudes towards voting? Do individuals make a conscious decision to acquire information in preparation for voting?

This paper aims to answer these questions by investigating the effect of the requirement to vote on political behavior. To overcome unobservable correlations between voting and preferences, we explore a particular feature of Brazilian legislation. It has a dual voting system: individuals between sixteen and eighteen years old are entitled to vote but not required to, while those older than eighteen are legally required to vote. We conducted a new survey during the week following the 2010 presidential election amongst 5,559 youngsters in Brazil. The survey consisted of a comprehensive set of demographics, political behavioral questions, and a political quiz to evaluate respondents' level of political information.

In the first part of this paper, we estimate short term effects of the obligation to vote – of *just being exposed* to the voting requirement. The identification of the effects relies on the comparison of political behavior amongst age groups around the threshold that determines the exposure to different electoral institutions, in a regression discontinuity fashion. First, we estimate the impact of the compulsory voting legislation on turnout. These estimates are new and interesting on their own. They contribute to a large political science literature that investigates the effect of the compulsory legislation on turnout (Jackman 1997, 1999). We then show the impact of the legal requirement to vote on variables related to the preparation to vote like information acquisition and

[1] See Coate and Conlin (2004) for evidence supporting this explanation.

political knowledge. Since this paper explores the natural experiment of the compulsory voting legislation, we perform regressions separately for groups with different propensity to vote (voluntarily) to identify these effects.[2]

Our results speak not only of the causal link between voting and information acquisition, but also contribute to the discussion regarding compulsory voting. This is a controversial issue. Although a compulsory voting system guarantees a more representative participation of population in elections, a strong objection is that it violates individual freedom (Lijphart 1997). Any related welfare analysis involves understanding how individuals' preferences towards voting react to the act of voting. In the second part of the paper, we investigate how voting experience (determined by the number of experienced compulsory elections) affects individuals' preference towards voting and politics. We consider a sample with a wider age range. To separate the effect of voting experience from aging, we conduct regressions using year of birth as a control variable. To identify the effect of interest, we rely on the fact that Brazilian elections always take place in October. Hence the exposure to compulsory elections is determined by the month of birth, and therefore it is exogenous to individuals' preferences.

To the best of our knowledge, this is the first paper is to study these relationships – between compulsory voting, turnout, information acquisition and sentiments towards voting - in a large scale election under natural incentives faced by individuals. Comparisons are made amongst individuals that face the same politicians and presumably differ only by their date of birth and consequently by their voting requirements. Hence, we are able to identify the impact of the requirement to vote using a clear quasi-experimental design. The results shed light on the causal link between voting and political behavior and on the trade-offs between compulsory and voluntary voting systems.

We find that the requirement to vote increases turnout by 9 to 11 p.p. when turnout is measured amongst registered voters; and by 12 to 22 p.p. when turnout is measured amongst the voting age population. Individuals with low probability to vote are the

[2] Alternatively individuals can respond to the opportunity of being entitled to vote. This paper only looks at the effect of voting requirement.

ones affected by the voting requirement to vote: they become more politically engaged and informed once they are forced to vote. We find that the aversion to vote decreases after a few voting experiences, but this relationship vanishes after further elections. In general, these results point to the important role of voting in increasing individuals' political engagement.

This paper proceeds in six sections. In section 2, we review the literature and then present a simple model for the requirement to vote's effect on individuals' decisions to acquire information; this model formalizes the intuition relating to that effect and sheds light on what we can expect to observe. In section 3, we explain the Brazilian electoral institution, describe the data collection and present the descriptive. In section 4, we discuss the empirical strategy and present the results relating to short term effects of compulsory voting on political behavior. In section 5, we estimate long term effects of voting on attitudes and preferences towards politics, and conclude in section 6.

2 Literature Review

This paper relates to several literatures and provides several contributions. More broadly, it relates to the literature that studies the relationship between turnout, information acquisition and preferences towards voting.

The correlation between information and turnout has been vastly documented. Several studies show a positive causal effect of political information on turnout. Gentzkow (2005) shows the negative correlation between voting participation and the introduction of television in US, which was associated with shifts in media consumption and a decrease in voters' information. Lacirnese (2007) finds that the negative correlation between information and turnout in the UK is robust when information is instrumented by the supply on mass media. Others use field-experiments in which political information is randomly provided. They find evidence consistent with a causal effect of information on turnout in Copenhagen (Lassen 2005) and in slums in India (Banerjee et al 2010).

On the other hand, the reverse causal effect of voting on information acquisition

is less established empirically. Feddersen and Sandroni (2006) develop a game theory model of ethical voters in which the decision of acquiring costly information is endogenized. They assume there are two types of voters: (i) partisans that always prefer a candidate and (ii) independents that have state dependent preferences (therefore, they need information to find out who the best candidate is). They find that under sufficient uncertainty over partisan support, independent voters will optimally decide to acquire costly information. They conduct comparative statistics allowing for voting abstention and also show that informed independents are more likely to vote than their uniformed counterpart. Although their model provides an explanation for this relationship, whether the requirement to vote will make individuals acquire costly information is still an empirical question. This is the main contribution of this current paper.

This paper also relates to the literature that studies the effects of compulsory voting and trade-offs of voting systems. The welfare implications of compulsory voting have been studied with game theoretical models, which are built on the idea of costly voting and assume that voters are driven by the probability of having a pivotal vote (Krasa and Polborn 2009, Borges 2004).[3] Departing from this approach, in an influential paper, Lijphart (1997) discusses informally the trade-offs and benefits of compulsory voting.

The most straightforward implication of compulsory voting is an increase in turnout, and this association has been vastly documented. Jackman (1997, 1999) compares turnout rates across countries with different voting institutions. Others estimate this

[3]This last assumption is unlikely in large elections (Borges 2004), constituting an important criticism to their conclusions. Among this class of papers Krasa and Polborn (2009) assume candidates have a different fraction of supporters in the population; they also assume that their welfare measure is defined by the sum of citizens' payoff from the elected candidates minus the voting costs of those citizens who vote. They compare the ex-ante expected welfare in equilibrium under voluntary and compulsory voting. The important uncertainty is about who is going to turn out to elections (and therefore who is going to win the election). They show that mandatory voting outperforms voluntary voting if the expected absolute sizes of the candidates' supporters groups are sufficiently different. Nevertheless, in their framework all voters are assumed to be informed. The concern that voters under different voting systems have different probabilities to make voting mistakes is not considered.

effect within a country to better isolate the effect of compulsory voting from factors that are correlated with both a country's voting system and its individual citizen's propensity to vote (like political culture or possible candidates' self selection). Hirczy (1994) analyses turnout in Austria exploring the fact that a mandatory voting system was uniquely introduced in one province (Carinthia) in 1986. He measures how turnout changed in Carinthia in comparison to other Austrian provinces. Like this current paper, Power (2009) investigates the effect of compulsory voting by exploring Brazilian legislation. In contrast to this paper, he tests whether states with different literacy levels (illiterates are not required to vote) and population ages (between 18 and 69 years old) have different turnout rates. All these studies find results consistent with the fact that compulsory voting increases turnout, but they vastly differ in the estimated magnitude. This paper's first contribution is to provide new estimates for this effect, exploring variation in voting legislation within a country and using individual data.

The consequences of the increase in turnout due to the compulsory voting legislation have been overlooked.[4] Two studies empirically investigate the effects of compulsory voting on individuals' political knowledge using an experimental framework,[5] and they have contrasting findings. The closest paper to this is Loewen, Milner and Hicks (2008). They conducted a field-experiment in Canada during the 2007 provincial elections among 121 students. To participate, students were required to complete a survey which included a quiz to evaluate political knowledge; half of them were also required

[4] Curiously, there are several papers that investigate the incentives of uninformed citizens to abstain from voting, but there are few that try to understand the incentives of uninformed citizens to acquire information when they are required to vote. In an influential paper, Feddersen and Pesendorfer (1996) create a model that predicts selective abstention in which uninformed voters delegate their votes to informed voters. They name this phenomenon "swing voter's curse". Battaglini, Morton and Palfrey (2008) find evidence of such behavior in the laboratory. Although this can be viewed as compelling evidence of strategic voting and the fact that individuals care about election results, it does not show that voters care enough to acquire information.

[5] This correlation has also been studied by Engelen and Hooghe (2007), Czesnik (2007) and Ballinger (2007) in a cross-country context and they find no relationship.

to vote in order to receive the payment.[6] They find no statistically significant effect of compulsory voting on consumption of media or political knowledge.

Seebauer and Grosser (2006) studied this relationship in the laboratory with a voting game with costly private information. Participants were assigned to small groups (with three or seven participants) in which the group received a bonus when the majority voted for the correct state of the world. Participants had to individually decide: (i) how to vote on the true state of the world, represented by a color: yellow or blue that was chosen randomly by a computer[7] and (ii) whether to acquire costly information about the true state of the world. Some groups were assigned to the treatment that allows individual group members to abstain from voting for a color (the voluntary voting treatment) and others were not (the compulsory voting system). The authors find that participants were significantly more likely to acquire costly information under the compulsory system rather than in the voluntary system.

This paper also relates to the behavior literature, in addressing how voting experience affects attitudes towards voting. Several studies show that the act of voting for a person or a party reinforces individuals' preferences (Dinas et al 2010, Mullainathan and Washington 2009, Evans and Andersen 2006.) Their explanation relies on the cognitive dissonance interpretation. To the best of our knowledge, this is the first paper that tests whether such a relationship occurs in turnout.

Next, we present a simple framework that motivates our empirical analysis.

2.1 Expected Effects of the Requirement to Vote

The most straightforward effect of compulsory voting is on turnout. The requirement to vote might have other effects such as making non-voters more likely to acquire

[6] The authors assume that the financial penalty for not voting is equivalent to facing compulsory voting. This is realistic, since in many countries with compulsory voting there is such a penalty associated with not voting.

[7] Participants were told that the probability that every color could be the correct one was 50%.

political information. An explanation for this fact is that individuals[8] feel responsible for their ballots and do not want to make voting mistakes. This (psychological) cost can be avoided with information acquisition or with vote abstention. However, under a compulsory voting system, abstention is not an option, leading non-voters to acquire information. Next we present a simple model that formalizes this argument.

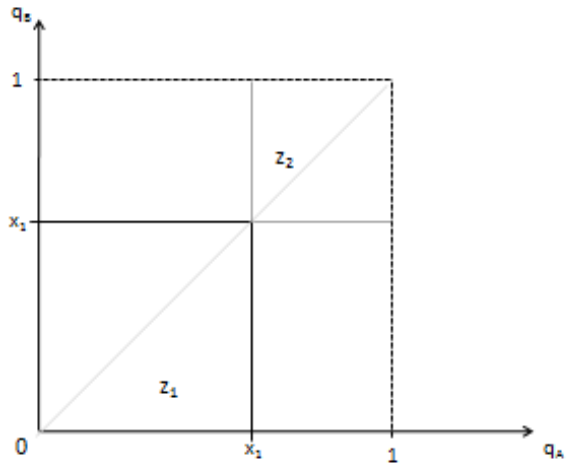
Setup: There are two candidates $c = \{A, B\}$ running for office.[9] Candidates are characterized by a quality index q_c, which summarizes and orders their qualities. This is a realization of a random variable uniformly distributed on [0,1]. The best candidate is the one with the highest q_c.

Information Acquisition Technology: The information acquisition technology is such that an individual i investigates whether both candidates have a fixed number of qualities, or if a candidate's quality index reaches some $x^*, x \in (0, 1)$. Once x^* is chosen, a individual learns with some positive probability who the best candidate is. In the case where any of the candidates differ on the selected qualities (whether $q_c < x^*, c = \{A, B\}$), the best candidate is identified (like in z_1 in Figure 1). However, if both candidates have the selected characteristic (like in z_2 in Figure 1), then the individual can only infer that any of the candidates have the same chance of being the best one. The higher the number of selected qualities, the higher the chance of finding out which candidate is best.[10]

[8] In this paper, the term "voters" refers to those who place a ballot on Election Day. "Individuals" refers to a larger group: voters and non-voters.

[9] The results are generalized for a situation where more than two candidates are running in a race. We explain the model with only two candidates due to presentational issues.

[10] In case x=1, individuals learn about the best candidate with probability one.



Candidate Vote Decision: Individuals decide whether to vote ($v = 1$) or not ($v = 0$), and how much information to learn about the candidates (x). They act in two stages. In the second stage, after an individual has decided to vote and has consumed information, his/her candidate choice is c^*. This choice depends on his/her private information about who the best candidate is and the realization of q_c. Voters always vote for the best candidate if he/she is identified. Otherwise, voters randomize their vote between candidates A and B. To summarize, an individual's vote is determined by the following rule:

$$c^* = \left\{ \begin{array}{c} \arg\max\{q_A(x^*), q_B(x^*) : c \in \{A, B\}\} \text{ if } q_A < x^* \text{ or } q_B < x^* \\ A \text{ with prob } 1/2 \text{ if } q_A(x^*) \geqslant x^*, q_B(x^*) \geqslant x^* \\ B \text{ with prob } 1/2 \text{ if } q_A(x^*) \geqslant x^*, q_B(x^*) \geqslant x^* \end{array} \right\}$$

Turnout and Information Acquisition Decisions: An individual i is characterized by B_i, a variable which defines his/her intrinsic preference and satisfaction in voting. His utility from voting is based on three components. The first is the benefit of voting, B_i. The cost of voting is determined by two components: (i) the psychological cost of making a voting mistake, which is a function of x,[11] and (ii) the cost of acquiring information, that is increasing and convex in x. In the first stage, in a voluntary voting

[11] More specifically, this is the expected probability of voting for the less-qualified candidate when investigating x. For this particular example, this probability is equal to $\frac{(1-x)^2}{2}$.

system, individuals face the following problem:

$$Max_{v\in\{0,1\},x\in(0,1)} \qquad v[B_i - \alpha\left(\frac{(1-x)^2}{2}\right) - c(x)]$$

The solution to this problem depends on individuals' intrinsic preferences. They will vote and choose $x = x^* > 0$, $x^* : \alpha(1-x^*) = c(x^*)$ if:

$$B_i \geqslant \alpha\left(\frac{(1-x^*)^2}{2}\right) + c(x^*)$$

Individuals will not vote and chose $x = 0$ if:

$$B_i < \alpha\left(\frac{(1-x^*)^2}{2}\right) + c(x^*)$$

Individuals with high B_i opt into voting and into acquiring information. Those with low B_i abstain from voting and from becoming informed. In a compulsory voting system, voting abstention is no longer an option and individuals only face the decision of how much information to acquire:

$$Max_{x\in(0,1)} \qquad B_i - \alpha_i\left(\frac{(1-x)^2}{2}\right) - c(x)$$

In this case, all individuals vote and chose $x = x^* > 0$, $x^* : \alpha(1-x^*) = c(x^*)$ .Hence the group affected by compulsory legislation is the non-voters. In being "forced" to vote, they become informed in order to avoid the discomfort of making voting mistakes. They are worse-off than in a voluntary system as they would rather abstain from acquiring information and from voting. This last conclusion relies on the assumption that their preferences about voting (B_i) are fixed. However, these preferences can be affected by voting experience. In this paper, we test whether individuals respond to the requirement to vote in political knowledge and preferences towards voting.

3 Data

3.1 Some Background on the Brazilian Election System

Brazil had its first democratic election in 1985. Since 1988, Brazil has adopted a dual electoral institution: voting is compulsory for all individuals, except illiterates, between the ages of eighteen and sixty nine; voting is voluntary for illiterates and for those aged sixteen to seventeen and seventy and over (Power 2009). Any voter has to be registered[12] and when individuals who are required to vote fail to do so, and also fail to provide a justification for not having voted to the electoral authority, they must pay a small fine.[13] Stronger sanctions are applied to those who fail to justify their absence for three consecutive elections: they are not allowed to issue or renew their passports and national identity cards, become ineligible for public education, public jobs, cash transfer programs and credit by financial institutions maintained by the government. The legal requirement refers to showing up at the polls, and any voter has the option of casting an invalid vote (this option is available in the ballot).

One can claim that voting is not in fact compulsory since the option of justifying the absence is available. However, this practice is not commonly used. According to records from Tribunal Superior Eleitoral - TSE, in the 2006 Presidential Elections 83% of the total electorate opted for turning up at the polls instead of justifying absence.[14] Table 1 shows turnout rates (as a fraction of total population) by age group. It is clearly higher among individuals that face a compulsory system.

[12]Registration occurs only once, however, the deadline for registering in 2010 was 150 days before the Election. It is compulsory for individuals that are older (but voluntary for those that are younger) than eighteen to register by Election Day.

[13]It 2011, the fee was between R$ 1.06 and R$ 3.51, which is equivalent to between US$ 0.66 and US$ 2.19.

[14]This include Brazilians living abroad, or in different cities to where they are registered. Brazilians can only vote in the states in which they are registered, and they can only vote in person. According to TSE, 40.78% of Brazil's residents that justified their absence in the 2006 Election were living in different states from where they were registered.

Table 1: Turnout - Brazil

group age	Turnout %
16	0.02
17	41.98
18 to 20	85.38

Note: Source TSE

Official records only give information about turnout and only at the aggregate level.[15] An analysis like the one proposed in this study demanded a survey collection. This took place in the week immediately after the first round of the 2010 Presidential Elections. Brazil has a multiparty system. At that occasion, there were three main candidates running for election: Jose Serra, Marina Silva and Dilma Rousseff. Their received votes in the first round were 32.6%, 19.3% and 46.9% respectively, responsible for 98.8% of total valid votes.[16]

3.2 Survey, Application Procedure and Sample

We conducted the survey among individuals between sixteen and nineteen years old, thereby including in the sample individuals who face either compulsory or voluntary electoral institutions. A total of 5,559 students were surveyed in their classrooms between October 4th and October 7th, 2010. The survey was conducted amongst students in three types of institutions - public high schools, a preparatory course for college admission and a large university, in in one hundred and nine classrooms - in the city of São Paulo, Brazil.[17]

[15] By municipality or year of birth.

[16] In Brazil, the president is elected through the majority rule by direct ballot in a two-round system. In the 2010 Election, no candidate received more than 50% of the valid votes in the first round, so there was a runoff between the two leading candidates. In the second round, Dilma Rousseff beat Jose Serra by 12.2 p.p. (56.1% versus 43.9%).

[17] São Paulo is the largest metropolis in Brazil and it is among the Brazilian cities with the highest income per capita in the country.

The survey consisted of a comprehensive set of questions about demographics, political inclination, vote, information acquisition habits, sentiments towards voting and a political quiz to evaluate the respondents' levels of political information. We consider five main outcomes using responses to these questions. The first two outcomes are measures of information acquisition: how many days per week the responded reported to consume media to learn about politics and whether the respondent always read the politics section in his preferred media outlet. The third outcome is the respondent's grade in the political quiz.[18] The last outcomes are measures of sentiments towards voting.

In conducting the surveys, the same procedure was applied across all institutions: an interviewer entered the classroom about fifteen minutes before the end of a class, read an introductory script, and distributed the questionnaires to all students. They had ten to twelve minutes to individually answer the questions.[19]

In every classroom, four types of questionnaires - containing exactly the same questions but in different orders - were randomly distributed to students to prevent cheating. We believe the collected data is reliable. Most students agreed to answer the survey and 94% of the respondents declared to have answered it in a serious manner.[20]

The first sample is comprised of high school seniors from three public high schools: Escola Estadual Professor Ascendino Reis, Escola Estadual Rui Bloem and Escola Estadual Professor Leopoldo Santana. The second sample is composed of students taking

[18] The quiz consisted of thirteen questions. Twelve were about the three main candidates running in the presidential elections. More specifically, there were three open-answer questions about the previous political experience of each one of the candidates. The remaining four multiple-choice questions were about policies previously implemented or supported by the candidates.

[19] After returning the completed questionnaire, students received an information sheet containing more details on the research and contact information for the authors.

[20] Jackman (1987) points out the drawbacks of self-reported answers in analysing political behavior. Respondents had been told they could skip any question, but the vast majority of students answered them. A sensitive question was about their vote (whether they voted and whom they voted for). Only 1.26% abstained from answering this question and 0.27% chose the alternative "I abstain from answering this question".

a preparatory course for college admission exams (cursinho) at Anglo Vestibulares. These are referred to as Anglo students. They are mostly high school seniors or students that just finished high school but have not yet been admitted to college. While public high school and Anglo students have similar ages, they differ in socioeconomic characteristics, the latter group being more affluent.

The last sample consists of freshmen from the Universidade de São Paulo (USP). We surveyed freshmen from the following majors: History, Sociology, Business Administration, Economics, Physics, Architecture, Law, Mathematics and Literature. This sample of students is older. We surveyed them to be able to infer the potential "long-term" effects of voting based on cohort comparisons (discussed in detail in Section 5)

From the 5,559 surveys collected, 3,703 of them were completed by Anglo students, 728 by public high-school students and 1,128 by college students. Table 2 describes the socioeconomics and political inclinations for these three samples.

Table 2: here

3.2.1 Descriptive Analysis

Table 3 shows a comparison of respondents' political behavior and characteristics according to their voting requirement. Those that face the compulsory voting system are more likely to be registered to vote and to vote, and they obtained a higher political quiz score.

Table 3: here

It is important to note that the sample over represents the poorer and non-white among the youngest respondents (those who face a voluntary voting system). In order to overcome the issue of age confounding and make more precise estimates of a causal effect of the voting requirement, we will use a regression discontinuity framework to

estimate the effects of interest. We make comparisons among those near the thresholds that define the change in voting requirement status.

3.3 Estimation Framework of RDD

We use two classifications for the treatment group. In the first one, individuals required to vote are the "treated", and the control group is composed of those not required to vote. Let VR be the binary variable denoting the treatment status. The RDD design arises because the probability of facing the requirement to vote (and receiving the treatment) varies discontinuously with variable S, which denotes the number of months from the date the respondent turns or had turned eighteen (and therefore is legally required to vote) to the Election Day. The voting requirement status (VR) is established according to the determinist rule (S $\geqslant$0). [21] In this case, the average causal effect of the requirement to vote on outcome y is given by:

$$\beta = \lim_{s \uparrow 0} E[y/S = s] - \lim_{s \downarrow 0} E[y/S = s]$$

As an alternative classification, we consider individuals that *perceive* to have the requirement to vote (PR) to be the "treated" group, and the control group is composed by those who believe not to have this requirement. This approach is adopted because there is imperfect knowledge about the legislation amongst young voters. Individuals should respond to their perceptions rather than to their real requirements. As a result the relationship between the perception to vote and S is not deterministic (and the probability of receiving the treatment does not jump from zero to one around S=0). Therefore the relationship is studied in a "fuzzy", as opposed to a "sharp", design. As shown by Hahn *et al* (2001), this is equivalent to using the actual legal requirement as an instrument for the perception about the requirement to vote. The average causal

[21] The correspondence between a student's date of birth and S is that those born before October, 3th, 1992 faced the legal voting requirement (S$\geqslant$0). Those born between October, 3th, 1990 and October, 3th, 1992 were entitled to vote in the 2010 Election (S<0).

effect of perceiving the requirement to vote on outcome y is given by:

$$\beta = \frac{\lim_{s\uparrow 0} E[y/S=s] - \lim_{s\downarrow 0} E[y/S=s]}{\lim_{s\uparrow 0} E[PR/S=s] - \lim_{s\downarrow 0} E[PR/S=s]}$$

To estimate β , we follow the guidelines in Imbens and Lemieux (2008) and estimate the following equations:

$$y_{ia} = \gamma + \beta_1 1(S_a > 0) + m(S_a) + u_{ia} \quad (1)$$

$$PR_{ia} = \gamma + \beta_2 1(S_a > 0) + m(S_a) + u_{ia} \quad (2)$$

where y_{ia} is the outcome of individual i at age a, $m(S_a)$ is a continuous function of S, $1(S_a > 0)$ is an indicator equal to one if the respondent was required to vote on 2010 Election Day and u_{ia} is a random error term. We estimate (1) and (2) assuming a lower order polynomial functional form for m() that is flexible on each side of the cutoff, and clustered standard errors on classrooms. A possible concern is that the results may be sensitive to outcome values for observations far away from the cutoff that determines the change in voting system. For this reason our estimates use only data within an interval S$\in [-X, X]$[22].

3.4 Validity of the RDD

A key identification assumption is that the conditional expectation of y on S is continuous at the threshold that defines the change in the voting requirement status. All other factors that might affect political behavior should trend smoothly at S=0. This cannot be entirely verifiable. However, it can easily be rejected. As discussed by Lee (2008), a simple test is to fit regressions for possible confounding variables and test for jumps at S=0. We estimate (1) using several covariates as the endogenous variable.

There are several possible concerns relating to the validity of these results. First, the results are based on self-reported attitudes and respondents had the option of abstaining

[22] We present results for different values of X.

from answering the survey. If the choice of participating in the survey is correlated with the voting system[23], a jump in the number of observations around the threshold should be visible and we could suspect some selection effect. In this case, we could not assume that assignment to a voting system (among respondents) around the threshold is like random. Figure 2 shows a plot with the number of observations by S. There are no visible discontinuities.

Secondly, presidential elections are held every four years. Therefore, the 2010 Election was the first opportunity for all respondents around the threshold that defines that change in voting system to vote for a president. Lastly, as shown in Table 2, younger respondents are disproportionately more likely to be poorer and non-white. While these variables are controlled in RDD, it is important to guarantee that they evolve smoothly around the threshold that defines the change in voting system status. Table 4 shows the results. None of the variables were statistically significant, and the size of the estimated coefficient for the threshold is small.

Table 4: here

4 Short Term Effects

In this section, we present the results of the impact of compulsory voting on turnout and other political behavior.

4.1 The Impact of the Compulsory Legislation on Perception and Turnout

Figure 3 shows the relationship between the perception about the requirement to vote and age. There is a clear jump around the threshold that defines the change in

[23]For example, if individuals are more likely to vote under a compulsory voting system, and voters are more willing to answer the survey than non-voters.

system, indicating the awareness about the legal requirement to vote among respondents. Regression results are reported in Table 5. The size of the impact is estimated to be between 65 p.p and 73 p.p. Next, we will present the impact of voting legislation under a "sharp" and a "fuzzy" regression discontinuity design. Both approaches have their own merits. The sharp RDD estimates provides more realistic numbers regarding the impact of the introduction of compulsory voting on turnout. On the other hand, the fuzzy RDD results might provide a better estimate of individuals' sensibility to the requirement to vote.

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Fig 3: Perception of Requirement to Vote

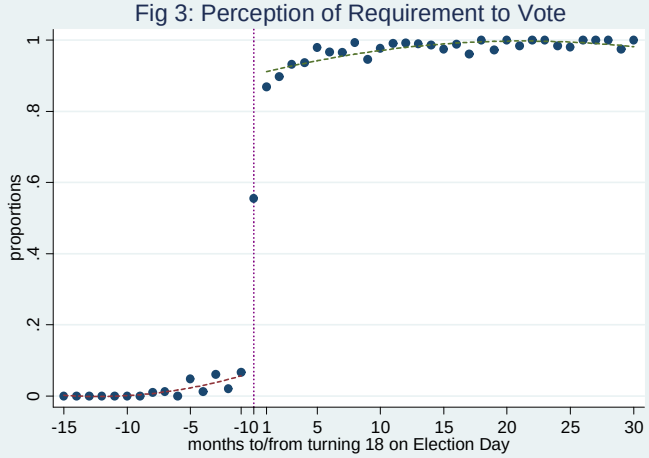


Fig 4: Voted as a fraction of registered voters

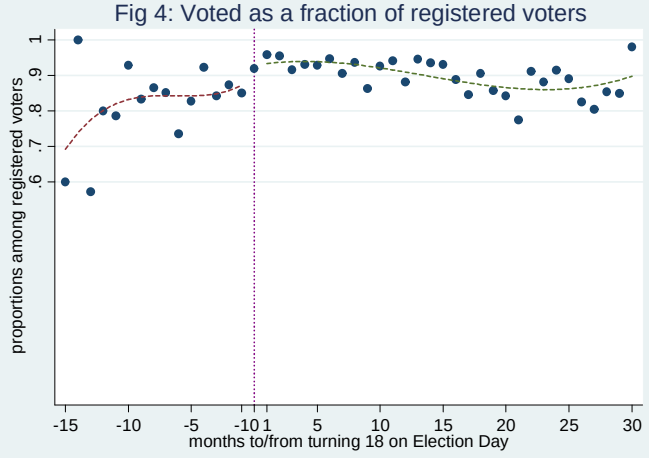


Figure 4 illustrates turnout as a share of voting age-population. The estimated impact of the vote requirement on the probability of going to vote is positive, leading to an increase by 15p.p. to 22p.p. (Table 5). This number is higher than previous estimates (Jackman, 1997, 1999). In addition, this effect is estimated within a country where most of the adult population votes. Those under a voluntary voting system are potentially exposed to some positive peer effect from the remaining population.[24] Having this in mind, it is possible that the impact of the introduction of compulsory voting on turnout is larger than the one estimated in this paper, which is only a lower bound number.

Figure 5 illustrates turnout as a share of registered voters. Among this group, turnout rates are higher than 70%. The explanation for this fact may include the low cost of leaving the house to vote (Election Day occurs on a Sunday and registered voters are assigned a place near their homes to vote). Also, Brazilians might perceive voting as a norm since most of the adult population is required to vote. Despite this, the estimated impact of the perception of being required to vote on the probability of going to vote is positive, leading to an increase by 8 p.p. to 11 p.p. (Table 5).

The discrepancy between these two turnout measures is explained by a significant difference in registered voters amongst those under different voting systems. In the 2010 Election, the deadline for voting registration occurred 150 days before election. This fact sheds some light on voters' behavior. The awareness of becoming entitled to vote occurs well way in advance from Election Day, and this might reflect on other forms of preparation to vote such as acquiring political information.

[24] For example, Gerber *et al* (2008) and Panagopoulos (2010) document evidence from field experiments that Americans face peer effects on their voting turnout decision.

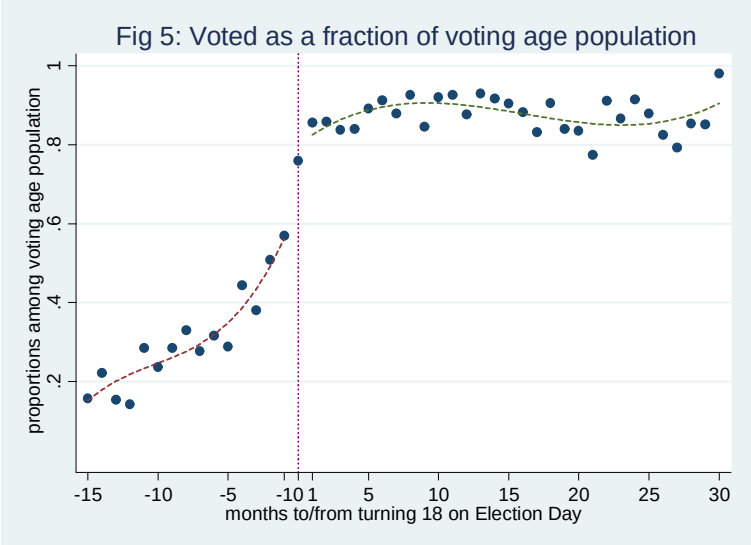
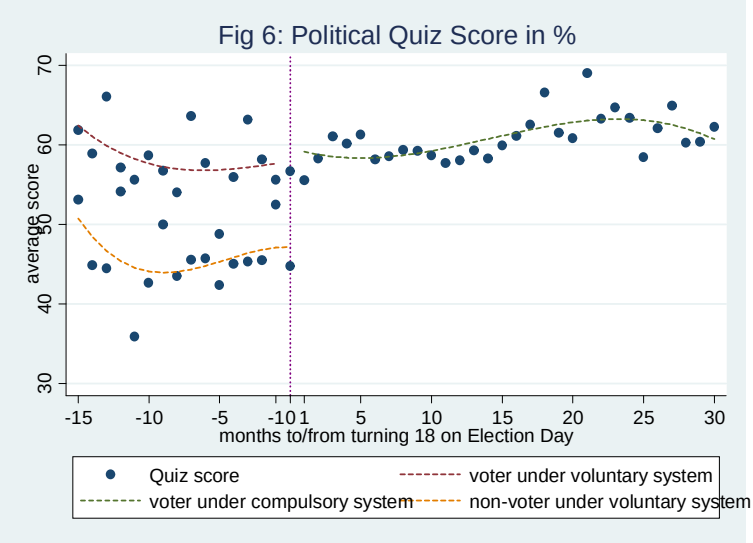


Table 5: here

4.2 Effect of the Requirement to Vote on Political Knowledge

In order to identify whether the act of voting leads individuals to acquire information, it is important to have in mind that heterogeneous effects are expected. In the context of exposure to the legal requirement to vote, those with low willingness to vote (voluntarily) are the ones expected to be affected by the voting legislation.

To illustrate this point, Figure 6 shows the political quiz score for three groups according to their voting behavior. Consistent with previous findings (Degan and Merlo 2011), (voluntary) voters are more informed than non-voters. The group of voters in a compulsory system is a combination of both these two previous groups (since once the legal voting requirement becomes binding most individuals become voters.) This simple decomposition is suggestive of heterogeneous effects, as the level of information among voters in different systems does not change.



To identify such effects, we assume a simple reduced-form model of the causal effect of the requirement to vote:

$$y_{ia}^k = m^k(S_a) + \pi^k 1(S_a > 0) + u_{ia}^k$$

where y_{ia}^k is a measure of information acquisition or sentiments towards voting for individual i at age a with propensity to vote voluntarily k, u_{ia}^k is an unobserved error component and $m^k(a)$ is a smooth function representing the age profile of outcome y.

In order to estimate π^k, we identified groups that fit into categories of high and low willingness to vote voluntarily. The procedure was to estimate the probability of voting for those exposed to the voluntary voting legislation (younger than eighteen by Election Day) and use the coefficients to predict the probability of *voting voluntarily* for the remaining sample. The controls are classroom fixed effects. Hence, we assume that the probability of voting voluntarily is the same for all classmates. It is determined by the voting frequency of younger classmates (younger than eighteen). The distribution of this variable is shown in Figure 7 and the relationship between the predicted and actual probability of voting is illustrated in Figure 8.

For this analysis, we assume that those whose estimated probability of voting (voluntarily) was lower than 30% had a low willingness to vote. Those whose estimated

probability of voting voluntarily was higher than 60% had a high willingness to vote. Next, we conducted regressions separately for those with high and low willingness to vote voluntarily.[25] Tables 6 and 7 describe the results.The regressions do not detect any effect (caused by the requirement to vote) on information acquisition, political knowledge or sentiments towards voting among those with a higher probability of voting voluntarily. The coefficients are small and not statistically significant. This is consistent with the fact that this group is not affected by the compulsory legislation because it is imposing a behavior that they would most probably follow regardless of any intervention. On the other hand, those with a lower probability of voting become more likely to vote and to acquire information after exposed to the voting obligation.

Table 6: here

In the next section, we address the long term effects of compulsory voting. First, we examine whether, and to what extent non- voters' behavior (in terms of political knowledge and satisfaction on voting) "converges" to the behavior of (voluntary) voters after both groups are exposed to the compulsory system. Then, we investigate whether the act of voting affects citizens' attitudes toward voting.

Table 7: here

[25] An advantage of conducting the analysis separately using predicted probability of voting as opposed to using actual behavior is that the voting decision is stochastic and information acquisition is in investment made in advance.

5 Long Term Effects of Voting

5.1 Differences between Voters and (Previous) Non-Voters in the Long Run

To understand the difference between voters and non-voters persists after both groups are exposed to the compulsory system, we focus on USP freshmen. We selected those who faced a voluntary system in the 2008 Election, and a compulsory system in the 2010 Election.[26] Among these students, we observe two groups – those that voted in the 2008 Election and those who did not (when exposed to a voluntary system). We compare this with their behavior two years later in the 2010 Election, when both of them faced a compulsory system.

To infer how their behavior has evolved over these two years, we consider a proxy for their 2008 behavior. This is the one reported by a group of comparable high-school students, who faced similar conditions in the 2010 Election as the freshmen did in 2008. At that time, the USP freshmen were high-school students. USP is tuition-free and one of the most prestigious universities in the country. For these reasons, it has a highly competitive entrance exam. As a result, USP students have different characteristics than the average population in the same age (Schwartzman, 1992): they are more affluent and their parents are more likely to be college educated.

We observe high school respondents' socioeconomic characteristics and college majors' aspirations (so these variables can be controlled for in regressions.) However, USP students may also differ in other attributes not observable by the researcher, such as the degree of persistence, determination or intelligence they possess, which could possibly correlate with their political behavior. To overcome a possible unobservable heterogeneity, we constructed a more homogenous comparison group composed of high-school students who applied to USP and were pre-selected in the 2011 admission exam.

In summary, we observe the behavior of four groups. That of 2010 high school

[26] The ones born between October, 3rd, 1990 and October 3rd, 1992.

students who faced a voluntary voting system in the 2010 Election and (i) voted, or (ii) did not vote. The last two groups are 2010 USP freshmen who faced a compulsory voting system in the 2010 Election, and a voluntary system in the 2008 Election and in 2008: (iii) voted, or (iv) did not vote. Table 8 describes the average political score for these four respondents' groups:

Table 8: Political Score: Percentage of Correct Answers

	System in the 2010 Election	
	Voluntary	Compulsory
(Voluntary) voter (A)	61.17	72.63
	(13.88)	(18.05)
Previous Non-Voter (B)	47.88	66.15
	(18.24)	(18.87)
(A)- (B)		
	13.29	6.48

Note: Standard deviations are reported in parenthesis

Older students and (voluntary) voters had higher scores in the political quiz. To infer long-term effects of compulsory voting on (previous) non-voters behavior, we look at the differences between respondents who vote and who abstain, over time (when passing from a voluntary to a compulsory system), in a difference-in-difference framework. The gap difference is larger for those that in the 2010 Election faced a voluntary system than for those that faced a voluntary system two years earlier (in the 2008 Election) and currently face a compulsory system. We attribute this difference to the exposure to the compulsory system.

In order to test whether this difference is robust to respondents' socioeconomic characteristics and career aspirations, we conduct regressions by estimating the specification expressed by (1). The parameters are estimated by ordinary least squares.

$$y_{im} = \alpha + \gamma Com_{2010} + \beta_1 Abst + \boldsymbol{\beta}_3 Com_{2010} \cdot Abst + \beta_d v_d + \theta_m + \varepsilon_{im} \qquad (3)$$

The variable, y_{rm}, is the outcome of respondent i, with college major aspiration m. A dummy, denoted by Com_{2010}, indicates whether the respondent was exposed to a

compulsory voting system in the 2010 Election. A dummy *Abst* indicates whether the respondent abstained from voting when he faced a voluntary system. This includes high-school students that abstained from voting in the 2010 Election and college students that abstained from voting in the 2008 Election. The variable of interest is β_3, which is the coefficient associated with the behavior of USP freshmen who did not vote in the 2008 Election represented by the interaction $Com_{2010} \cdot Abst$. The test is whether this variable is statistically different from zero.[27] Other characteristics possibly correlated with political behavior are controlled for. These are v_d, representing date of birth; demographic and family characteristics and θ_m are major fixed effects. A stochastic random term is represented by ε_{rm}. The standard errors are clustered at the classroom level.

Table 9 describes the results for different outcomes: political quiz score (Column 1 and 2), the extent to which respondents identify with the statement "I feel good in voting as I am acting upon my civic duty" (Column 3 and 4) and a dummy indicating whether the respondent would rather not vote if he was not required to (Columns 5 and 6). This last variable is a measure of aversion to voting. The negative sign of $\boldsymbol{\beta}_3$ is consistent with the results presented in Table 8 and with the fact that (previous) voluntary voters are still more informed and interested in politics than (previous) non-voters after both being exposed the compulsory voting legislation. However, as illustrated by coefficient $\boldsymbol{\beta}_3$, the behavior of these two groups "approximates" once the compulsory voting legislation is in place.

In terms of magnitudes, the average score (and standard deviation), satisfaction and aversion to vote in this group of prospective and freshmen USP students are 66.63

[27] Other possible concern related to the interpretation of this coefficient is that citizens that abstain from voting in local elections are different from those that abstain in presidential elections. Nonetheless, participation rates are very high in Brazil. According to TSE, the number of registered voters who turned out in Sao Paulo was practically the same in the 2008 and the 2010 Election. This also holds for respondents in our sample. The conditional probability of voting abstention is not statistically different for the 2008 and the 2010 election.

(19.59), 6.66 (3.03) and 0.19 (0.359) respectively. Vote abstainers differ from voters on their political knowledge, satisfaction and aversion to vote in respectively 0.7, 1.1 and 1.8 standard deviations. After being exposed for one election to compulsory voting, this difference changes to only 0.2, 0.3 and 0.14 standard deviations.

Table 9: here

5.2 Effect of Voting on Preferences Towards Voting

A serious objection to compulsory voting is normative in the sense that it violates individual freedom (Lijphart, 1997). However, the act of voting might change the way individuals think about voting, and that could possibly justify an intervention. For example, the act of getting ready to vote might demystify previous preconceptions about politicians or raise the awareness of the country's problems, changing people's minds about the voting requirement. Another explanation relies on a cognitive dissonance story (Festinger 1957). This theory is based on the idea that when prior attitudes do not coincide with actual behavior, individuals experience a certain degree of discomfort which drives them to change their attitudes as to converge with their actual behavior. This can take place in the political turnout scene in countries with compulsory voting. Once individuals are forced to vote they become less averse to the idea of voting to avoid the discomfort of inconsistency between their preferences and behavior.

To test this idea, we use the following question: "If you were not required to vote in the 2010 Election, would you have voted?" As expected, the answer to this question is correlated with voting behavior. Among those who voted in the 2010 Election, 22.95% answer they would rather not vote if they were not required to. This fraction was much larger among non-voters (45.3%). There are possible explanations for this fact. For one, those who dislike politics refuse to vote and would rather not be obliged to. But the reverse is also possible. Experiencing voting can make individuals less averse to it. We test this last channel by verifying whether more voting experience leads to less aversion

to voting, measured by the likelihood that a respondent prefers to abstain from voting if not required to. To overcome the endogeneity between distaste for politics and voting behavior, we exploit age variation across respondents (hence, exposure to compulsory elections). To overcome a possible age confounding effect we conduct regressions controlling for year of birth, and take advantage of the fact that Brazilian elections take place in October and November meaning we can explore variation in month of birth.

We explain the probability of being averse to voting, running probit models. The results are described in Table 10. Two set of variables were used to conduct the test. In Column 1, the variable of interest is a dummy indicating whether a person has never voted before. As expected, the coefficient is positive and statistically significant. Those that have never voted before are 35.8% more likely to prefer abstaining from voting. To circumvent the endogeneity problem, we instrument this variable with a dummy indicating whether the person was legally required to vote in the 2010 Election (Column 3). The coefficient is still negative and statistically significant suggesting a negative causal effect of voting on aversion to vote.

Next, we asked whether longer voting experience matters. The second set of explanatory variables consists of dummies indicating the number of elections in which respondents were required to vote by the 2010 Election. The results show that the aversion to vote decreases with a few compulsory voting experiences (one or two elections). Nonetheless, this effect vanishes with more voting experience.

Table 10: here

6 Conclusion

Most countries adopt a voluntary voting system. However, low turnout rates lead many to advocate a compulsory voting system. Many studies have previously documented the positive impact of the compulsory legislation on voting turnout. However,

the consequences of the requirement to vote on other political behavior are unknown. This paper aimed to shed some light on this issue by exploring Brazil's dual voting system. It uses a quasi-experimental design that exogenously assigns individuals to different voting systems.

We find large and significant effects of the legal requirement to vote on turnout, between 15 p.p and 22 p.p. These are much larger as those estimated in cross-country studies (Jackman, 1987, 1999). Secondly, under the obligation to vote individuals become more politically informed. After one compulsory election, (previous) non-voters almost converge in their quiz score and level of satisfaction with voting to (voluntary) voters. One important downside of the increase in turnout due to the implementation of mandatory voting is the individuals' annoyance caused by being forced to vote. In this paper, we have shown that the preferences towards voting are also affected by the act of voting turning individuals more positive towards voting. In general, this paper's results point to the important role of voting in increasing the level of individuals' political knowledge and engagement.

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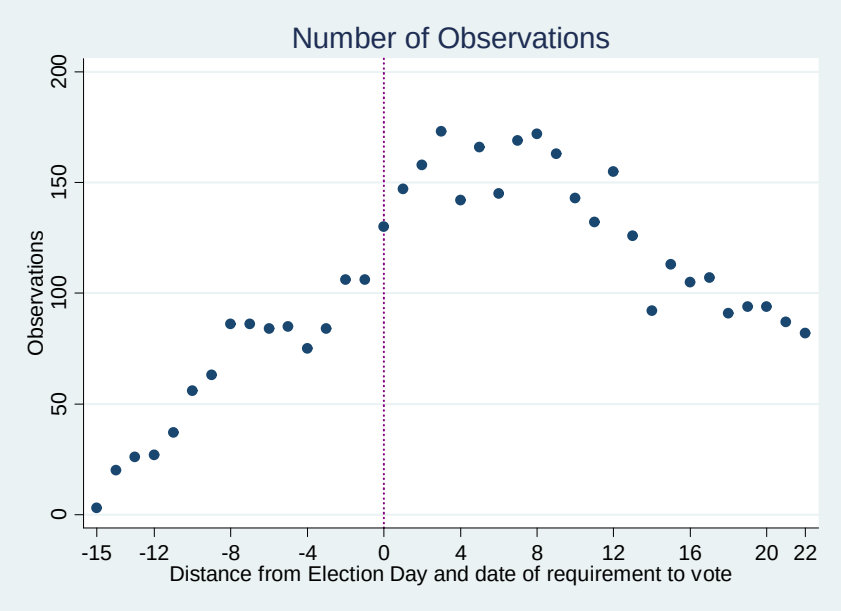
7 Appendix


Number of Observations
Observations
0
50
100
150
200
-15
-12
-8
-4
0
4
8
12
16
20
22
Distance from Election Day and date of requirement to vote

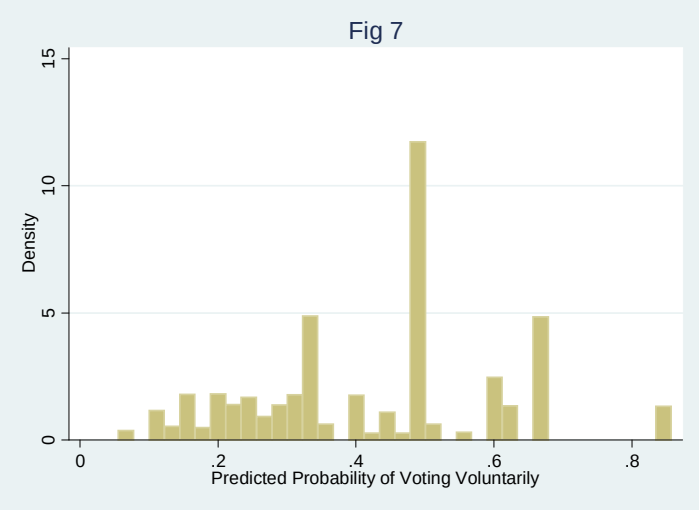


Fig 7
Density
0
5
10
15
0
.2
.4
.6
.8
Predicted Probability of Voting Voluntarily

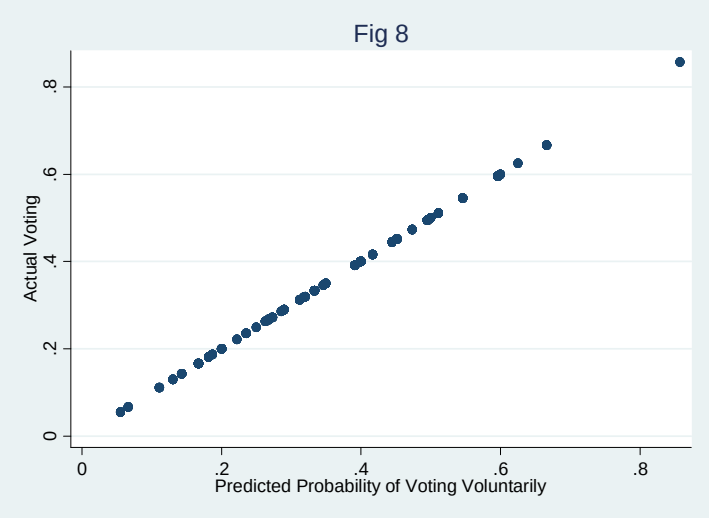


Fig 8
Actual Voting
0
.2
.4
.6
.8
0
.2
.4
.6
.8
Predicted Probability of Voting Voluntarily

Table 2 - Socio-Economic and Political Inclination Characteristics - in %

	Total	Public High Schools	Anglo	USP
Age				
16 or younger	4.04	10.23	3.34	2.05
17	18.18	73.98	11.19	2.46
18	35.27	14.18	42.56	25.64
19	21.54	1.17	24.41	26.26
20 or older	20.97	0.44	18.49	43.59
Female	57.09	60.08	57.83	49.04
White	76.33	58.19	79.54	78.14
Live with a parent	80.12	97.21	77.73	76.4
Mother education				
Fundamental or less	7.78	25.88	3.45	12.48
High School	24.59	50.63	19.33	25.6
College or more	67.62	23.49	77.21	61.92
Political Variables				
Registered to Vote	86.82	44.65	91.56	97.66
Political Orientation				
Left-wing	26.43	14.39	23.88	42.33
Neutral	48.65	75.11	47.39	36.55
Right-wing	24.92	10.49	28.73	21.12
Have a party preference	35.63	26.99	36.19	39.48
PT	5.61	6.04	3.81	11.26
PSDB	18.11	8.93	21.52	13.12
PV	6.22	9.89	5.56	5.94
Other	5.68	2.13	5.30	9.16
Vote during the 2010 Election				
Did not vote	19.41	54.53	15.96	8.13
Voted for Dilma Rousseff	8.52	6.97	6.52	16.17
Voted for Marina Silva	26.02	21.62	24.33	34.42
Voted for Jose Serra	34.09	10.46	42.47	21.68
Voted for another candidate	5.94	1.81	4.83	12.29
Invalid Vote	5.7	4.04	5.67	6.87
Responded seriously	93.7	87.46	94.38	95.52
Number of Observations	5559	728	3703	1128

Table 3 - Respondents' Characteristics by Voting System

	Voluntary	Compulsory
Perception of Having the Requirement to Vote	4.02	96.78
age		
16 or younger	10.78	2.28
17	79.96	1.14
18	7.06	48.72
19	1.05	27.36
20 or older	1.15	20.5
Voted (in %)	37.89	86.84
Registered to Vote (in %)	44.34	97.24
Voted among Registered Voters (in %)	85.41	89.21
Political Quiz Score (% correct answers)	50	60.6
	[20.57]	[19.61]
Political Inclination		
Left-wing	17.46	28.59
Neutral	64	45.03
Right Wing	18.54	26.38
Has a party affiliation	29.64	37.39
Female	60.98	56.41
White	69.66	78.4
Live with a parent	94.98	76.1
Mother education		
Fundamental or less	15.33	5.78
High School	36	21.56
College or more	48.67	72.66
Public High-School	55.54	2.64
Anglo	40.87	72.8
USP	3.6	24.52
Number of Observations	1084	4360

Note: Standard deviation are in brackets

Table 4 - Estimated Discontinuities in Socio-Economic Variables at S=0

White	-0.0269
	[0.0355]
Female	-0.0762
	[0.0518]
Mother Education	
Fundamental School or less	-0.027
	[0.0282]
High School graduate	0.0051
	[0.0441]
College graduate or more	0.0219
	[0.0386]
Mother has a political party preference	0.0439
	[0.0615]
Live with a parent	0.008
	[0.0355]
Attend Church	-0.0698
	[0.0504]
Plan to apply to College	0.0254
	[0.0404]
Responded seriously to the survey	-0.0051
	[0.0279]

Table 5 - Estimated Effect of Compulsory Voting Legislation on Voting

Dependent Variable: Perception of Requirement to Vote				
Younger than 18 by Election Day	0.6583	0.7193	0.7321	0.6814
	[0.0621]**	[0.0523]**	[0.0482]**	[0.0573]**
Constant (control mean)				
Observations	2007	2007	1073	635
Dependent Variable: Turnout among Voting Age Population				
Younger than 18 by Election Day	0.0824	0.1561	0.1567	0.1043
	[0.0689]	[0.0516]**	[0.0514]**	[0.066]
Constant (control mean)	0.4902	0.4335	0.4668	0.523
	[0.0661]**	[0.0567]**	[0.0641]**	[0.0764]**
Observations	2182	2182	1170	695
IV estimates				
Dependent Variable: Turnout among Voting Age Population				
Perception of Requirement to Vote	0.1337	0.2308	0.2242	0.1563
(instrument: Older than 18 by Election Day)	[0.1057]	[0.0686]**	[0.0669]**	[0.0990]
Constant (control mean)	0.4297	0.3593	0.4051	0.3655
	[0.0833]**	[0.0660]**	[0.0761]**	[0.1110]**
Observations	2005	2005	1073	635
Dependent Variable: Turnout among Registered Voters				
Younger than 18 by Election Day	0.0584	0.0774	0.0586	0.073
	[0.0478]	[0.0349]**	[0.0365]*	[0.0493]*
Constant (control mean)	0.7966	0.8018	0.7966	0.6933
	[0.0455]**	[0.0372]**	[0.0486]**	[0.0812]**
Observations	1741	1741	927	554
IV estimates				
Dependent Variable: Turnout among Registered Voters				
Perception of Requirement to Vote	0.1071	0.1262	0.0994	0.1192
(instrument: Older than 18 by Election Day)	[0.0656]**	[0.0463]**	[0.0467]**	[0.0560]**
	0.766	0.7668	0.7341	0.811
Constant (control mean)	[0.0661]**	[0.0491]**	[0.0636]**	[0.0701]**
	1570	1570	835	498
Observations				
Bandwidth (in months)	12	12	6	3
Polynomial Order	3	2	1	1
Control Variables	yes	yes	yes	yes

Notes: 1) Standard errors in brackets are clustered by classroom. 2) Entries represents two-stage least squares estimates at S=0, from models that include polynomials for S fully interacted with a dummy for age 18 or older. Control variables include indicators for gender, race/ethnicity, mother education, party preference and respondents' type of educational institution.

Table 6 - Estimated Effect of Compulsory Voting Legislation on Information Acquisition - High Probability to Vote

Dependent Variable: Political Quiz (% correct answers)					
Younger than 18 by Election Day	0.0349	0.0146	0.0197	0.0007	0.0068
	[0.0545]	[0.0536]	[0.0422]	[0.0468]	[0.0336]
Constant (control mean)	0.5619	0.5804	0.5785	0.5972	0.5993
	[0.0596]*	[0.0570]**	[0.0475]**	[0.0538]**	[0.0385]**
Observations	784	418	418	260	260
Dependent Variable: Always read the Politics section in the newspaper					
Younger than 18 by Election Day	0.0221	0.0467	0.0646	-0.0058	0.0742
	[0.1809]	[0.1561]	[0.1510]	[0.1375]	[0.1165]
Constant (control mean)	0.7284	0.7217	0.6838	0.7404	0.653
	[0.1587]**	[0.1494]**	[0.1326]**	[0.1318]**	[0.1078]**
Observations	555	302	302	192	192
Dependent Variable: Identify with the statement "I feel good in voting as I am acting upon my civic duty"					
Younger than 18 by Election Day	0.1164	-0.0483	0.1035	-0.2618	0.2237
	[0.8147]	[0.7189]	[0.6615]	[0.7192]	[0.4211]
Constant (control mean)	6.4415	6.662	6.594	6.718	6.53
	[0.5521]**	[0.4901]**	[0.5088]**	[0.5116]**	[0.3667]**
Observations	762	407	407	253	253
Dependent Variable: Voted					
Younger than 18 by Election Day	0.09498	0.1054	0.11	0.1197	0.1918
	[0.1078]	[0.1071]*	[0.0706]	[0.1039]	[0.0502]**
Constant (control mean)	0.8219	0.8288	0.758	0.7929	0.6811
	[0.09326]**	[0.0900}**	[0.640]	[0.0879]**	[0.0440]**
Observations	779	415	415	258	258
Bandwidth (in months)	12	12	6	3	3
Polynomial Order	3	2	1	1	0

Notes: 1) Standard errors in brackets are clustered by classroom. 2) Entries represents two-stage least squares estimates at S=0, from models that include quadratic polynomials for S fully interacted with a dummy for age 18 or older. 3) The sample includes individuals with high predicted probability of voting (voluntarily).

Table 7 - Estimated Effect of Compulsory Voting Legislation on Information Acquisition - Low Probability to Vote

Dependent Variable: Political Quiz (% correct answers)					
Younger than 18 by Election Day	0.0589	0.0418	0.0677	0.0518	0.0817
	[.0364]*	[0.0380]	[0.0302]**	[0.4042]	[0.0248]**
Constant (control mean)	0.5014	0.5161	0.4881	0.5094	0.4642
	[0.0262]**	[0.0329]**	[0.0250]**	[0.0274]**	[0.0232]**
Observations	757	408	408	241	241
Dependent Variable: Always read the Politics section in the newspaper					
Younger than 18 by Election Day	0.2265	0.2623	0.1369	0.1978	0.1302
	[0.1198]*	[0.1374]**	[0.0822]**	[0.1126]**	[0.0662]**
Constant (control mean)	0.4806	0.4015	0.4572	0.3968	0.4531
	[0.0916]**	[0.0969]**	[0.0762]**	[0.0883]**	[0.0643]**
Observations	491	258	258	148	148
Dependent Variable: Identify with the statement "I feel good in voting as I am acting upon my civic duty"					
Younger than 18 by Election Day	2.5954	2.462	1.733	2.431	0.8701
	[0.9956]**	[1.1373]**	[0.6852]**	[0.9953]**	[0.357]**
Constant (control mean)	4.073	4.405	4.714	4.4925	5.404
	[0.6652]**	[0.7374]**	[0.471]**	[0.6228]**	[0.309]**
Observations	702	375	375	223	223
Dependent Variable: Voted					
Younger than 18 by Election Day	0.4298	0.4137	0.4742	0.3992	0.5412
	[0.1145]**	[0.112]**	[0.9557]**	[0.1057]**	[0.0514]**
Constant (control mean)	0.4344	0.4693	0.3534	0.4837	0.2735
	[0.0966]**	[0.1034]**	[0.694]**	[0.0882]**	[0.0409]**
Observations	756	408	408	241	241
Bandwidth (in months)	12	12	6	3	3
Polynomial Order	3	2	1	1	0

Notes: 1) Standard errors in brackets are clustered by classroom. 2) Entries represents two-stage least squares estimates at S=0, from models that include polynomial controls for S fully interacted with a dummy for age 18 or older. 3) The sample includes individuals with high predicted probability of voting (voluntarily).

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Observations	756	408	408	241	241
Bandwidth (in months)	12	12	6	3	3
Polynomial Order	3	2	1	1	0

Notes: 1) Standard errors in brackets are clustered by classroom. 2) Entries represents two-stage least squares estimates at S=0, from models that include polynomial controls for S fully interacted with a dummy for age 18 or older. 3) The sample includes individuals with high predicted probability of voting (voluntarily).

Table 9 - Long Term Effects of Compulsory Voting on Political Behavior

	Dependent Variables					
	Political Quiz Score		Feel good in voting as I am acting upon my civic duty		Aversion to Vote	
Non-Voter (under a voluntary system)	-0.131	-0.136	-3.228	-2.988	6.301	5.269
	[0.0448]**	[0.0370]**	[0.794]**	[0.665]**	[0.8634]**	[0.401]**
Faced a Compulsory Voting System in 2010 Election	0.084	0.110	-2.570	-2.570	3.578	3.716
	[0.0707]	[0.0425]**	[0.520]**	[0.520]**	[0.418]**	[0.191]**
Faced a Compulsory System in 2010* Non-Voter (under a voluntary system)	0.0932	0.08239	2.312	2.312	-5.782	-4.815
	[0.0497]*	[0.0417]**	[0.757]**	[0.757]**	[0.881]**	[0.4313]**
Year of birth, Demographics and Family Characteristics	y	n	y	n	y	n
College Major and College Major Aspirations	y	y	y	y	y	y
R2	0.3199	0.2438	0.1386	0.0689	0.171	0.0839
Number of Observations	360	584	358	581	290	485

Note: Standard errors in brackets are clustered by classroom.

Table 10 - Effect of Voting on Aversion to Vote

			IV estimate	Marginal Effects	
	[1]	[2]	[3]	[4]	[5]
Never Voted Before	0.8791**	0.9778**	0.7310**		
Instrument: Older than 18	[0.0713]	[0.1050]	[0.2048]		
Number of Elections with Requirement to Vote					
Zero (omitted)					
One				-0.1008**	-0.0960**
				[0.0290]	[0.0313]
Two				-0.0850**	-0.0797**
				[0.0380]	[0.0386]
Three				-0.0604	-0.0584
				[0.0580]	[0.0568]
Four				-0.0205	-0.0218
				[0.0977]	[0.0958]
Five				-0.0841	-0.07862
				0.1130	[0.1077]
Six				-0.1460	-0.1407
				[0.1130]	[0.1127]
More than Six Elections				0.4030**	0.4109**
				[0.2017]	[0.1955]
Year of Birth				0.0225**	0.0211**
				[0.099]	[0.0093]
Demographics and Family Characteristics	no	yes	yes	yes	yes
College Major and College Major Aspirations	no	yes	yes	no	yes
R2	0.0435	0.0979		0.0298	0.0436
Number of Observations	4437	3287	3287	3187	3182

Notes: 1) The dependent variable is a dummy indicating whether the respondent prefers NOT to vote if he/she was not required to. 2) Standard errors in brackets are clustered by classroom. 3) Columns (I), (II),(IV) and (V) report estimates from a OLS regression. Column (III) report estimates from a two stage least square model.